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## **Equality Statement**

The contents of this Fire Safety Guide have been screened in accordance with the Housing Executive's Equality Scheme procedures and it has been concluded that there are no significant equality issues that require a full Equality Impact Assessment.

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## **HOUSES IN MULTIPLE OCCUPATION (HMOs) MEANS OF ESCAPE IN CASE OF FIRE AND OTHER FIRE PRECAUTIONS**

### **1.0 INTRODUCTION**

This technical standard details the Housing Executive's standards to be applied to HMO properties and are based on the principle that all occupants of a HMO should be able to leave the premises safely in the event of a fire. This is to be achieved by a combination of measures to prevent the spread of products of combustion to occupancies or escape routes before the occupants have made good their escape, and/or measures such as fire warning systems which can help to ensure that occupants receive warning of a fire in sufficient time to make their escape before routes become impassable.

In determining specific measures appropriate to a HMO, the Housing Executive will have regard to:

The adequacy of the means by which individual occupancies and the escape routes from them are protected from the spread of products of combustion. This will involve an assessment of the need for fire resisting construction to walls and floors, fire doors and sealing to prevent the spread of products of combustion.

The distances of travel involved in escaping from each room to a final exit from the HMO.

The nature of the means of escape and their suitability for the number and types of occupants. Regard should be had to the steepness of stairways and the width of doorways and corridors. Regard should be had to the need for escape lighting and adequate signposting of the means of escape.

The need for fire precautions such as fire warning systems, fire sensors, and fire fighting equipment.

### **1.1 BACKGROUND**

Research has shown that for some types of HMOs the risk of death from fire is considerably greater than comparable single occupancy properties but for others there is little or no additional risk. Consequently standards of fire precautions in HMOs should be proportionate to the perceived risk. These should take account of the building, the layout, the number and types of occupants and the condition of the property. Due to the potential risk associated with certain HMOs the Housing Executive have the power to require the provision of adequate means of escape from fire and adequate other fire precautions. Before exercising their power, or performing their duty, in respect of means of escape from fire in a

HMO, the Housing Executive shall consult the Fire Authority for Northern Ireland.

## **1.2 COVERAGE.**

The guidance in the technical standard describes appropriate standards for means of escape and other fire precautions in HMOs. The guidance reflects the type of individuals occupying HMOs, and instances where the suggested standard of provision varies according to the size of the property are distinguished in the text. The guidance does not cover purpose built flats or maisonettes. In addition, a building, which complies with current building regulations, will by definition have adequate means of escape for normal use.

## **1.3 WHAT IS THE PURPOSE OF THE GUIDE?**

The guide should assist the different professions involved in fire safety and encourage developers by simplifying advice and so facilitate schemes.

The guide **does not** provide the fire safety solution for any one property as every property is different.

The guide **does** describe in detail some of the works which will contribute to the fire safety or protection solution.

The guide **does** provide some indication of other matters which must be considered and which will again contribute to the fire safety or protection solution.

The guide **does** recognise the interplay between passive and active measures.

The guide **does not** remove responsibility from HMO (owners/managers for) complying with the current building control regulations where applicable.

## **1.4 GUIDE STRUCTURE**

Following the introduction, the guide firstly gives a summary of the fire precaution followed by an in depth description of the passive measures which contribute towards the means of escape in case of fire. These relate to the physical protection of the route of escape of each occupier from within their letting, normally through the common internal protected stairway and landings/hallways/corridors of the HMO to a place of safety. Followed by active measures, which relate to the provision of fire warning systems, emergency lighting, and fire fighting equipment are described.

## **1.5 LIMITATIONS**

Whilst some guidance is given on multi-stairway buildings this guide is primarily applicable to HMOs served by a single stairway and where the highest floor is not more than 11m above external ground level.

This guide must not be applied to residential care homes and nursing homes – in these cases alternative guidance will be more appropriate. (i.e. Northern Ireland Fire code, Health Technical Memorandum 84. Fire Safety in Residential Care Premises)

## **1.6 DOCUMENT CONTROL**

Control of this document rests with the Housing Executive's Private Sector Unit, Design and Property Services

## **1.7 THE NEED FOR GOOD MANAGEMENT TO ENSURE FIRE SAFETY IN HMOs.**

Adequate means of escape and other fire precautions are only sufficient if there are also adequate arrangements to ensure that the HMO is managed in such a way that the standard of fire safety is maintained. Means of escape, for instance, should be kept clear and fire precautions such as alarm systems and extinguishers need regular maintenance.

Regulation 10 of the Housing (Management of Houses in Multiple Occupation) Regulations (Northern Ireland) 1993 imposes a duty on the manager of a HMO to maintain all means of escape free from obstruction. The regulations also require the manager to cause signs indicating means of escape to be displayed.

In order to ensure compliance with the management standard the Housing Executive has initiated a robust programme of inspections in conjunction with HMO Licensing, (initially voluntary followed by a mandatory scheme when the Legislative time table permits).

## **1.8 GENERAL GUIDANCE.**

Overall, it is emphasised that the Housing Executive's power is to require adequate means of escape from fire and adequate other fire precautions. So while the Housing Executive will not shrink from specifying all the works, which it believes to be necessary, it will avoid specifying works, which go beyond what is adequate. The interrelationship between means of escape and other fire precautions should always be borne in mind. The Housing Executive following consultation with the Fire Authority and building control as necessary may exercise a degree of flexibility. Nevertheless, although the presence of effective means of giving early warning in the event of a fire may greatly influence the

ability of occupants to escape safely, the basic provision of means of escape in case of fire will always be necessary.

## **1.9 RELATIONSHIP WITH OTHER REGULATIONS**

This document shall not be used as a trade off document against current building regulations and in all cases where a regulatory authority specifies a higher standard that standard must be achieved.

## **1.10 THE FIRE PRECAUTIONS (WORKPLACE) REGULATIONS (NORTHERN IRELAND) 2001**

**The Workplace Regulations apply to an employer who employs one or more workers in a workplace for which he or she has responsibility.**

As the employer, the regulations require you to:

- Carry out a fire risk assessment of the workplace. All employees and other people who may be affected by a fire in the workplace, including those with special needs, who use or may be present at the premises must be considered in the assessment.
- If five or more people are employed, the significant findings of the risk assessment must be recorded.
- Provide and maintain adequate fire precautions and safeguard those who use your workplace.
- Provide information, instruction and training to your employees about the fire precautions in your workplace.

There are six further legal duties:

- To safeguard the safety of your employees, you must nominate people (or yourself), to undertake any special roles identified under your emergency plan.
- You must consult your employees (or their representative bodies), about the nomination of people to carry out particular fire safety roles and about proposals for improving fire precautions.
- You must inform other employers who also have workplaces in the building of any significant risks identified which might affect the safety of their employees. You must also co-operate with them about the measures proposed to reduce or control those risks.
- If you are not an employer but have control of premises which contain more than one workplace, you are also responsible for ensuring that the requirements of the fire regulations are complied within those parts you have control over.

- You must establish a suitable means of contacting the emergency services and ensure that they can be called easily.
- Your employees are required to co-operate with you to ensure the workplace is safe from fire and not to do anything which will place themselves or other people at risk.

Fire Brigade personnel will enforce the provisions of the Regulations, and will offer advice to assist you to achieve compliance. They WILL NOT carry out the risk assessment, or suggest remedial action for you.

For further information it is recommended that you obtain a copy of “Fire Safety – An Employers Guide” from The Stationary Office or at [www.offical-documents.co.uk/document/fire/index.htm](http://www.offical-documents.co.uk/document/fire/index.htm)

## **2.0 DEFINITION OF HOUSES IN MULTIPLE OCCUPATION.**

**2.1** The Housing (Northern Ireland) Order 1992 defines a HMO as a “house which is occupied by persons who do not form a single household”. The definition is qualified to include flats in multiple occupation which are provided by conversion of another building.

**2.1.1** Within the draft Northern Ireland Housing Bill a HMO is defined as a “house occupied by more than 2 qualifying persons, being persons who are not all members either of the same family or one or other of 2 families”. The Housing Bill is likely to become legislation in 2003.

**2.1.2** For the purpose of this document the term house in multiple occupation includes the following categories of HMO.

## **2.2 CATEGORIES OF HMOs**

### **2.2.1 CATEGORY A (Bedsits)**

Bedsits are units of accommodation, where there is some exclusive occupation (usually bedroom/living room) and some sharing of amenities (bathroom and/or toilet or kitchen). Each occupant lives otherwise independently of others.

### **2.2.2 CATEGORY B (Shared Houses)**

Houses occupied on a shared basis where each individual or household will normally have their own bedroom or bed/living room, although in some circumstances this may be shared. There will be general sharing of the bathroom, W.C. and kitchen.

### **2.2.3 CATEGORY C (Lodgings)**

Houses let in lodgings, i.e. a resident owner/occupier, catering for lodgers on a small scale but not living as part of the main household. Typified by a family or household who might take in a small number of individuals living away from their primary place of residence.

### **2.2.4 CATEGORY D (Hostels; Bed and Breakfast; Guest Houses; Hotels)**

Accommodation for people with no other permanent place of residence, as distinct from an establishment which only provides accommodation for visitors to the area for a short time e.g. tourists. This category would include establishments used to house homeless families or persons who would otherwise be homeless. This also applies if there was a mix of homeless households, with that establishment as their only place of residence, and short term visitors. Some of these premises may fall under the Fire Services (Northern Ireland) Order 1984.



### **2.2.5 CATEGORY E (Residential Homes)**

Residential homes provide board and personal care for persons in need of such accommodation and care by reason of old age, disablement, past or present dependence on alcohol or drugs, or past or present mental disorder.

These houses would provide permanent accommodation, and would include a level of support not normally present within Category D accommodation, which only provides a home for the time being.

Residential homes which are registered under the Registered Homes (N.I.) Order 1992 or any re-enactment or statutory modification must satisfy the requirements of the relevant Health and Social Services Board. The Executive therefore do not take any enforcement against such premises.

### **2.2.6 CATEGORY F (Flats/Flatlets/Maisonettes)**

Houses or building which by conversion contain dwellings, which are flats, flatlets or maisonettes. Each dwelling would contain all the standards amenities, although not necessarily behind one door. There would be no sharing of amenities or habitable rooms with the occupants of other units of accommodation.

### 3.0 MEANS OF ESCAPE

It is primarily intended that this guidance will be applied to existing HMO's but the standards may also be applied to a property to be converted to an HMO. Adequate means of escape must include the appropriate levels of fire resistance and alarm/fire detection.

The emphasis is on ensuring that a satisfactory protected route for escape purposes is provided and that adequate early warning to the occupants is given in the event of the outbreak of a fire.

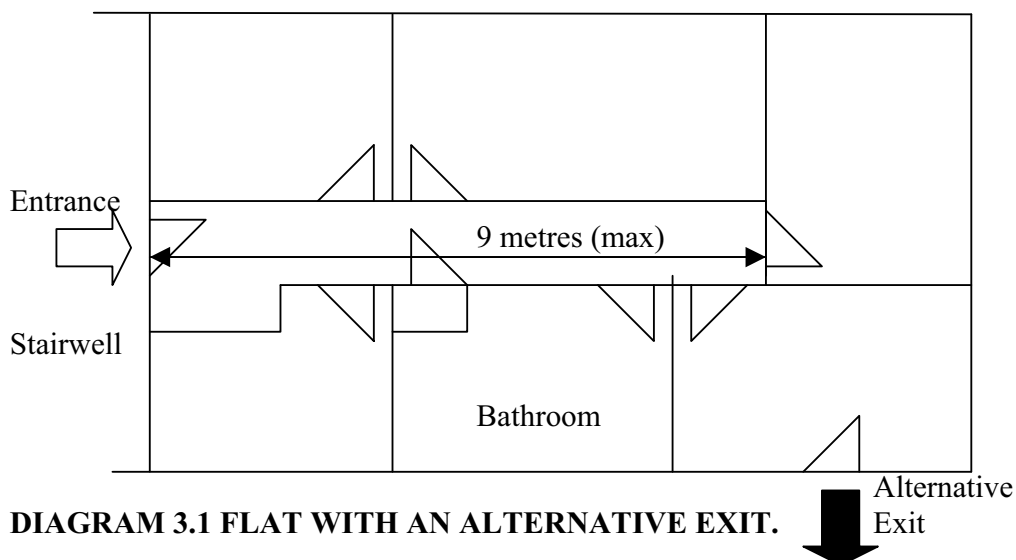
### 3.1 FLATS OR MAISONNETTES (CATEGORY F)

#### 3.1.1 FLATS SITUATED NOT MORE THAN 4.5M ABOVE GROUND OR ACCESS LEVEL

No flat should be so planned that any habitable room is an inner room unless that room is provided with a door or window complying with paragraph 3.6 for escape and rescue purposes.

#### 3.1.2 RECOMMENDATION FOR FLAT OR MAISONNETTES SITUATED MORE THAN 4.5M ABOVE GROUND OR ACCESS LEVEL.

- A: A HMO which is a flat or maisonette with a storey height of more than 4.5m (typically more than 2 storeys) should be planned so that either:
- each flat or maisonette has a secondary exit from within the unit of accommodation. or

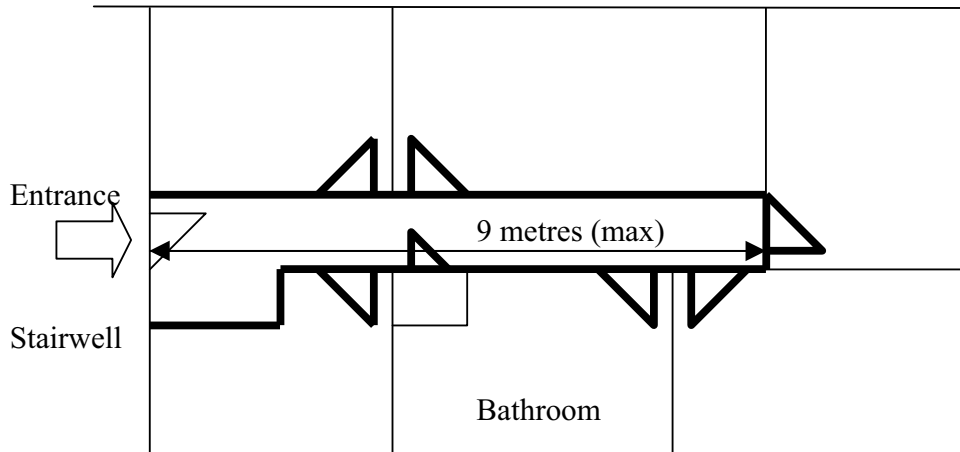


**DIAGRAM 3.1 FLAT WITH AN ALTERNATIVE EXIT.**

- Note.1** The alternative exit door may need to be a fire door  
**Note.2** Compartment walls need to be fire-resisting.

*Diagram derived from BS 5588 Part 1, page 13*

- ii. all bedrooms and living room must be entered through a protected lobby/circulation area enclosed in 30 minute fire resisting construction (integrity and insulation) and any door should be an FD30S. Furthermore the maximum permissible distance of travel from any door of any living room or bedroom to the exit is not more than 9m (diagram 3.2); or



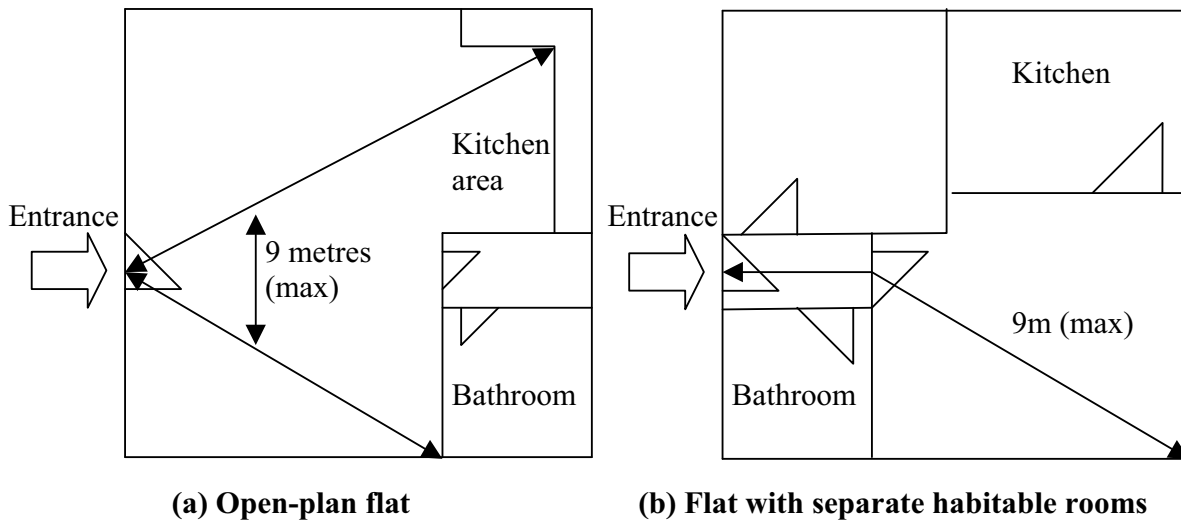
*Diagram derived from BS 5588 Part 1, page 14*

**DIAGRAM 3.2 FLAT WITH A PROTECTED ENTRANCE LOBBY AND RESTRICTED TRAVEL DISTANCE**

**Key :** **—————** 30 minutes fire-resisting construction

- Note.1** If the partition between the bathroom and the adjacent rooms have a 30 minutes fire resistance then the partition between the bathroom and the hall need not be fire-resisting and the bathroom door need not be a fire door.
- Note.2** The cupboard door need not be self-closing.
- Note.3** Compartment walls need to be fire-resisting.
- Note.4** The entrance door will need to be fire resisting.

- iii. the distance to be travelled from the flat entrance door to any point in any habitable room is not more than 9m and the direction of travel is away from cooking facilities (diagram 3.3); or

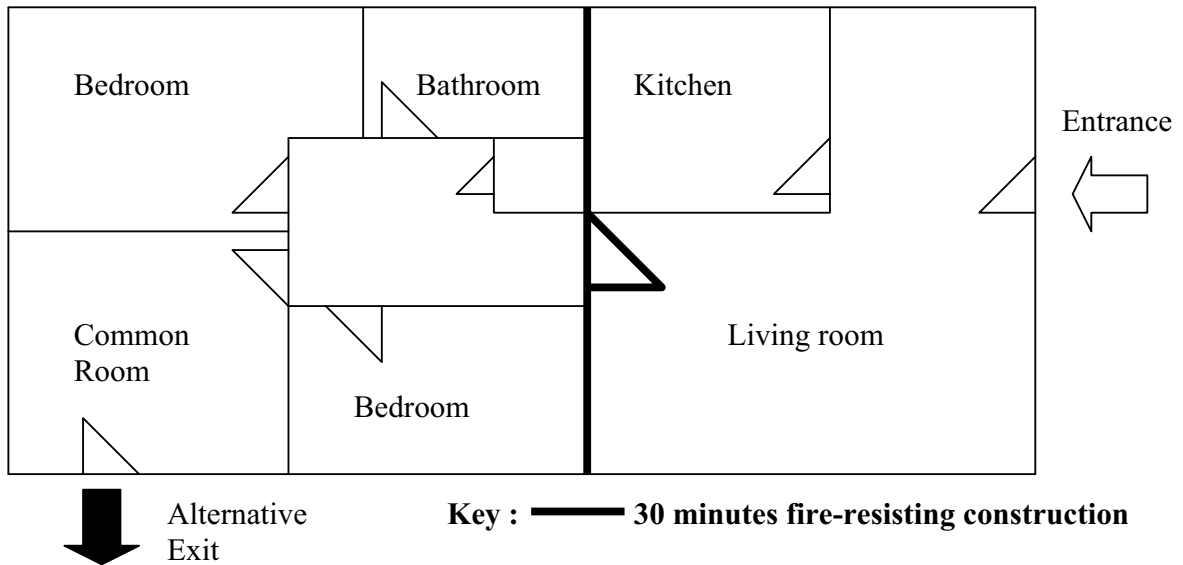


**DIAGRAM 3.3          FLAT WITH RESTRICTED TRAVEL DISTANCE**  
*Diagram derived from BS 5588 Part 1, page 14*

- Note.1**          Compartment walls need to be fire-resisting.  
**Note.2**          The entrance door will need to be fire resisting.

- iv. sleeping accommodation, and that part of the circulation area which serves the sleeping accommodation and the exit to the flat, is separated from any other living room or kitchen by a construction providing at least 30 minutes fire resistance (integrity and insulation); and
  - A. any door in this construction is a fire door with 30 minutes fire resistance (integrity), and
  - B. if that HMO has a storey at a height of more than 11m and the distance to be travelled within the flat from any point to the exit is more than 15m, there is an exit through a door other than its main entrance from the living accommodation.

**DIAGRAM 3.4 FLAT WHERE ALL HABITABLE ROOMS DO NOT HAVE DIRECT ACCESS TO AN ENTRANCE HALL**



*Diagram derived from BS 5588 Part 1, page 15*

- Note.1** Compartment walls need to be fire-resisting.  
**Note.2** The entrance door will need to be fire resisting.  
**Note.3** The alternative exit door may need to be a fire door  
**Note.4** The fire-resisting partition should separate living and sleeping accommodation.  
**Note.5** The Alternative Exit **must** be through a common room with a non-lockable room door.

- B: Where a HMO is within a building and only has a single escape route which relies upon a common stair, then there should be a lobby enclosed by walls having 30 minutes fire resistance (integrity and insulation) within the HMO which protects access to that escape route, if:
- i. there are more than 10 residents, or
  - ii. there are more than 6 residents and any storey in the building is over 7.5m, or there are less residents and:
    - A. any storey in the building is over 11m; or
    - B. there are more than four dwellings or HMOs on any storey.

Doors in the wall should be fire doors and have 30 minutes fire resistance (integrity).

- C: A wall with an adequate degree of fire resistance should be provided between the HMO and any other part of the same building. An adequate degree of fire safety is, 30 minutes (integrity and insulation)
- D: A floor between flat/maisonettes should be 60 minutes fire resisting.
- E: Where the escape route from the front door of the HMO is within the building it should lead by way of circulation space or stairway directly to the outside.
- F: Any part of an escape route from the front door of the HMO which is within the building should be provided with artificial lighting.
- G: if the HMO is a maisonette which has more than two storeys and one of them is at a height of more than 4.5m additional safety measures should be taken as set out in section 3.1.3 below.

**3.1.3 ADDITIONAL MEANS OF ESCAPE REQUIRED FROM MAISONETTES WITH TWO OR MORE STOREYS, OF WHICH ONE IS AT A HEIGHT OF MORE THAN 4.5M, ARE GIVEN BELOW.**

1. If there is accommodation on more than one level it should be planned so that –
  - i. all living rooms or bedrooms are entered directly from a circulation space enclosed in fire resisting construction having 30 minutes fire resistance (integrity and insulation) and any door in the enclosures should be a fire door with 30 minutes fire resistance (integrity);  
and
  - ii. where any storey is at a height of more than 11m there is –
    - A. an exit through a door other its main entrance from each storey other than the entrance storey, or
    - B. an exit through a door other than its main entrance from each bedroom.
2. If there is accommodation on only one level, but the HMO is entered from a storey below the level of the accommodation it should be planned so that –
  - i. an exit through a door other than its main entrance is provided; or
  - ii. all living rooms or bedrooms are entered directly from a circulation space enclosed in fire resisting construction having 30 minutes fire resistance (integrity and insulation) and any door in the enclosures should be a fire door with 30 minutes fire resistance (integrity) and

- the distance to be travelled from any door of a living room or bedroom to the head of the internal stair is not more than 9m; or
- iii. the distance to be travelled from any point within the HMO to the head of the internal stair is not more than 9m, and the direction of travel is away from cooking facilities.
3. If there is accommodation on only one level, but the HMO is entered from a storey above the level of the accommodation it should be planned so that an exit through a door other than its main entrance is provided from the lower storey.

## **3.2 MEANS OF ESCAPE FROM HMOs WHICH ARE NOT FLATS, MAISONNETTES OR HOSTELS**

### **3.2.1A SINGLE STOREY (CATEGORY B or C) HMO**

A single house does not include a house with a basement

All rooms should have close fitting internal doors and all habitable rooms shall open directly onto a hallway (including a corridor or landing leading to the hallway) which leads to the entrance without passing through any room (except a porch), other than where the habitable room –

- a) has an alternative escape route;
- b) the habitable room has an openable window complying with paragraph 3.7

**Automatic Fire Detection should be installed in accordance with BS5839: Part 6: 1995, Grade D LD3 System.**

### **3.2.1B SINGLE STOREY (CATEGORY A) HMO**

As per 3.2.1A except the Automatic Fire Detection should be installed in accordance with BS5839: Part 1: 1988, Type L2.

### **3.2.2A TWO STOREY CATEGORY B or C HMO [Occupied by less than six non-vulnerable persons].**

A two-storey house does not include a house with two storeys and a basement, or a house where the upper storey floor level is more than 4.5m above ground level. Each storey shall have an openable window (or door) through which emergency egress to a safe place outside the house would be possible.

All rooms should have close fitting internal doors and all habitable rooms shall open directly onto a hallway (including a corridor or landing leading to the hallway) which leads to the entrance without passing through any room (except a porch), other than where the habitable room –

- a) has an alternative escape route;
- b) is on a storey not more than 4.5m above ground level and the habitable room has an openable window complying with paragraph 3.6.

**Automatic Fire Detection should be installed in accordance with BS5839: Part 6: 1995, Grade D LD3 System.**



### **3.2.2B TWO STOREY CATEGORY B or C HMO [Occupied by six or more non-vulnerable persons].**

A two-storey house does not include a house with two storeys and a basement, or a house where the upper storey floor level is more than 4.5m above ground level. Each storey shall have an openable window (or door) through which emergency egress to a safe place outside the house would be possible.

Every stair enclosure within the property should be enclosed in fire resisting construction having 30 minutes fire resistance (integrity and insulation) and any door in the stair enclosure should be a fire door with 30 minutes fire resistance (integrity). Excluding bathrooms, W/C or shower compartments provided that such compartments have no fire risk and fire or fire products cannot spread from an adjacent compartment via the bathroom, W/C or shower compartment to the escape route

***The fire-resisting stair shall either: -***

- a) Extend to a final exit as shown in **diagram 3.7(a)**; or
- b) Lead to at least two escape routes at ground level, each delivering to a final exit and separated from each other by fire resisting construction and self-closing fire doors as shown in **diagram 3.7(b)**.

All final exits to be fitted with an easy-opening device.

Any glazing in the stair enclosure, other than to a bathroom or sanitary accommodation, shall be fire resisting.

Bathrooms or sanitary accommodation shall be fitted with an imperforate door.

**Automatic Fire Detection should be installed in accordance with section 4.0**

### **3.2.2C TWO STOREY CATEGORY B or C HMO [Occupied by vulnerable persons].**

Every stair enclosure within the property should be enclosed in fire resisting construction having 30 minutes fire resistance (integrity and insulation) and any door in the stair enclosure should be a fire door with 30 minutes fire resistance (integrity). Excluding bathrooms, W/C or shower compartments provided that such compartments have no fire risk and fire or fire products cannot spread from an adjacent compartment via the bathroom, W/C or shower compartment to the escape route. **(diagram 3.6)**.

***The fire-resisting stair shall either: -***

- c) Extend to a final exit as shown in **diagram 3.7(a)**; or
- d) Lead to at least two escape routes at ground level, each delivering to a final exit and separated from each other by fire resisting construction and self-closing fire doors as shown in **diagram 3.7(b)**.

All final exits to be fitted with an easy-opening device.  
Any glazing in the stair enclosure, other than to a bathroom or sanitary accommodation, shall be fire-resisting.  
Bathrooms or sanitary accommodation shall be fitted with an imperforate door.

**An L2 fire warning system in accordance with BS 5839: Part 1: 1988**

### **3.2.2D TWO STOREY (CATEGORY A) HMO**

As per 3.2.2B except the Automatic Fire Detection should be installed in accordance with BS5839: Part 1: 1988, Type L2.

### **3.2.3 THREE STOREY CATEGORY A, B or C HMO (NO STOREY OVER 7.5M)**

A three-storey house does not include a house with three storeys and a basement, or a house where the upper storey floor level is more than 7.5m above ground level.

Every stair enclosure within the property should be enclosed in fire resisting construction having 30 minutes fire resistance (integrity and insulation) and any door in the stair enclosure should be a fire door with 30 minutes fire resistance (integrity). Excluding bathrooms, W/C or shower compartments provided that such compartments have no fire risk and fire or fire products cannot spread from an adjacent compartment via the bathroom, W/C or shower compartment to the escape route. **(diagram 3.6).**

**Except**

A stair in an HMO with a storey at a height exceeding 4.5m by one storey which does not contain a living room, bedroom or kitchen.

***The fire-resisting stair shall either: -***

- e) Extend to a final exit as shown in **diagram 3.7(a)**; or
- f) Lead to at least two escape routes at ground level, each delivering to a final exit and separated from each other by fire resisting construction and self-closing fire doors as shown in **diagram 3.7(b)**.

All final exits to be fitted with an easy-opening device.  
Any glazing in the stair enclosure, other than to a bathroom or sanitary accommodation, shall be fire-resisting.  
Bathrooms or sanitary accommodation shall be fitted with an imperforate door.

**An L2 fire warning system in accordance with BS 5839: Part 1: 1988**

### 3.2.4 FOUR STOREY CATEGORY A, B or C HMO (NO STOREY OVER 11M)

A four-storey house does not include a house with four storeys and a basement, or a house where the upper storey floor level is more than 11m above ground level.

Every stair enclosure within the property should be enclosed in fire resisting construction having 30 minutes fire resistance (integrity and insulation) and any door in the stair enclosure should be a fire door with 30 minutes fire resistance (integrity). Excluding bathrooms, W/C or shower compartments provided that such compartments have no fire risk and fire or fire products cannot spread from an adjacent compartment via the bathroom, W/C or shower compartment to the escape route.

***The fire-resisting stair shall either: -***

- a) Extend to a final exit as shown in **diagram 3.7(a)**; or
- b) Lead to at least two escape routes at ground level, each delivering to a final exit and separated from each other by fire resisting construction and self-closing fire doors as shown in **diagram 3.7(b)**.

Each storey that is over 7.5m above ground level shall have an alternative escape route leading to its own final exit. Where access to an alternative escape route is through the protected stairway, the protected stairway shall be subdivided by 30 minutes fire resisting construction at or about 7.5m above ground level as shown in **diagram 3.5**. The floor at or about 7.5m above ground level should be constructed to 30 minutes nominal fire resistance.

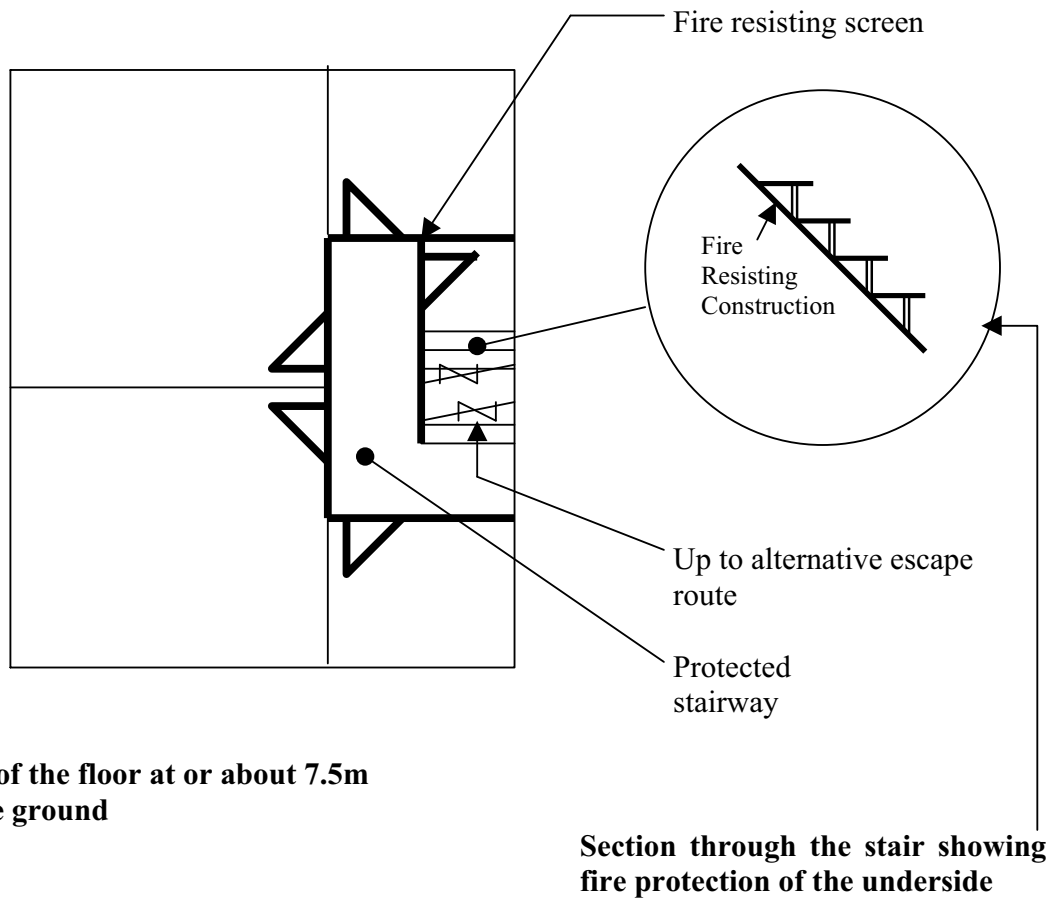
All final exits to be fitted with an easy-opening device.

Any glazing in the stair enclosure, other than to a bathroom or sanitary accommodation, shall be fire resisting.

Bathrooms or sanitary accommodation shall be fitted with an imperforate door.

**An L2 fire warning system is installed in accordance with BS 5839: Part 1: 1988**

**DIAGRAM 3.5 FIRE SEPARATION IN HOUSES EXCEEDING 4.5M IN HEIGHT BY MORE THAN ONE FLOOR LEVEL**



**Plan of the floor at or about 7.5m above ground**

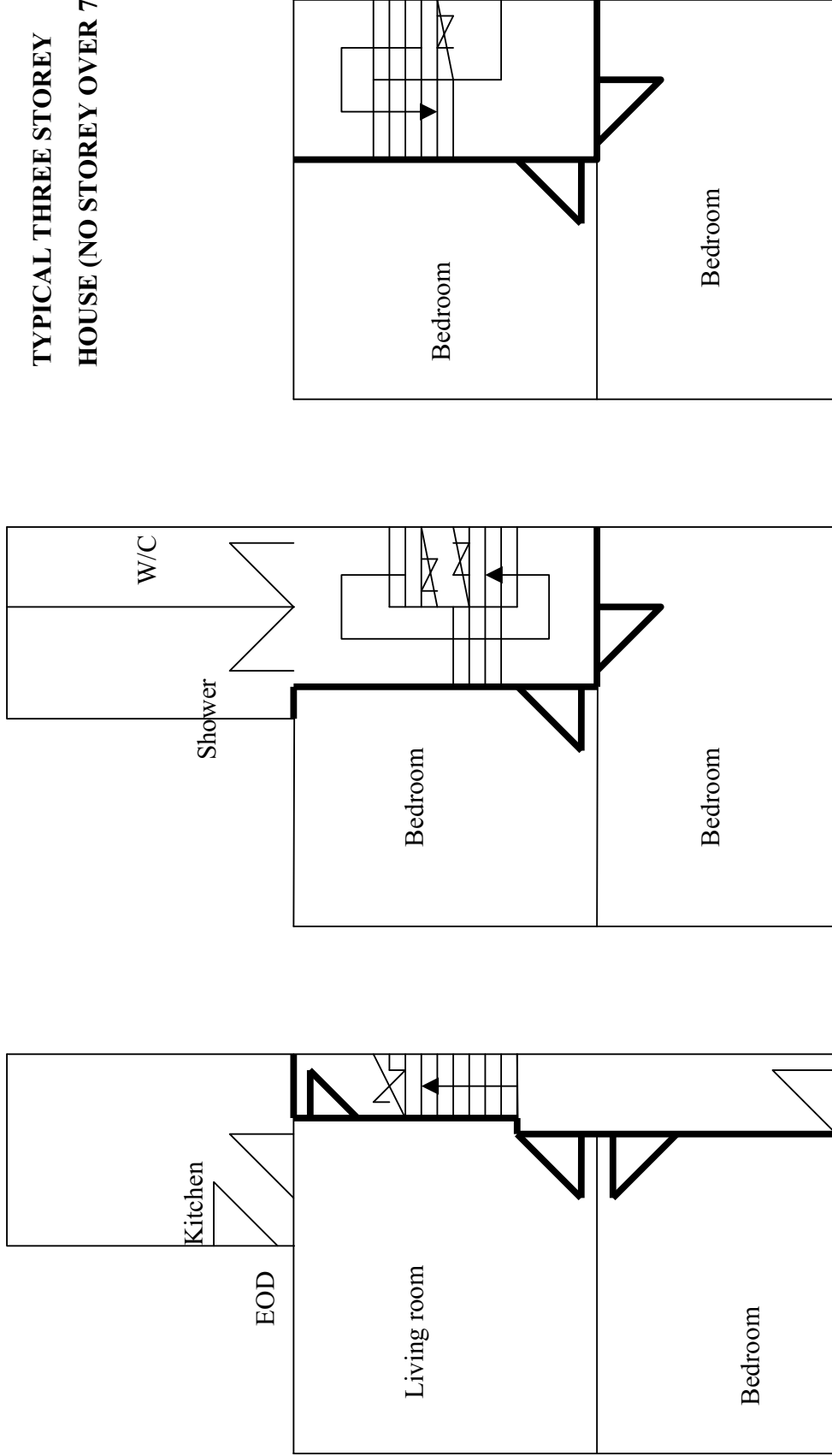
**Section through the stair showing fire protection of the underside**

*Diagram derived from BS 5588 Part 1, page 8*

**Key :**  **30 minutes fire-resisting construction**

- Note.1** The stair should be considered to be a floor for the purposes of protection.
- Note.2** If the alternative escape route(s) for all rooms situated 7.5m or more above ground or access level do not pass through the protected stairway, the fire resisting screen is not necessary.

**DIAGRAM 3.6**  
**TYPICAL THREE STOREY**  
**HOUSE (NO STOREY OVER 7.5m)**

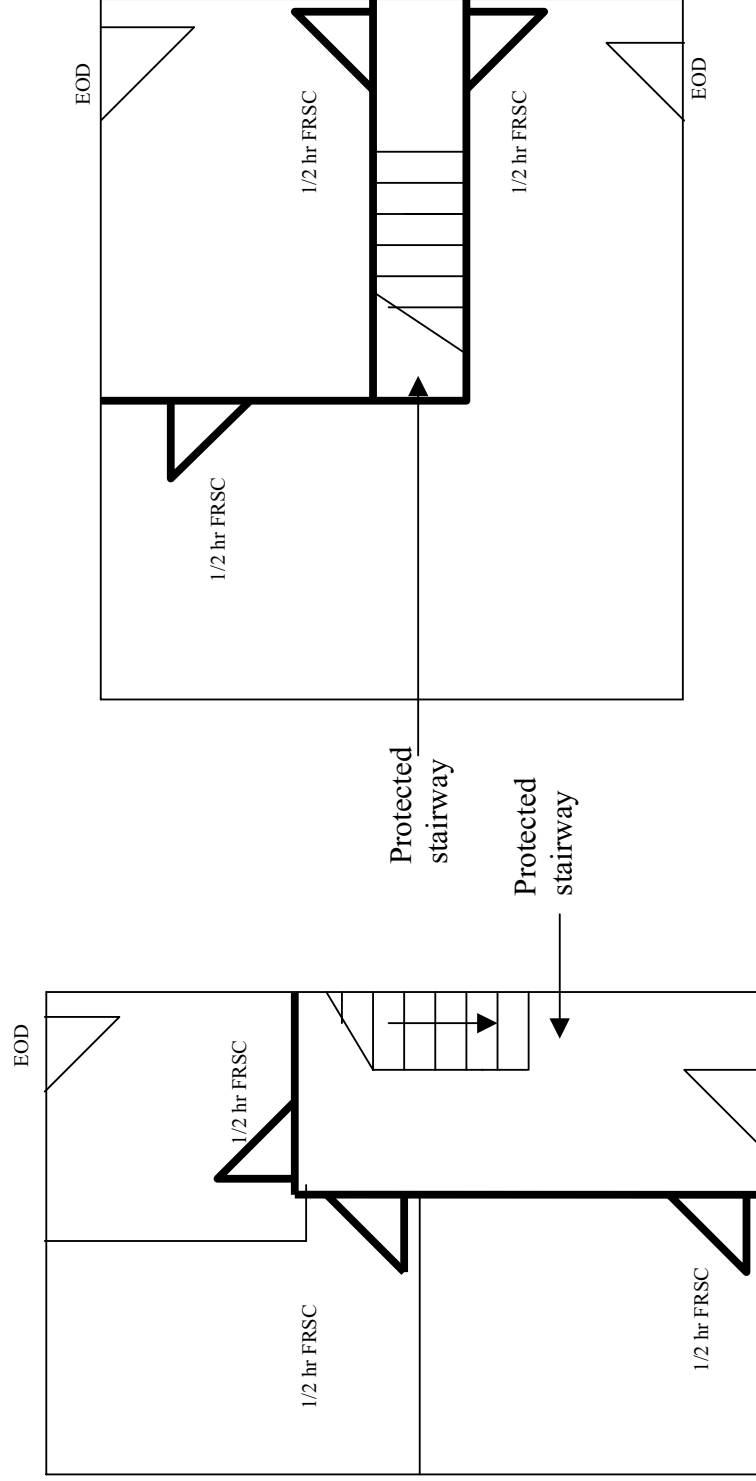


EOD

Key: — 30 minutes fire-resisting construction

### DIAGRAM 3.7 ALTERNATIVE ARRANGEMENTS FOR FINAL EXITS

Diagram derived from BS 5588 Part 1, page 8



(a) Protected stairway delivering directly to the final

(b) Protected stairway affording access to two independent escape routes.

**Key : ——— 30 minutes fire-resisting construction**

### 3.3 TRAVEL DISTANCES APPLICABLE TO ALL HMO CATEGORIES

The guidance below for hostel type accommodation is based on the assumption that the residents will be capable of leaving the building unaided in the event of fire, and that any assistance or supervision that might be immediately on hand in the form of trained staff will be minimal particularly at night. Regard will therefore need to be had to the adequacy of the sign-posting of exit-routes and exit doors and the *escape lighting* arrangements associated with these routes. This guidance is also appropriate for student halls of residence and nurses' homes.

#### 3.3.1 MAXIMUM DISTANCE OF TRAVEL

The maximum *distance of travel* from within a bedroom to a room exit or in all other instances from within a room to a point of access into a protected route, to an external route, or to a *final exit* should be in accordance with tables 3.1 and 3.2

**Table 3.1 – Escape in more than one direction**

CATEGORY FROM ANY POINT WITHIN		DISTANCE OF TRAVEL	
		(a) Within room	(b) Total distance
3.8A	Sleeping area	18m	35m
3.8B	<i>Area of higher fire risk</i>	12m	25m (note 1)
3.8C	All other situations	18m	35m

For examples see diagram 3.8

**Table 3.2 – Escape in one direction only.**

CATEGORY FROM ANY POINT WITHIN		DISTANCE OF TRAVEL	
		(a) Within room	(b) Total distance
3.9A	Sleeping area	9m	18m
3.9B	<i>Area of higher fire risk</i>	6m	12m (note 3)
3.9C	All other situations	9m	18m

For examples see diagram 3.9

#### Notes

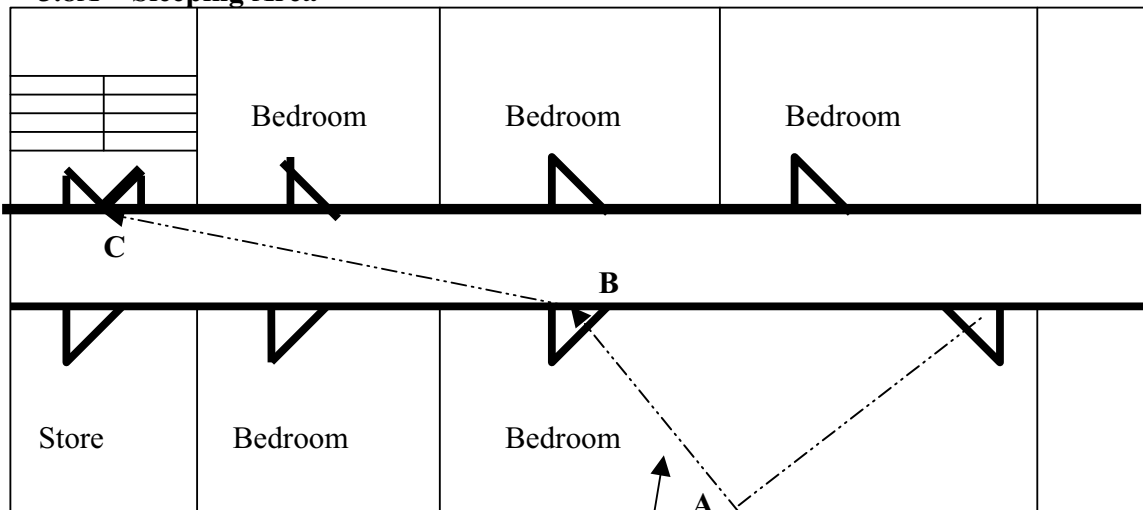
1. Alternatively up to 35m when the total distance of travel is not wholly within the *area of higher fire risk*.
2. Alternatively up to 35m where one of the exits from the room is a *final exit* and not less than three exits with widths complying with section 3.3.4 (width of exits), are provided.
3. Alternatively up to 18m when the total distance of travel is not wholly within the *area of higher risk*.



DIAGRAM 3.8

**ESCAPE IN MORE THAN ONE DIRECTION.**

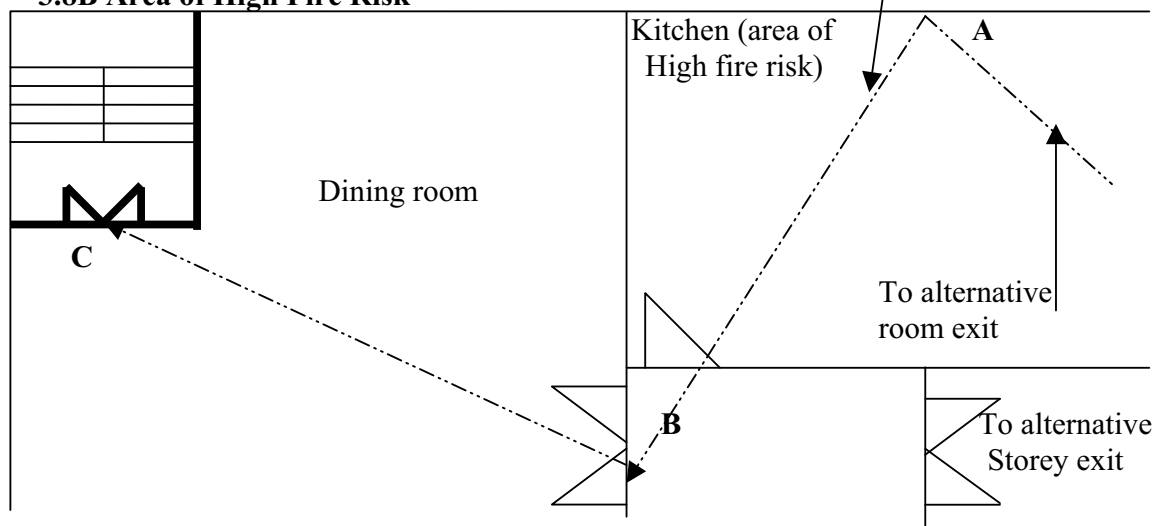
**3.8A Sleeping Area**



Distance of travel A – B – C not exceeding 35m total distance to protected route.

Distance of travel A – B not exceeding 18m

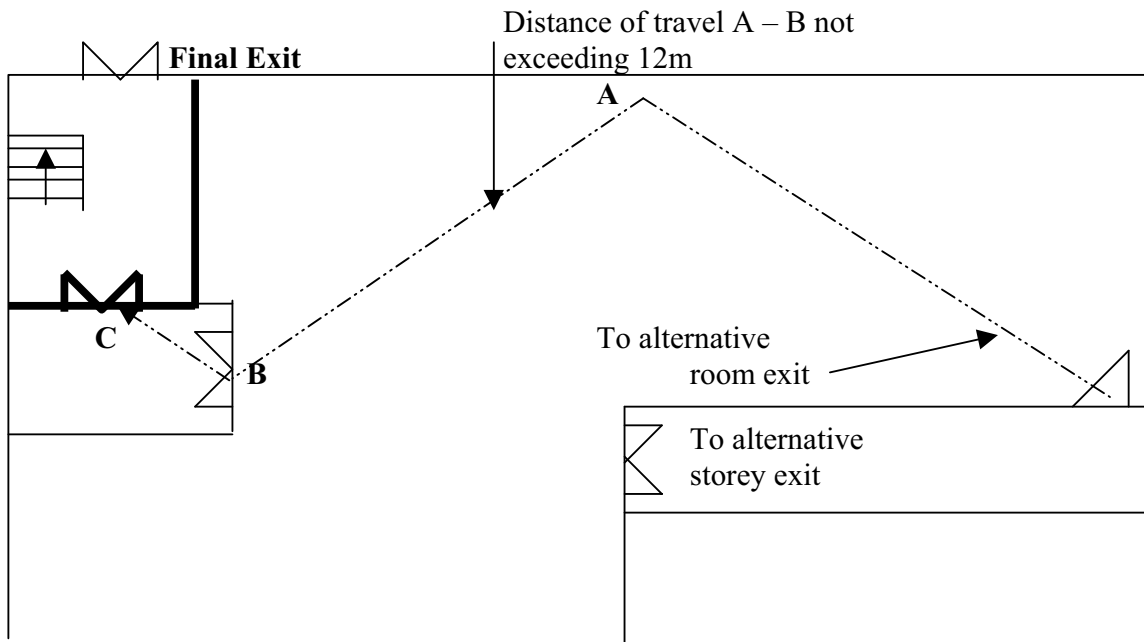
**3.8B Area of High Fire Risk**



Distance of travel A – B not exceeding 12m

Distance of travel A – B – C not exceeding 35m total distance to protected route. (see section 3.3.1, table 3.1, note 1)

### 3.8C All Other Situations



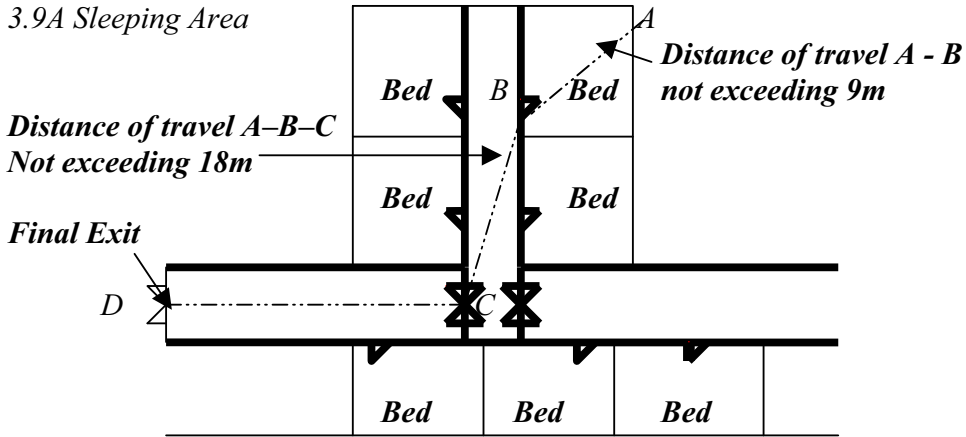
Distance of travel A – B – C not exceeding 35m total distance to protected route.

Key **—** *Fire resisting construction*

*Diagrams derived from DOE Circular 12/92 page 28*

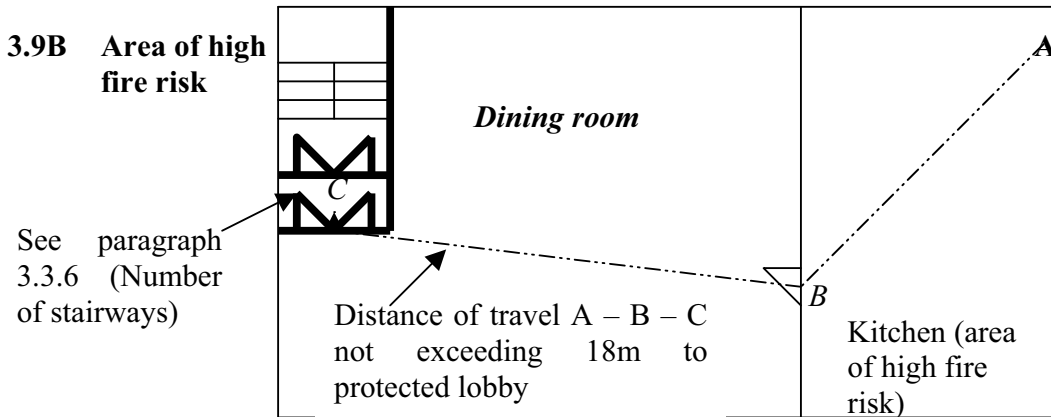
**DIAGRAM 3.9  
ESCAPE IN ONE DIRECTION ONLY**

**3.9A Sleeping Area**

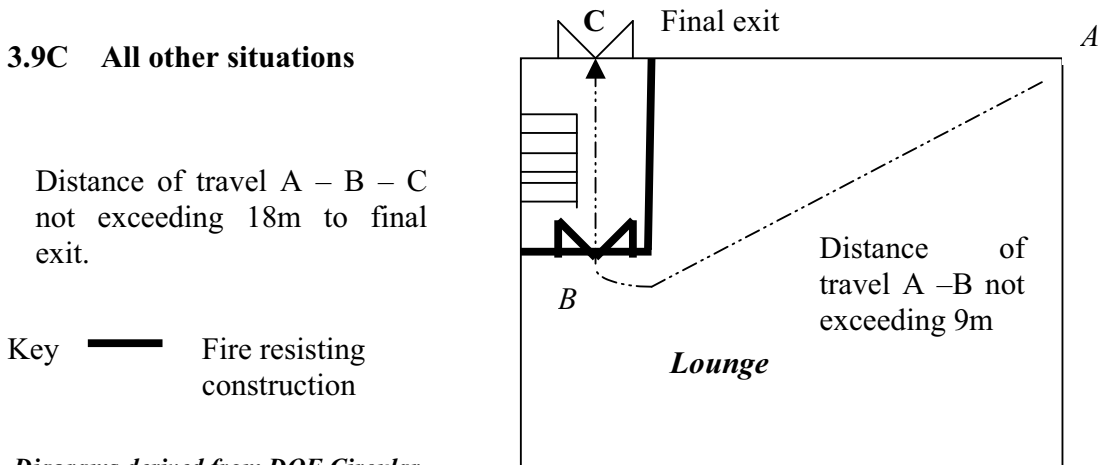


Distance of travel A - B - C - D not exceeding 35m (see paragraph 3.3.2)

**3.9B Area of high fire risk**



**3.9C All other situations**



Key **—** Fire resisting construction

Diagrams derived from DOE Circular 12/92 page 28

### 3.3.2 INITIAL DEAD END

In any situation where an escape route consists initially of a dead end and then has alternative routes to a *final exit* or door to a stairway which is a protected route the distance in the room and the *dead end* together should not generally exceed the appropriate distance in column b of Table 3.2 and the total distance of travel should not exceed the distance shown in column b of Table 3.1 appropriate to the location which it is being measured. See diagram 3.9 for example.

### 3.3.3 MEANS OF ESCAPE (Stages)

Requirements regarding *means of escape* are set out in the following paragraphs with specific reference to each of the relevant stages i.e.

Stage 1	Travel within rooms
Stage 2	Travel from rooms to a stairway or <i>final exit</i>
Stage 3	Travel within stairways and to <i>final exits</i> .

### 3.3.4 STAGE 1 – TRAVEL WITHIN ROOMS

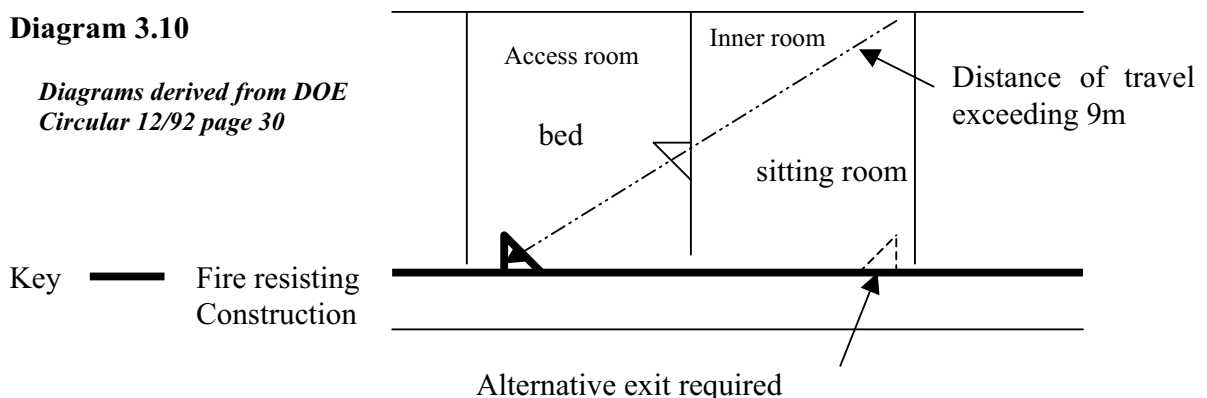
#### Inner and access rooms

The distance of travel from any point in an inner room to the nearest exit from the access room should not exceed:

- (a) from an *inner room* used as sleeping accommodation 6m
  - (b) from an *inner room* constituting an area of higher fire risk 6m
  - (c) from an *inner room* used for any other purpose: 9m
- (see note 4 and diagram 3.10).

**Diagram 3.10**

*Diagrams derived from DOE  
Circular 12/92 page 30*



#### Notes

1. An access room should not be an *area of higher fire risk*.

2. If no other means of escape can be provided from the *inner room*, the *inner room* should be only used for sleeping accommodation if the *access room* is used solely for the same purpose.
3. Unless there are overriding considerations (e.g. privacy, security) a clear vision panel should be provided in a suitable position between the *access room and an inner room* and, if appropriate, between the access room and a corridor or other area leading from it. This will provide a facility for the residents of these rooms to receive an early visual warning of fire in the room or area through which they may have to pass to reach a place of safety. Where vision panels are installed in walls adjoining an escape route it will be necessary to satisfy the appropriate fire resistance standard of the element.
4. Where an *inner room* forms part of an area containing no sleeping accommodation the restrictions on *distance of travel* recommended in section 3.3.4 (inner and access rooms) need not apply if from the point of exit from the *inner room* there is escape in more than one direction through the *access room* (see section 3.3.5 (Escape in more than one direction)).

#### **Number of exits**

More than one exit will be required from:

- (a) a room occupied by more than 30 people;
- (b) a room in which the distance to be travelled between any point and the existing exit exceeds the appropriate distance recommended in Table 3.2.

#### **Width of exits**

The width of an exit from any room should not normally be less than 750mm having regard to the room's use. In a room with more than one exit for means of escape, the width of each exit should not be less than:

- (a) 750mm for an occupancy of up to 100 people; or
- (b) 1.1m for an occupancy of up to 200 people.

An additional 75mm should be allowed for every 15 (or proportion of 15) people above 200.

### **Siting of exits**

In a room requiring more than one exit, the exit will be satisfactorily sited if:

- (a) the angle between lines defining the routes from any point in the room to the exits is not less than 45°; or
- (b) from any point at which the angle is less than 45° the distance to be travelled between the point and the nearest exit does not exceed the appropriate *distance of travel* recommended in Table 3.2.

#### 3.3.5 STAGE 2 – TRAVEL FROM ROOMS TO A STAIRWAY OR FINAL EXIT

### **Escape in more than one direction**

Escape in more than one direction in Stage 2 may be any point from which there are different routes leading to:

- (a) separate stairways (including external stairways) which are *protected routes*;  
or
- (b) separate *final exits*; or
- (c) a combination of (a) and (b); or
- (d) (a) or (b) and a door in a *separating wall* between premises which are separated by *fire resisting construction*. (This situation is only acceptable where the premises are governed by legislation (i.e. – a fire certificate) or are directly under the control of the one occupier.

### **Corridors**

In all corridors serving sleeping accommodation and those which form *dead ends* the walls, partitions and ceilings forming the corridor should be of *fire resisting construction* and all room doors (except doors to toilets containing no fire risk) opening on to the corridor should be fire resisting and self closing. Doors to cupboards in corridors should be kept locked shut when not in use. A sign with the words “Fire Door – Keep Locked” should be permanently displayed on the outside of all fire doors to cupboards

Corridors, where possible, should connect directly with exits from the storey.

- (i) Where an escape route consists initially of a *dead end* and then has alternative routes the alternative routes should be separated from each other by self-closing *fire doors* at the junction of the *dead end* (see diagram 3.9, Table 3.2).
- (ii) The *dead end* portion of the route should not exceed the *distance of travel* set out in Table 3.2.

Corridors exceeding 30 metres should be subdivided so as to restrict the free travel of smoke throughout the length of the corridor. Doors provided for the sole purpose of restricting the passage of smoke need not be *fire doors* providing they are fitted with suitable smoke seals, are of substantial construction and are self-closing.

A main corridor should not normally be less than 1.1 metres wide for a floor area accommodating more than 100 persons. Accessibility should be in accordance with the Building Regulations (Northern Ireland) 1994 Technical Booklet R

### 3.3.6 STAGE 3 – TRAVEL WITHIN STAIRWAYS TO FINAL EXITS

#### Number of stairways

Ideally more than one stairway should be provided. However, it is appreciated that there may be circumstances where such provision would be impractical due to structural reasons or conflict with accommodation layouts. In such cases a single storey stairway may be considered satisfactory if:

- (a) the floor area of any upper storey of the building does not exceed 200m<sup>2</sup>; and *distances of travel* conform to those given in Table 3.2;
- (b) the building has no more than four floors or, if the house has more than four floors no upper floor is at a height of more than 11 metres;
- (c) the stairway conforms with one of the arrangements shown in diagram 3.7, and
- (d) in a building more than 2 floors in height access to the stairway from any rooms (other than a toilet containing no fire risk) is through two sets of *fire doors*. Where it is impractical to achieve this in premises of not more than three floors in height a suitable alternative may be achieved by the provision of *fire doors* to rooms opening into the stairway with an automatic fire warning system (as per paragraph 4.1A-F) subject to a suitable maintenance agreement, and adequate fire risk management;

#### Enclosures of stairways

- A. All stairways required for *means of escape* should be separated from the remainder of the building by *fire resisting construction* and self-closing *fire doors* so to form a stairway enclosure.
- B. In premises requiring the provision of more than one escape route the method whereby a stairway is separated from the remainder of the building should be such as to ensure that a person need not pass through a stairway enclosure to reach an alternative escape route. If this is not possible the stairway should still be separated and it may be reasonable for an alternative route to by-pass the stairway by means of balconies (see section 5.6) or by means of a by-pass

corridor or exceptionally, intercommunicating doors between rooms. By-pass corridors and doors should be of appropriate fire resistance (where necessary) and of suitable width (see section 3.3.4 width of exits). By-pass or intercommunicating doors should be kept free of obstruction and available at all times.

- C. Ideally stairway enclosures should lead to a *final exit*. Where there is only one stairway from the upper floor(s) of a building and a *final exit* cannot be provided from the stairway enclosure, one of the following arrangements should be adopted:
- i. the provision of two exits from the stairway enclosure each giving access to *final exits* by way of routes separated from each other by *fire resisting construction*; or
  - ii. the provision of a *protected route* from the stairway enclosure which is deemed to be an extension of the stairway enclosure leading to a *final exit*.

Where there is more than one stairway from the upper floor(s) of a building and there are no *final exits* from the stairway enclosures, the stairways and the routes to their *final exit(s)* should be separated from each other by fire resisting construction and fire doors so that an outbreak of fire at any point cannot affect more than one escape route from one of the stairways simultaneously.

When the stairway is enclosed in accordance with section 3.3.6 (Enclosures of stairways parts B or C) and has a final exit from the enclosure and the only doors in the enclosure are:

- (a) to toilets containing no fire risk;
- (b) to *protected lobbies*;
- (c) to corridors;
- (d) to lift wells contained within a stairway enclosure;
- (e) to *final exits*;

it should be regarded as a protected route.

Where a stairway can be considered a *protected route*, it will not be necessary to have regard to *distance of travel* in Stage 3. Where this is not the case, the Stage 3 section of the escape route should be regarded as forming part of the total *distance of travel* permitted (see column b of Table 3.1 and 3.2).



### 3.4 ESCAPE FROM A UNIT OF ACCOMMODATION (See also 3.3.4 notes)

Layouts which have an inner room can present an unacceptable hazard to the occupants and as such the arrangement is only satisfactory where the inner room is a:

- |                               |   |                                 |
|-------------------------------|---|---------------------------------|
| ▪ kitchen                     | } |                                 |
| ▪ laundry or utility room     | } | See glossary for definitions of |
| ▪ dressing room               | } | “Inner and access rooms”        |
| ▪ bathroom, WC or shower room | } |                                 |

On basement, ground and first storey it may be acceptable to allow other rooms provided a suitable alternative means of escape from that room is provided. (See basement – means of escape section 5)

“Inner inner rooms” i.e. rooms entered through more than one access room, are not permitted.

An entrance hall/lobby is not regarded as an access room.

### 3.5 RECOMMENDATIONS FOR ESCAPE ONTO A FLAT ROOF

An alternative exit may be onto a flat roof provided that the following conditions are satisfied.

- (a) Such a roof is part of the same building from which escape is being made.
- (b) The route across the roof:
  - (1) leads to a storey exit;
  - (2) is adequately defined and guarded with protective barriers in accordance with BS 6180.
- (c) Such a part of the escape route and its supporting structure is constructed as a fire-resisting floor.
- (d) Where an escape route is in one direction only, any ventilation outlets or other windows that are not fire resisting, should not be sited within 3m of such a route.

### **3.6 RECOMMENDATIONS FOR DOORS AND WINDOWS FOR ESCAPE OR RESCUE PURPOSES.**

The following recommendations are applicable.

- (a) A window should provide an unobstructed opening not less than 850mm high by 500mm wide.
- (b) The bottom of any window opening should be not more than 1100mm above the floor of the room in which it is situated.

**NOTE:** To provide protection against falling, building regulations will generally be satisfied if the bottom of the opening is not less than 800mm above the floor (except for a roof light, in which case the bottom of the opening should be not less than 600mm above the floor).

- (c) Where provided for escape or rescue purposes from a room above ground level:
  - (1) any doors (including a French window or a patio window) should lead to a balcony guarded with a protective barrier complying with BS6180;
  - (2) the ground beneath a window or balcony should be clear of any obstructions (such as iron railings or horizontally hung windows) and should be of a size and material suitable and safe for supporting a ladder.
- (d) A door or window should not face onto an internal shaft or enclosure unless:
  - (1) escape to a place of safety is possible without re-entering the building, and
  - (2) there is sufficient space for the Fire Authority to bring in and safely erect a suitable ladder if escape or rescue would be from a room above ground level.
- (e) Where practicable the escape window or door should be located remote from the primary escape route.

### **3.7 MEANS OF ESCAPE FROM ALL HMOs – EXTERNAL ESCAPE**

Where the escape from a HMO involves an external stair, balcony or flat roof, it should not be threatened by fire or smoke issuing from any door, window or ventilator in the proximity of the escape route. The stair shall be protected from the weather when it serves a floor or flat roof more than 6m above ground level. (See diagram 5.1). The degree of protection from the weather will depend on the exposure of the stair.

### **3.8 MEANS OF ESCAPE FROM ALL HMOs – FIRE DOORS**

A fire door in a HMO should be FD30s or approved by Building Control.

### **3.9 AN HMO WHICH IS WITHIN A BUILDING CONTAINING OTHER CATEGORIES OF USE**

HMO's which are situated within a building comprising other categories of use i.e. offices, shops factories, shall be structurally separated from such premises by imperforate construction which affords a fire resistance of not less than 60 minutes. Provision should also be made for independent and protected escape routes.

#### **Recommendation**

It is recommended that an interlinked automatic fire detection system is installed throughout the entire building.

#### 4.0 DETECTION AND GIVING WARNING IN THE CASE OF FIRE

**Table 4.1** (Applicable to HMO Properties occupied by no more than 6 non vulnerable individuals and with no floor area greater than 200m<sup>2</sup>)

HMO Category	Purpose Group (see Table 6.1 of Technical Booklet E of the Building Regulations)	Existing dwellings complying with the structural fire* recommendations of Technical Booklet E of the Building Regulations	Existing dwelling where structural fire* precautions are of a lower standard than those recommended by Technical Booklet E of the Building Regulations
<b>Category A</b> 1 or 2 Stories	Group 2(b)	Grade D Category LD2 <sup>#</sup>	Grade D Category LD2
<b>Category B &amp; C</b> 1 or 2 Stories	Group 2(b)	Grade D Category LD3	Grade D Category LD2
<b>Category E</b>	Group 2(a)	A dwelling defined as a <b>Category E</b> HMO should comply with the requirements under the Registered Homes (NI) Order 1992 or any re-enactment or statutory modification	

#### Notes

\*For the purpose of this guidance adequate structural fire precautions should be read in accordance with the requirements specified in Table 3.2 (Minimum period of Fire Resistance) of Technical Booklet E [Building Regulations (Northern Ireland) 2000].

<sup>#</sup>Table 1 of BS 5839: Part 6 2004 recommends a Category LD3 system unless a risk assessment indicates the need for a Category LD2 system. The Housing Executive has determined based on statistical data contained within **Fire Risks in Houses in Multiple Occupation: Research Report. DETR. 1998. London: HMSO** and the Annex A (Informative) of BS 5839: Part 6: 2004 that a Category LD2 system is appropriate.

**Table 4.2** (All HMO properties excluding those identified in Table 1)

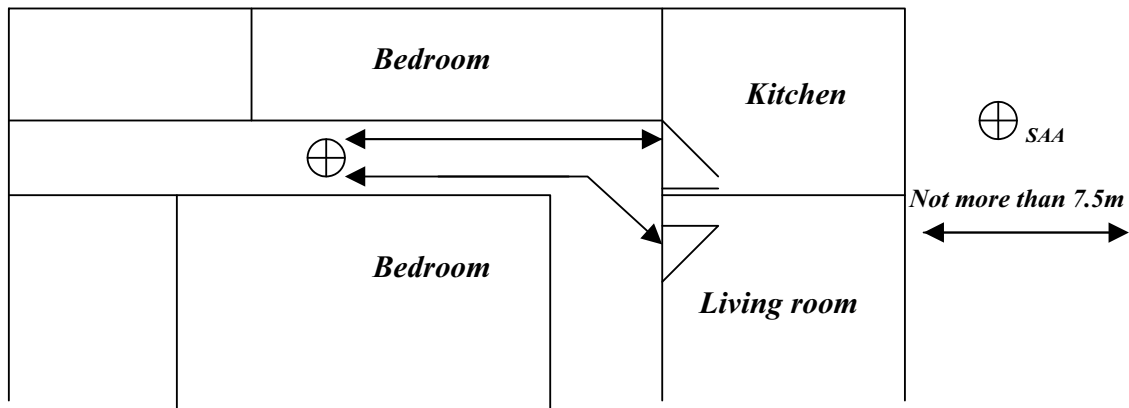
HMO Category	Purpose Group (see Table 6.1 of Technical Booklet E of the Building Regulations)	System Grade and Category
<b>Category A</b>	Group 2(b)	BS 5839: Part 1: 2002 Category L2
<b>Category B</b>	Group 2(b)	BS 5839: Part 1: 2002 Category L2
<b>Category C</b>	Group 2(b)	BS 5839: Part 1: 2002 Category L2
<b>Category D</b>	Group 2(b)	BS 5839: Part 1: 2002 Category L2
<b>Category E</b>	Group 2(a)	A dwelling defined as a <b>Category E</b> HMO should comply with the requirements under the Registered Homes (NI) Order 1992 or any re-enactment or statutory modification
<b>Category F</b>	Group 1(a)	Grade D Category LD2 <sup>§</sup> within the flat and Category L3 in the communal areas.

<sup>§</sup>Table 1 of BS 5839: Part 6 2004 recommends a Category LD3 system (for those properties meeting the structural fire precaution of Table 3.2 of Technical Booklet E) unless a risk assessment indicates the need for a Category LD2 system. The Housing Executive has determined based on statistical data contained within **Fire Risks in Houses in Multiple Occupation**: Research Report. DETR. 1998. London: HMSO and the Annex A (Informative) of BS 5839: Part 6: 2004 that a Category LD2 system is appropriate.

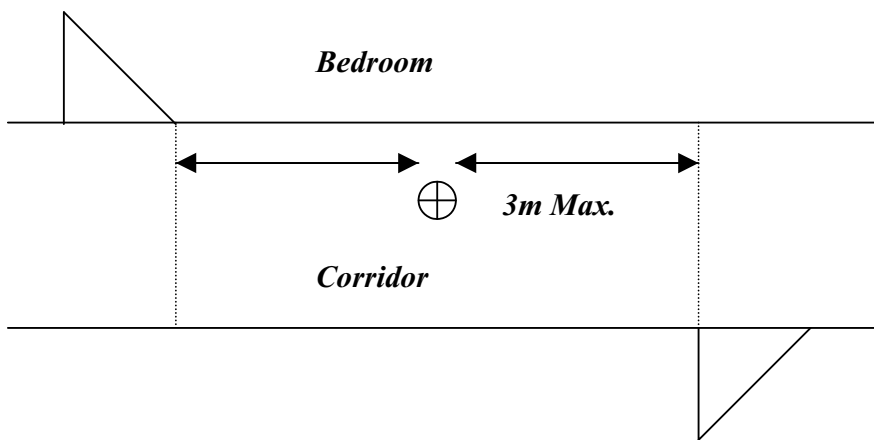
## 4.2 LOCATION OF SMOKE ALARMS IN CIRCULATION AREAS

A smoke alarm should be located: –

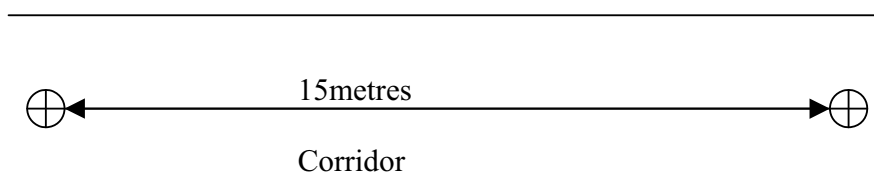
*In a circulation area which will be used as a route along which to escape, within 7m of the door to a living room or kitchen*



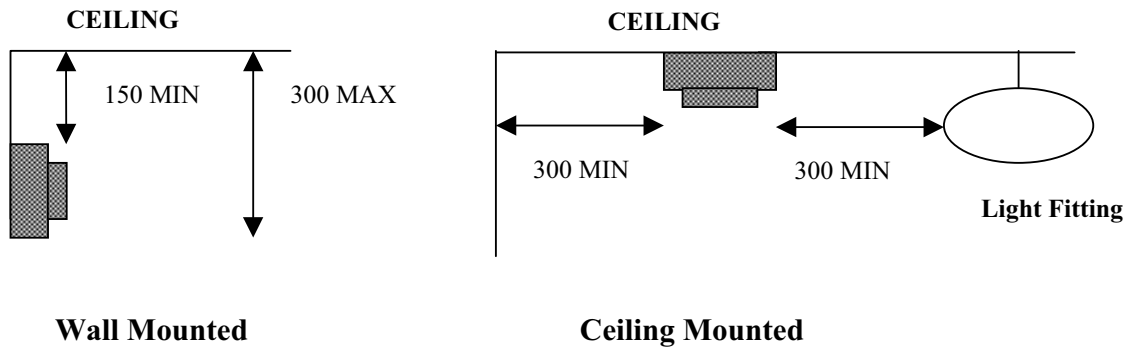
*and within 3m of the door to a bedroom, the dimensions to be measured horizontally;*



*Where the circulation area is more than 15m long, within 15m of another smoke alarm on the same storey;*



*If designed for wall mounting, not less than 150mm and not more than 300mm below the ceiling or if designed for ceiling mounting, at least 300mm away from any wall or light fitting (ceiling mounting is the preferred method);*



Not less than 300mm away from, and not directly above, a heater or air conditioning outlet; and  
On a surface which is normally at the ambient temperature of the rest of the room or circulation area in which the smoke alarm is situated.

#### 4.3 INTERCONNECTED ALARMS.

Where more than one smoke alarm is installed they should be interconnected so that detection of a fire by any one of them operates the alarm signal in all of them.

#### 4.4 HARDWIRED.

A smoke alarm should be permanently wired to a circuit. The mains supply to the smoke alarm should take the form of either –

- A. an independent circuit at the HMO's main distribution board, in which case no other electrical equipment should be connected to this circuit (other than a dedicated monitoring device installed to indicate failure of the mains supply to the smoke alarms); or
- B. a separate electrically protected, regularly used local lighting circuit.

**Note:** If smoke alarms are of a type that may be interconnected, all smoke alarms should be connected on a single final circuit.

## **4.5 LEVEL OF DETECTION.**

In general, the most vulnerable areas in any building are in the circulation areas, since once these are blocked it will be difficult for the occupants to carry out any of the pre-planned actions of the fire routine. In general the escape routes should be the normal circulation areas within the building. In some cases a circulation area may be the only escape route available, for example, corridors outside bedrooms. In a building the hottest gas and the greatest concentration of smoke (visible or invisible) will generally collect at the highest parts of the enclosed areas and it is here, therefore, that heat or smoke detectors should be sited.

The siting and spacing of detectors is of critical importance when an effective automatic fire detection system is being designed.

The level of detection should be in accordance with paragraph 4.1 A-F

### **4.5.1 LOCATION OF DETECTORS IN A FIRE DETECTION AND ALARM SYSTEM COMPLYING WITH BS 5839: PART 6: 1995: TYPE LD3, GRADE D.**

In type LD systems, at least one smoke detector should generally be located between the sleeping area(s) and the most likely sources of fire (living room and kitchen). In circulation areas, no door to a room should be further than 7.5m from the nearest smoke detector. In a single storey dwelling protected by one detector, the detector should be as close as possible to the living accommodation. However, where smoke alarms are installed, siting should take into account the need for the sound level of the smoke alarm(s) to be sufficient in all bedrooms. Where there are rooms (other than a toilet, bathroom or shower room) on either side of a bedroom, a detector should be sited on the ceiling in the hall or corridor midway between the doors to these rooms. In a multi- storey house, at least one smoke detector should be located on each main landing. In open-plan accommodation, where a stair may be open to a living/dining area, the living/dining area should be treated as a circulation area.

### **4.5.2 LOCATION OF DETECTORS IN A TYPE L3 SYSTEM**

A type L3 system should be so designed that in any fire, an alarm is given at a sufficiently early stage to allow time for the escape routes to be used before they are blocked by smoke. The latest time by which the alarm should have been given depends on the layout of the building and on the abilities of the occupants to respond to an emergency. To give satisfactory protection of the escape routes, detectors should be installed both on the escape routes and in rooms opening onto the escape route.

Heat detectors are unsuitable for use in escape routes because, in a slow burning fire, the temperature required to operate them may only be reached after the smoke density in the escape routes has reached an intolerable level.



### **4.5.3 LOCATION OF DETECTORS IN A TYPE L2 SYSTEM**

#### **ESCAPE ROUTES.**

An L2 system should comply with the recommendations for an L3 system for escape route protection.

#### **OTHER AREAS.**

In addition to the escape routes, the other areas to be protected will normally fall into the following two classes:

- a) those areas in which the normal occupants are especially vulnerable to fire starting in their vicinity; and
- b) those areas having a particularly high probability of ignition and from which fire or fire products could spread to affect the building occupants.

Furthermore a suitable detector shall be positioned in the room or space of a letting which opens directly onto the common route of escape.

Generally other areas will include: -

- Sleeping accommodation.
- Living rooms.
- Dining rooms.
- Cellar areas.
- Storage areas on the common parts.
- Kitchens.

### **4.6 DETECTORS**

Ionisation chamber or optical smoke detectors complying with BS 5446 Part 1 1977 shall be required for the purpose of this guide.

Consideration should be given to the type of head to be installed so as to minimise the risk of false alarms. The smoke detectors may be of the ionisation or photoelectrical type with heat detectors provided as appropriate. Heat detectors are required in rooms where cooking takes place and consideration should be given to the installation of heat detectors in boiler rooms.

Where rooms in which cooking takes place immediately connect with a room which contains a smoke detector then it is recommended that the room containing the cooking facilities be provided with mechanical extraction.

#### **4.7 SOUNDERS**

The smoke alarm sounders shall be wired in accordance with Paragraph 4.11 below and sited in adequate numbers to achieve a minimum sound pressure level of 75dB(A) at each bedhead when all doors are closed and attain 65dB(A) or 5dB(A) above background level throughout the remainder of the property whichever is the greater.

#### **4.8 INDICATION PANEL**

The indication panel should comply with British Standard 5839 Part 4 and be sited within the ground floor hallway. The panels should be provided with a visual and audible warning of any fault in the system. A simple zone per floor installation will be satisfactory unless otherwise indicated.

#### **4.9 MANUAL ALARM ACTIVATION POINT**

Manual alarm activation points of the “break glass type” shall be provided on all floors. These should be located close to the indicator panel on the ground floor, adjacent to all exits and near to the staircase on the other floor levels.

#### **4.10 POWER SUPPLY**

The power supply equipment for a smoke alarm system shall be located adjacent to the mains intake position and shall be exclusive to the smoke alarm with provision made for a normal mains supply and a standby capable of maintaining the system in normal operation for at least 24 hours after which sufficient capacity should remain to provide an evacuation alarm to all zones for at least 30 minutes.

The connection to the mains supply should be via a switched fuse painted red and labelled “Fire Alarm – do not switch off”, alternatively a mains circuit breaker may be incorporated.

#### **4.11 WIRING**

All wiring shall be in accordance with British Standard 5839, Clause 17:2 i.e. heat resisting wiring. The cable should be neatly run and securely fixed.

#### **4.12 TESTING**

The whole installation shall be tested upon completion by a member of the Institute of Electrical Engineers or the National Inspection Council of Electrical Installation Contractors. A certificate should be issued certifying the installation to be in accordance with BS 5839.

#### **4.13 MAINTENANCE**

The whole installation shall be directed and tested in accordance with BS 5839 by a member of the Institutions above. A logbook shall be duly completed and retained for examination by the inspecting officer at the time of re-inspection.

## **5.0 STAIRWAYS**

### **5.1 VENTILATION OF STAIRWAYS**

In a single stairway building which continues uninterrupted to the top floor it would be advantageous for provision to be made for ventilating the stairway in the event of fire. In circumstances where ventilation of the stairwell can be achieved this should be equivalent to a permanent operable venting of 1 square metre or 5% of the cross sectional area of the stairway enclosure, whichever is the greater. However ventilation of stairways is not always an option in some HMO properties or the desired opening size may not be achievable. Consequently it is the intent of the technical guidance to achieve stairway ventilation where practical.

### **5.2 UNACCEPTABLE ITEMS WITHIN STAIRWAY ENCLOSURES**

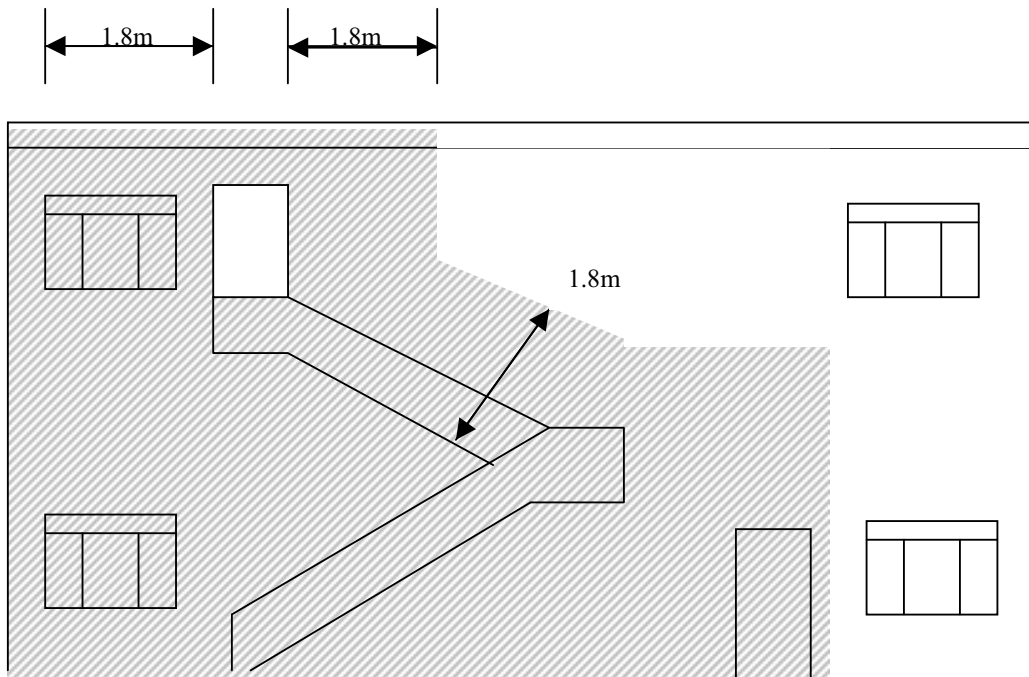
- (a) Portable heaters of any type.
- (b) Heaters which have unprotected naked flames or radiant bars.
- (c) Fixed heaters using a gas supply cylinder.
- (d) Oil-fuelled heaters.
- (e) Cooking appliances.
- (f) Upholstered furniture.
- (g) Wardrobe or other storage furniture.
- (h) Coat racks.
- (i) Storage of any kind (unless it is kept in a locked cupboard, which is constructed to the same standard of fire resistance as the enclosure to the stairway) and is provided with a smoke detector.
- (j) Lighting involving the use of naked flames.
- (k) Gas meters other than those installed in accordance with appropriate Gas Safety Regulations. Gas pipes must be made of a material with a high melting point to comply with Gas Safety Regulations. Where a gas installation has been installed a suitable gas detector should be provided.
- (l) Existing meters are to be encased so as to provide half hour fire resistance.

### **5.3 EXTERNAL STAIRWAYS**


Where an external escape stairway is provided, it should be a protected route and it will be necessary to ensure that the use of it at the time of a fire cannot be compromised by smoke and flames issuing from openings (e.g. windows and doors) in the external wall of the building below and adjacent to the stairway. Any door, opening onto the stairway below the top floor should be of the same fire rating and self closing. In situations where windows are less than 1.8metres horizontally from the stairway, they should be of the fixed type and have fire resistance of not less than 30minutes. It will also be necessary to provide lighting and consider the protection of the stairway from the weather. **See diagram 5.1**

**DIAGRAM 5.1**

**EXAMPLE OF DEFINED ZONE FOR FIRE RESISTING WINDOWS AND DOORS**



*Diagram derived from BS 5588 Part 1, page 28*

 Indicates fire resisting structure, fire doors and fire resisting windows.

#### **5.4 SPIRAL STAIRWAYS**

These will be suitable only in situations where not more than 30 able-bodied adults would use them. They should not be more than 9metres in height or less than 1.5metres in diameter.

#### **5.5 LADDERS/ROPES etc.**

Such means of escape are unacceptable in a HMO.

Examples include: - Portable ladders and “throw-out” ladders.  
Fixed vertical and raking ladders  
Automatic lowering lines, ropes and other manipulative  
emergency devices for self rescue

#### **5.6 INTER-COMMUNICATION BETWEEN ROOMS AND BY-PASS ROUTES**

*Inter-communication between separate lettings as a means of escape is unacceptable.*

A balcony can sometimes be used to by-pass a stairway enclosure and in some instances a balcony can form stage 2 of an escape route. Where a balcony forms any part of the means of escape it will be necessary to ensure that its use at the time of fire cannot be prejudiced by smoke and flames issuing from openings, e.g. windows, doors in the external wall of the building. A door to or from a balcony, which is intended for use for means of escape, should be kept unlocked. Provision should be made to ensure that by-pass facilities do not become obstructed and are available for use at all times.

#### **5.7 LIFTS – general**

Unless a lift is situated within a stairway enclosure, which is a protected route, it should be contained within a lift well enclosure of fire resisting construction in which the access doors are fire resisting.

Existing sliding fire resisting doors to lift shaft opening are sometimes ill fitting in the slides and frames and offer a poor barrier to smoke. In such cases where the opening discharges into a corridor, which is a dead end, a protected lobby should be provided at the entrance to the lift. A person should not have to pass through the lobby to reach the continuing route to escape.

Wherever practicable the lift machine should be housed in a compartment separated from the lift well by fire resisting construction. Any opening necessary in the separation between the machine room and the lift well for the operation of the lift should be as small as possible.

Where practicable, a lift well should have permanent ventilation opening at the top equal to not less than 0.1square metres for each lift in the lift well enclosure.

Lifts other than those specifically constructed for use as means of escape in case of fire, should not, be used at the time of a fire as they do not afford a reliable route of escape.

## 6.0 BASEMENTS

Combustion products tend to rise and there is a danger that people attempting escape from a fire in a basement would find that they had to move into a layer of smoke. Basements, therefore, require special consideration.

Ideally, a stairway serving upper floors should not extend to the basement.

### 6.1 STAIRWAYS TO BASEMENTS

Where a stairway links a basement with the ground floor, the basement should be separated from the ground floor by two FD30s doors, one at basement level and one at ground level. See **diagram 6.2**.

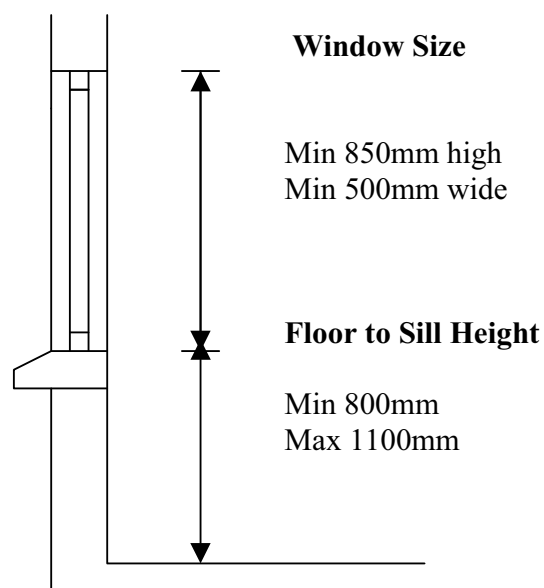
### 6.2 OCCUPIED BASEMENTS

*Occupied basements should ideally have two escape routes to a safe place at ground level. In circumstances where the basement floor level exceeds 150 square metres a second escape route must be provided.*

In addition, inner rooms, which are habitable, must be provided with an alternative means of escape. This escape route may be way of a window (see **diagram 6.1**) or door complying with the following requirements: it should have an unobstructed opening that is at least 850mm high and 500mm wide, and the bottom of a window should be not more than 1100mm and not less than 800mm above floor:

#### DIAGRAM 6.1

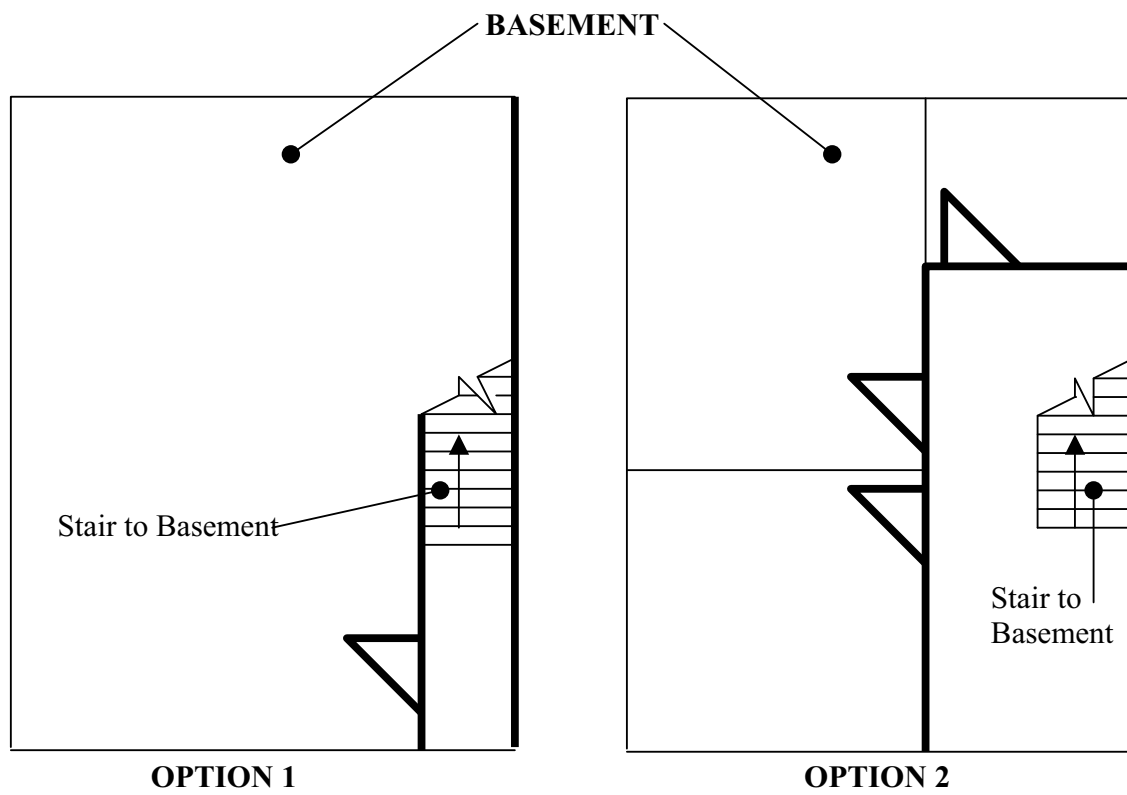
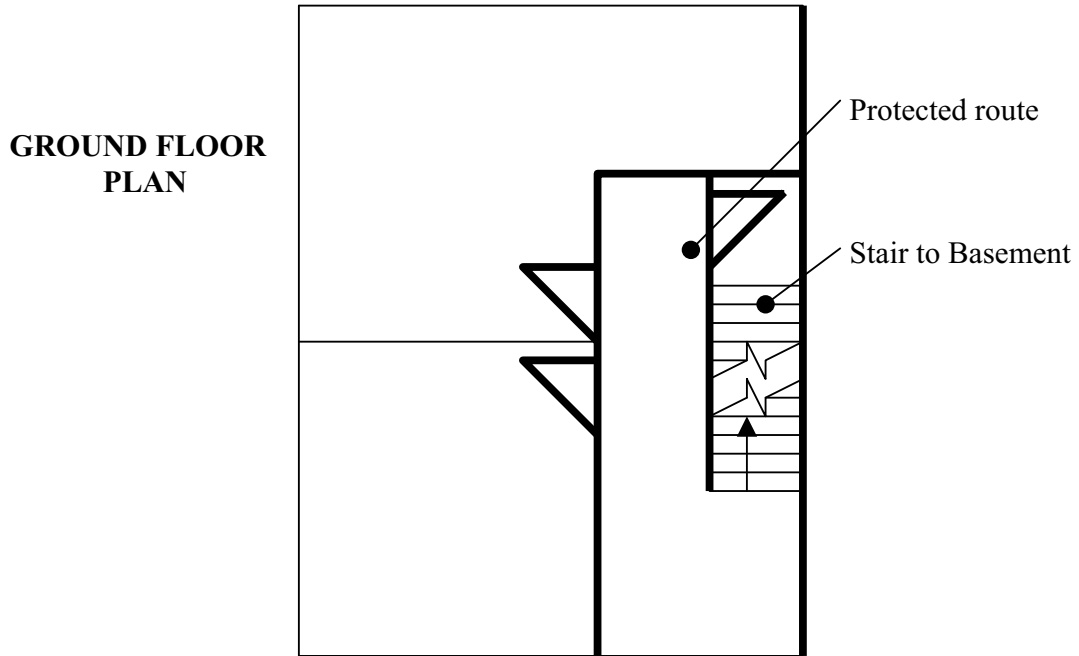
#### DIMENSIONS OF ESCAPE WINDOWS





**DIAGRAM 6.2**

**SEPARATION OF BASEMENT & GROUND FLOOR**



*Diagrams derived from DOE Circular 12/92 page 34 & 35*

**In option 1:** The basement is separated from the ground floor by 2x FD30S doors, one at the foot of the stairway and one at the head.

**In option 2:** The basement is separated from the ground floor by 2x FD30S doors, one between each self-contained unit within the basement and one at the head of the stairway at the ground floor.

### **6.3 CEILING HEIGHT, VENTILATION & NATURAL LIGHTING**

Fire protection work to basement ceilings may result in inadequate floor to ceiling height. The floor to ceiling height should be sufficient to encourage the free circulation of air and should not average less than 2.1 metres.

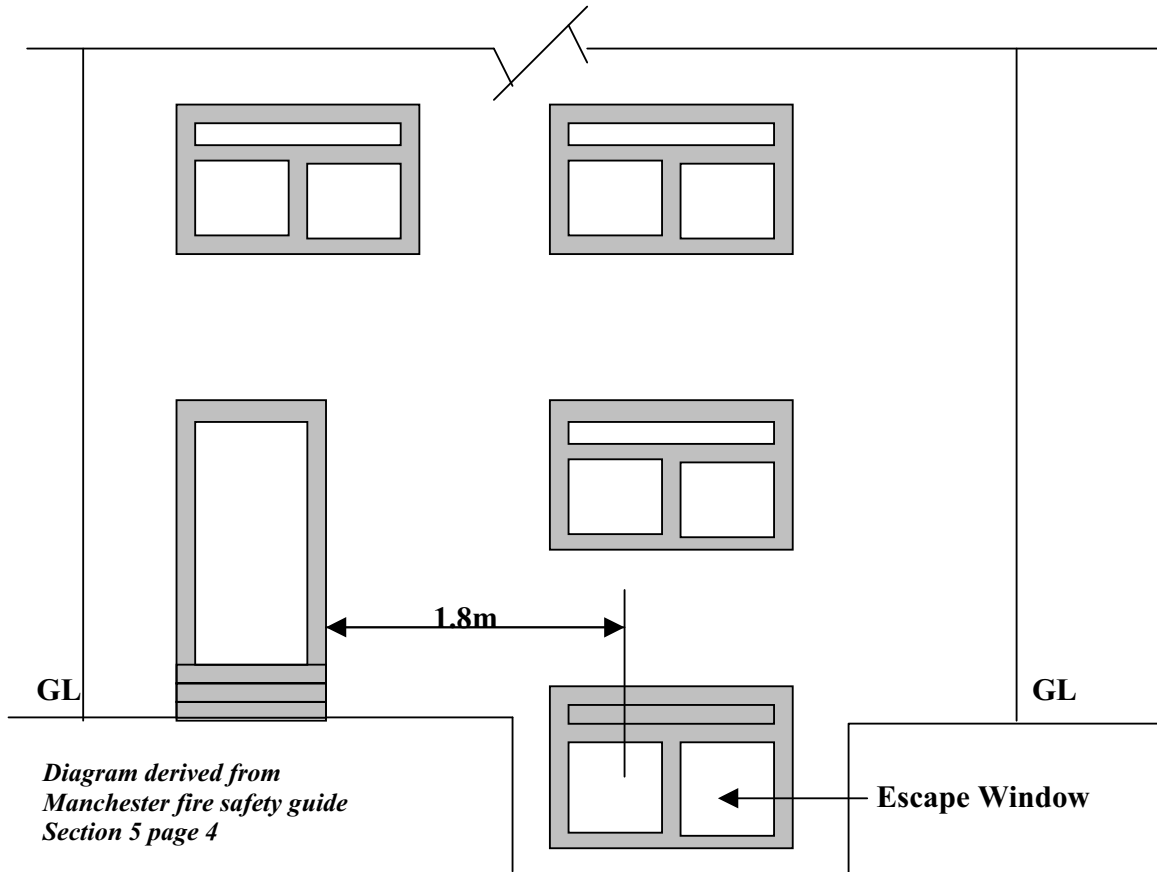
The provision of a glazed area to a habitable basement room should total not less than 1/10<sup>th</sup> of the floor area of that room. As a guide the window should be positioned such that from any point on the window a line can be drawn upwards in the vertical plane at an angle of 30° to the horizontal without intercepting an obstruction within 3 metres – this may cause difficulties where external escapes are provided.

### **6.4 DEFINED ZONE OF FIRE RESISTING CONSTRUCTION**

Where occupied basement windows are within 1.8 metres of a sole exit from a HMO then 1.8 metres either side of the exit should be treated as a fire resistant space in respect of the basement only. It will therefore be necessary for 30 minute fire resisting glazing to be provided within the 1.8 metre zone.

Consideration will need to be given for additional ventilation where glazing is required to habitable rooms.

**DIAGRAM 6.3**  
**EXAMPLE OF DEFINED ZONE FOR FIRE RESISTING WINDOWS & DOORS**



## 6.5 BASEMENT CEILINGS.

In HMOs provided with a comprehensive Automatic Fire Detection system to BS 5839 type L2 or a mains wired interconnecting system where the systems provide extended coverage to separate areas within a basement then the basement ceiling shall provide a minimum of 30 minutes fire resistance – **see section 8.0**. Extended detector coverage may be by the provision of detectors in each compartment or by a combination of additional detectors in some compartments and high level ventilation between the compartments.

*Where extended detector coverage is not provided then the ground floor shall be separated from the basement by 60 minutes fire resisting construction. If extended coverage is not provided, the basement shall not be linked by a common stairway.*

## **7.0 DOORS**

This guide requires various door entrance arrangements as previously described. Door construction is as follows:

### **7.1 HALF HOUR FIRE RESISTING DOORS**

Any fire door required to have this period of fire resistance shall be certified as a door capable of achieving a full half-hour resistance (i.e. FD30 FD30S or, previously, 30:30 doors).

Historically fire doors are likely to have had a finished thickness of 44mm. With developing technology this will not necessarily now be the case and if there is any doubt through the absence of identification on the door or otherwise then certification evidence should be required.

The doorframe shall have a minimum depth of rebate of 12.5mm, which can be formed from the solid or built up. Stops must be a minimum of 12.5mmx35mm.

Intumescent strips and a smoke seal shall be provided to the jambs and head of either the door or frame.

The gap between the door and frame shall be as small as practicable whilst being able to accommodate a smoke seal, where appropriate, allowing the door to close freely. As a guide the gap should be in the order of 2 to 4mm.

Where a half-hour fire-resisting door is required the following shall be provided. Either:

- a) A purpose made half hour door and frame certified to be in accordance with BS476, Part 8, or Part 22. (If the door can not be clearly identified as a fire door.)
- b) An upgrading door and frame constructed to half-hour fire resistance in accordance with TRADA specification.

#### **NOTE:**

It is not recommended that doors are upgraded because of the problems of monitoring the upgrading works whilst in progress. It is also difficult to determine at a future date whether a door, which presents the appearance of having been upgraded, has in fact been so.

If upgrading is proposed then the detailed specification of the work and evidence of how the proposed works would provide the required fire resistance should be submitted in advance of the work being carried out and certification provided by the person carrying out the work.

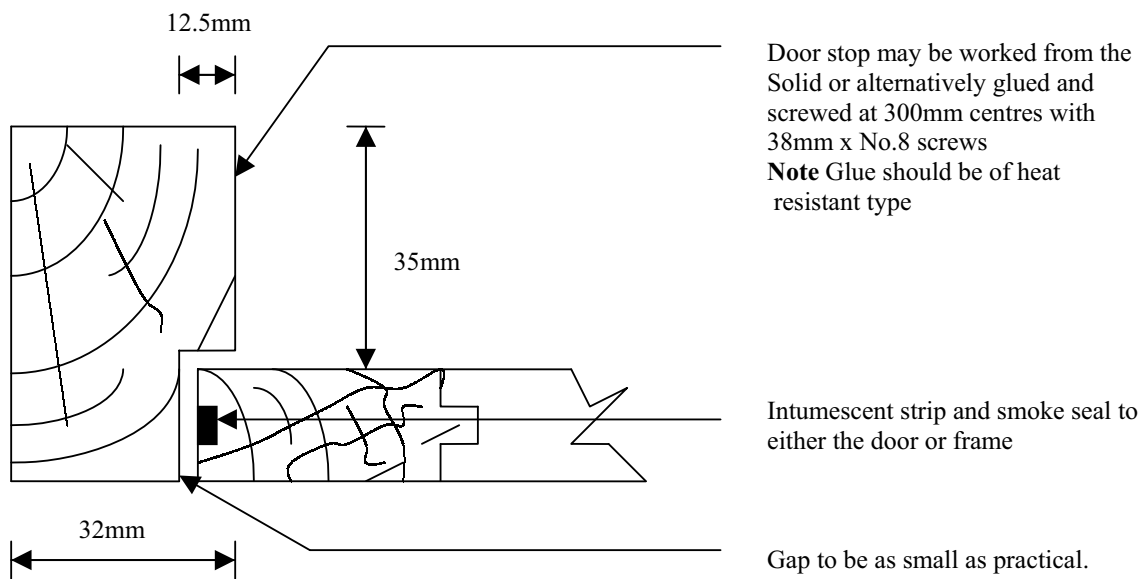
It would also be useful if at the time of upgrading the top edge was marked to indicate this.

It is recommended that when an existing door is to be replaced by a fire resisting door that a complete door set is provided.

Attention should be given to the effective fire stopping between existing or new woodwork and existing walling. Intumescent paste should be used to provide protection for small voids.

### DIAGRAM 7.1

#### CONSTRUCTION OF HALF HOUR FIRE RESISTING DOOR & FRAME



*Diagram derived from Manchester fire safety guide  
Section 6 page 4*

## 7.2 ONE HOUR FIRE RESISTING DOORS AND FRAMES

Any door required to have this period of fire resistance shall be certified as a door capable of achieving a full one hours fire resistance (i.e. FD60, FD60S or, previously, 60:60 doors).

Historically these fire doors are likely to have finished thickness of 54mm. With developing technology this will not necessarily now be the case and if there is any doubt through the absence of identification on the door or otherwise then certification evidence should be required.

The door shall be installed in a new frame manufactured from solid wood and shall have a 12.5mm rebate.

The door shall be fitted with intumescent strips and smoke seals to jambs and head.

The frame shall have an intumescent strip inserted in the jambs and head.

The intumescent strips in the door and door frame are not to be installed directly opposite each other.

There can be other arrangements of the intumescent strips and where an alternative to the above is proposed then the manufacturers specification should be consulted.

The gap between the door and frame shall be as small as practicable whilst being able to accommodate a smoke seal, where appropriate, allowing the door to close freely, the gap should be in the order of 2 to 4mm.

Doors and frames cannot be upgraded to one hour fire resistance without considerable expense, and satisfactory certification would be required. However, if you are dealing with a property of unusual architectural or historical importance then you may wish to consider accepting or specifying the use of intumescent paints etc., and careful consideration will be needed.

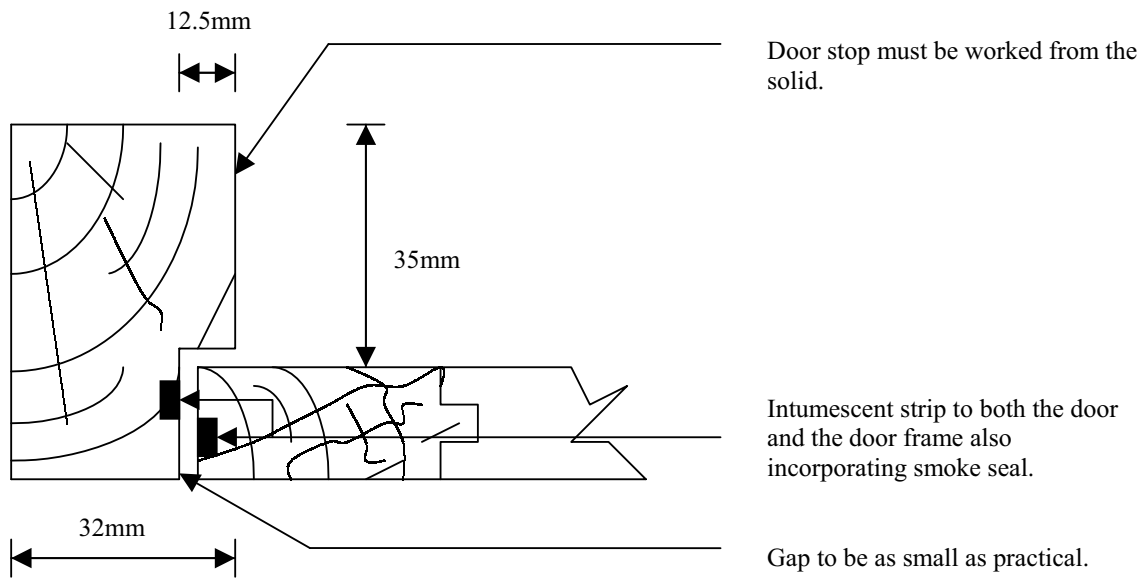
Stops must be worked from the solid and have a minimum depth of 35mm, the overall width of the frame including stop to be a minimum of 44.5mm.

Attention shall be given to the effective fire stopping between new and existing woodwork and existing walling.

Where an existing door is to be replaced by a fire resisting door then a complete set shall be provided.

**DIAGRAM 7.2**

**CONSTRUCTION OF ONE HOUR FIRE RESISTING DOOR & FRAME**



*Diagram derived from Manchester fire safety guide  
Section 6 page 4*

### 7.3 INTUMESCENT STRIPS

It is recommended that intumescent strips should not be painted over as it is useful for them to be clearly visible to facilitate inspection.

Some doors are provided with intumescent strips, which are concealed at the jambs with a capping piece of timber.

Where practicable intumescent strips should not be interrupted and so should, for example be offset from, or bypass hinges and latch plates. This may be possible with thicker one hour doors, however, for other doors the limited advantage may be outweighed by risk of damage to the door.

### 7.4 SMOKE SEALS

Smoke seals will normally be of the brush blade or “bubble” variety and comply with the relevant BS.

The gap between the door and frame should be as small as possible but which will allow the door to close freely into its keep, should be in the order of no more than 2mm to 4mm at any point.

Stop mounted “bubble” seals have the advantage that the tolerance between door and frame is not as critical.

Brush type smoke seals should not be painted over as this reduces their flexibility and so their effectiveness.

Some quality non brush (“bubble”) type smoke seals may be painted. However, because of difficulties in differentiation it is simply recommended that all smoke seals should not be painted over.



<b>Range of colour codes giving a method of performance identification for non-metallic doors and frames</b>			
Core colour	Background colour	Integrity (mins)	Colour code interpretation
Red	White	20	Intumescent seals require to be fitted at time of original installation
	Yellow	30	
	Pink	45	
	Blue	60	
	Brown	90	
	Black	120(1)	
Green	White	20	No additional intumescent seal need to be fitted at time of installation
	Yellow	30	
	Pink	45	
	Blue	60	
	Brown	90	
	Black	120 (2)	
Blue (3)	White	20	With no intumescent seal fitted With intumescent seal in either door edge or frame
	White	30	
<p>(1) FD 120 rating is unlikely to be achieved with conventional timber frames</p> <p>(2) FD 120 rating is not achievable with conventional timber frames</p> <p>(3) Only one door construction with a fire resistance rating of 30min that satisfies both FD 20 without an additional intumescent seal fitted and FD 30 with an intumescent seal fitted are marked with a blue/white plug</p>			

NOTE 1:Existence of a colour code does not necessarily mean that the product is available.

NOTE 2: Attention is drawn to the fact that some marking systems are controlled within third party certification schemes whereas other are purely identification in their own right and do not imply such certification.

*Table derived from BS 8214: 1990*

## 7.5 IRONMONGERY

Ironmongery must comply with the Code of Practice of the Association of Builders Hardware Manufacturers.

Voids around the locking mechanism must be kept to a minimum and filled with intumescent paste or be encapsulated with a proprietary intumescent product.

All fire-resisting doors of traditional construction shall be hung on 3no. 100mm steel butt hinges. More recent development of certified lighter fire doors may mean that 2 hinges could be acceptable.

All doors required for means of escape from the property must be capable of being opened from the inside without the use of a key.

Locks, which are fitted, may be cylinder roller bolt or mortice locks with internal thumb turn. 5 lever internal thumb turn mortice locks with latch and lever handles are recommended with respect to the insurance consideration.

The doorstops should not be cut away to facilitate any lock and latch.

It is important that landlords advise their insurers of the need for these locks to be provided, additionally all occupiers should be made aware of the need to advise their insurers.

Letter plates to the doors of individual lettings should be discouraged as they rarely provide thirty minutes integrity under test conditions, although there are intumescent products available.

If a letter plate is to be used or is encountered then an inner steel plate should be fitted, preferably with a generous overlap, this will probably not provide a full half hours fire resistance under test, but would perform better than an unprotected letter plate in real fire conditions.

The letter plate should not be set at any higher than half way up the door as fire generated pressure becomes greater towards the head of the door. Letter plates should be higher than 800mm and not more than 1000mm above floor level.

## 7.6 GLAZING

Glazing in fire doors is neither routinely found nor specified.

In certain circumstances glazing in doors could be appropriate, for example in some hostel or care home type environments, or where room layout demands additional health and safety consideration.

Fire resisting glazing may be permitted over a fire door in limited circumstances, e.g. in inner flat doors to give borrowed light – **see section 9.0**

## **7.7 SELF CLOSING DEVICES**

All fire doors shall be fitted with a proprietary automatic self-closing device. The device should be capable of closing the door into its keep in one operation and should be fitted to both door and frame.

Certain types of door closers require additional ventilation to ensure that the door shuts properly.

The use of overhead hydraulic door closers obviates the need for additional ventilation.

Rising butt hinges or garden gate springs are not acceptable on fire doors.

In a small number of cases some HMOs accommodate people who have difficulty in operating doors fitted with self closing devices, there are devices available which only become self closing when the fire detector system is activated and in normal course of events the door operates in a conventional manner, this sort of situation requires individual consideration and account should be taken of other fire safety features within the building. Such devices would not be routinely permitted on doors opening into stairway enclosures. Hold open devices will only be acceptable with a HMO provided they conform to BS 5839 Part 3; BSEN 1155 and their application has been subject to a risk assessed process.

## **7.8 DOORS – other matters**

A door from a space from which more than 50 people may need to escape should open in the direction of escape. Consideration will often have to be given to the terrain leading from the final exit from the building to a final place of safety to ensure that the surface over which people would pass when escaping from fire is free from hazards.

## **7.9 FASTENING ON DOORS**

Doors used for means of escape should be readily openable from within the enclosure without the use of a key when people are in the building.

## 8.0 FIRE RESISTANCE

*Certain elements of structure are required to have a specific degree of fire resistance. This means that an element of structure shall be capable of resisting the action of fire for the specified period under the conditions of test appropriate to such an element, in accordance with BS 476: Part 8.*

Several methods of achieving the required level of protection for floors, ceilings and partitions are outlined below. It should be noted that other methods of reaching the required period of fire resistance are available.

Where branded products are used, however, the manufacturer's instructions as to use should be strictly adhered to.

### 8.1 FLOORS

*(All diagrams in this section are derived from Northern Ireland Fire Brigade Fire Prevention Note No.3)*

**For additional guidance on the fire resistance of floors, reference should be made to publications including Gypsum White Book, BRE guides and TRADA Publications.**

*Where a fire resistant floor is required the floor shall afford the minimum fire resistance specified and be:*

**Either**

- a) An existing floor construction which meets the criteria for fire resistance required, or
- b) An existing floor construction, which has been upgraded to meet the fire resistance, required.

Where a floor is to be upgraded the existing construction must be established.

Upgrading a floor to half-hour or one hour fire resistance may be achieved by

- a) Applying alternative or additional ceiling protection, or
- b) By applying additional protection from above.

#### **Note**

Failure of fire resistant ceilings has occurred in the past due to damp penetration. Thus it is imperative that the external fabric has not deteriorated to such an extent that damp penetration could effect the structural stability of the fire resistant construction. In cellar situations dampness originating from the adjoining cellar walls can cause failure of the fire resistant ceilings. Consideration should be given to ensuring that where a ceiling in a cellar is upgraded it should not abut the cellar walls, and a moisture barrier sealant incorporating intumescent material should be used.

PVC or similar material service pipes passing through floors and ceiling must be provided with intumescent collars or be boxed in with fire resisting construction. In any event voids around service pipes of whatever material compromise the integrity of the structure they pass through and the filling of these voids with intumescent material is necessary. **See paragraph 8.3**

### 8.1.1 UPGRADING AN EXISTING FLOOR TO PROVIDE HALF HOUR FIRE RESISTANCE.

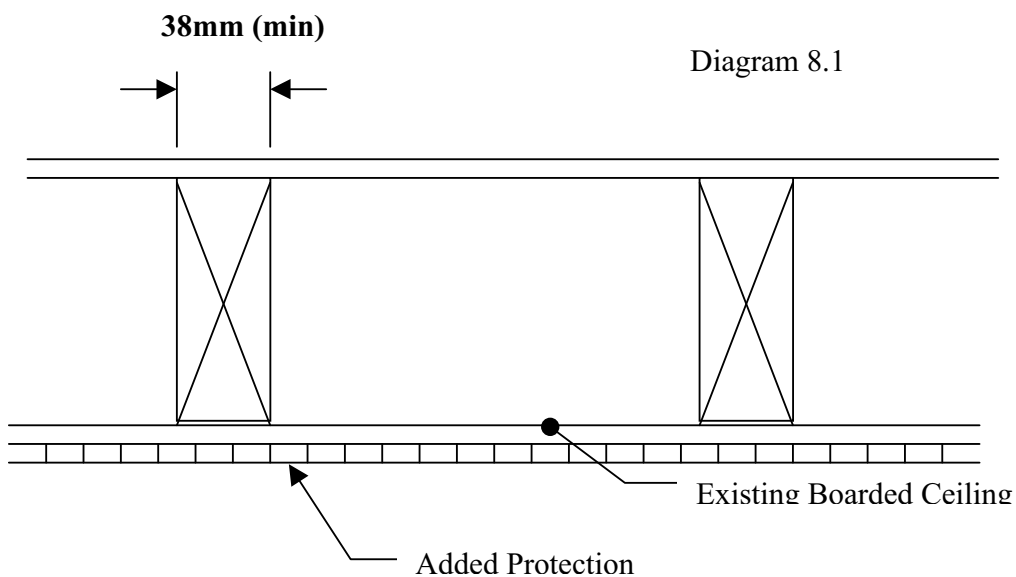
a) Protection Added to the Underside of Existing Ceiling

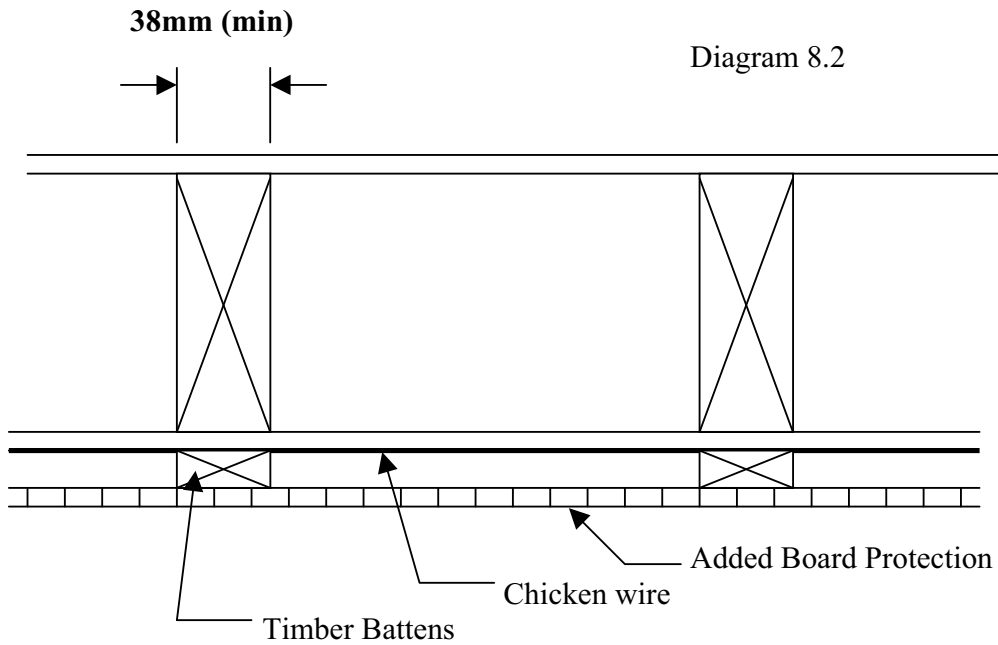
**Table 8.1**

REQUIRED PERIOD OF FIRE RESISTANCE.	EXISTING CEILING	ADDITIONAL PROTECTION
Half-hour	13mm fibre insulating board with gypsum plaster finish (diagram 8.1)	12.5mm plasterboard
	9.5mm plasterboard with gypsum plaster finish	9.5mm plasterboard <sup>1</sup> 2 12.5mm plasterboard <sup>3</sup>
	16mm plaster on wood or reed lath (diagram 8.2)	12.5mm plasterboard on battens

With plaster finishes to lath, the dimensions given are those from the face of the lath.

1. If floor boarding is good fitting 21mm tongued and grooved (or equivalent)
2. Supports not to exceed 450mm
3. If floor boarding is plain edged (or badly fitted T&G)

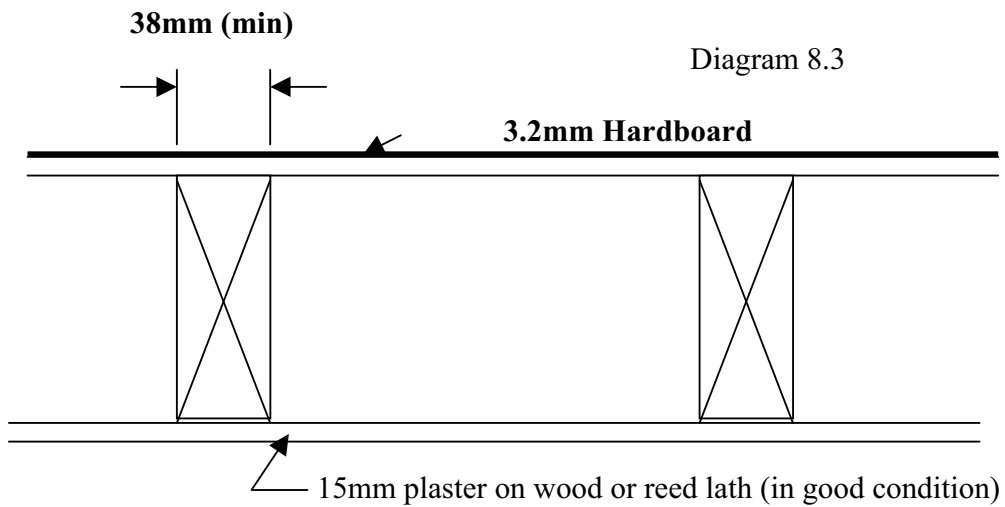




**b) Protection Applied From Above.**

Where existing floors comprising plain edge boarding or badly fitting T&G boarding on timber floor joists 38mm thick at 400mm centres and where the existing ceiling construction is in good condition then:

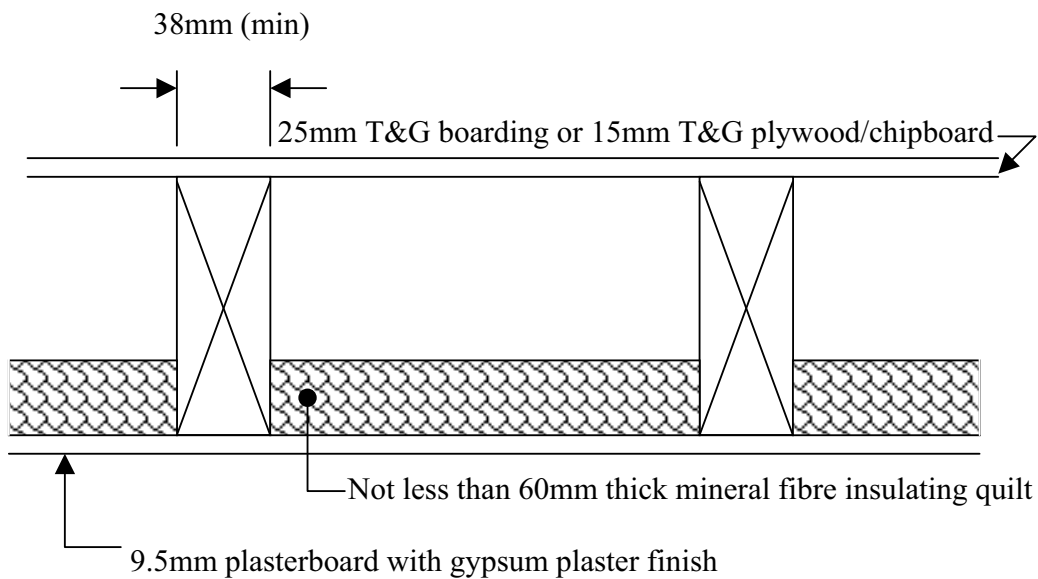
Apply additional 3.2mm (minimum) hardboard to B.S. 1142: Part 2 to the whole of the floor surface, nailed at 150mm centres in line with joists (dia 8.3)



*If the existing floor is tongued and grooved, 25mm nominal boarding or 15mm plywood or chipboard, on 38mm timber joists at 400mm centres and where the existing ceiling construction is of 9.5mm plasterboard with a gypsum plaster finish then:*

Apply 60mm (minimum) mineral fibre insulating material (formed from crushed rock or blast furnace slag) laid between the joists and fixed to the joist sides. Fixing nails or staple should penetrate into the joist sides to a minimum depth of 20mm (diagram 8.4).

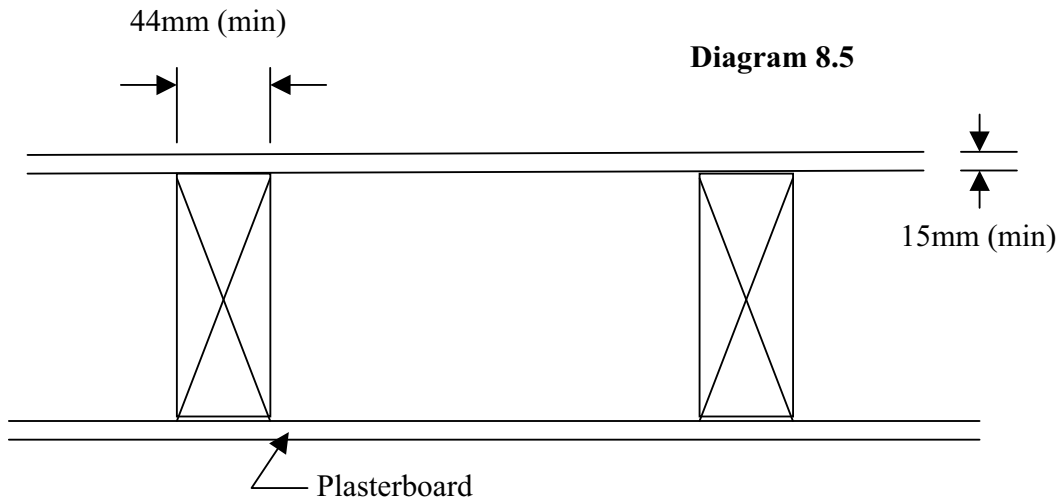
**Diagram 8.4**



**c) Fixing to Open Joist Ceilings.**

Where the joists are open or following the removal of the existing ceiling, the existing floor comprises (minimum 15mm) tongued and grooved floor boarding on timber joists 44mm thick then:

Apply a single board of 12.5mm fire rated plasterboard (complying with B.S. 1230: 1970) nailed to joists with 40mm (minimum) nails at 150mm centres. All cuts and ends to be supported on noggins (diagram 8.5).



Where the joists are open or following the removal of the existing ceiling, the existing floor comprises (minimum 15mm) tongued and grooved floor boarding.

Provide 2 layers of plasterboard each 9.5mm thick (all joints overlapped) and 4.5mm gypsum plaster finish.

#### **d) Protection Leaving Existing Joists Exposed**

Table 8.2 gives information about flooring and protection between joists, which will provide a half-hour period of fire resistance with the joists exposed. The joists should be of a size, which will enable them to retain their structural stability even after some charring of the timber has occurred. If there is insufficient sacrificial timber to maintain structural stability for the full period of fire resistance, the amount of joist permitted to remain can be reduced by adjusting the position of the ceiling protection relative to the depth of the joists. It is permissible to build up joists to provide sacrificial timber. If this is done, at least 10 minutes extra allowance for charring should be provided and the screw fixings should be countersunk at least 6mm with the holes made good.

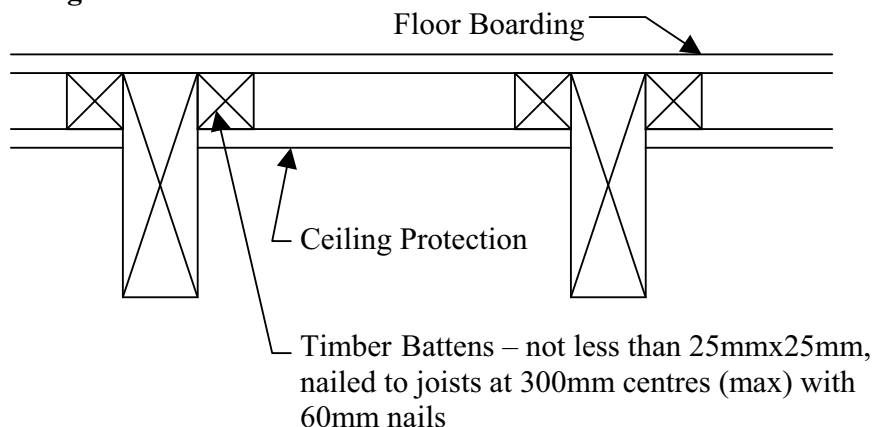


**Table 8.2**

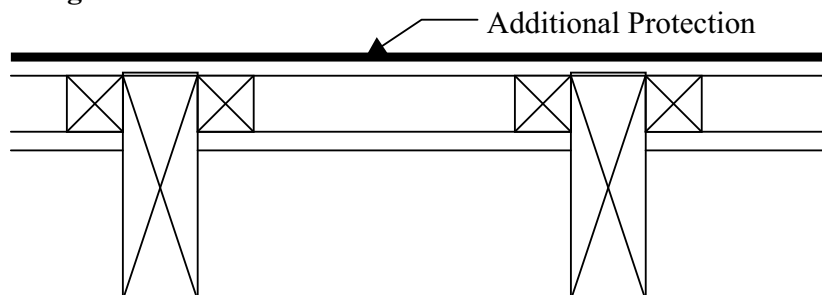
REQUIRED PERIOD OF FIRE RESISTANCE.	EXISTING FLOOR BOARDING	PROTECTION BETWEEN JOISTS
Half-hour Diagram 8.6	Square edged (any thickness)	2 layers of 12.5mm plasterboard with joists staggered
	15mm T&G plywood	9.5mm plasterboard <sup>1</sup> with 5mm gypsum board finish plaster.
	21mm good fitting T&G	12.5mm plasterboard
Half-hour Diagram 8.7	Square edged overlaid <sup>2</sup>	12.5mm plasterboard

1. Supports not to exceed 450mm centres
2. Not less than 3.2mm standard hardboard Type S to BS 1142: Part 2 (or 4mm plywood) nailed at not more than 150mm centres on line of joists to break joint. Joints to coincide with the line of joists.

**Diagram 8.6**



**Diagram 8.7**



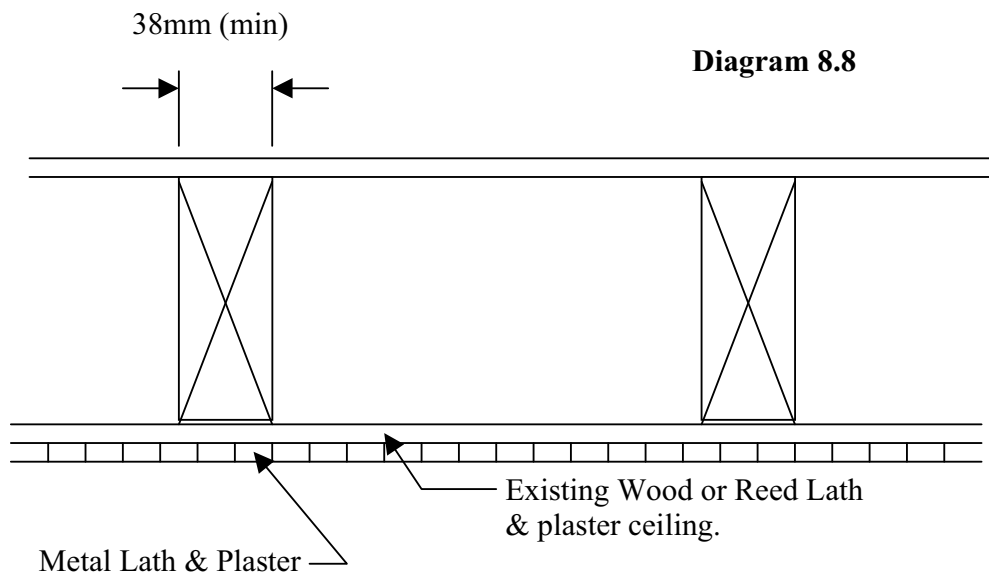
### 8.1.2 UPGRADING AN EXISTING FLOOR TO PROVIDE ONE HOUR FIRE RESISTANCE.

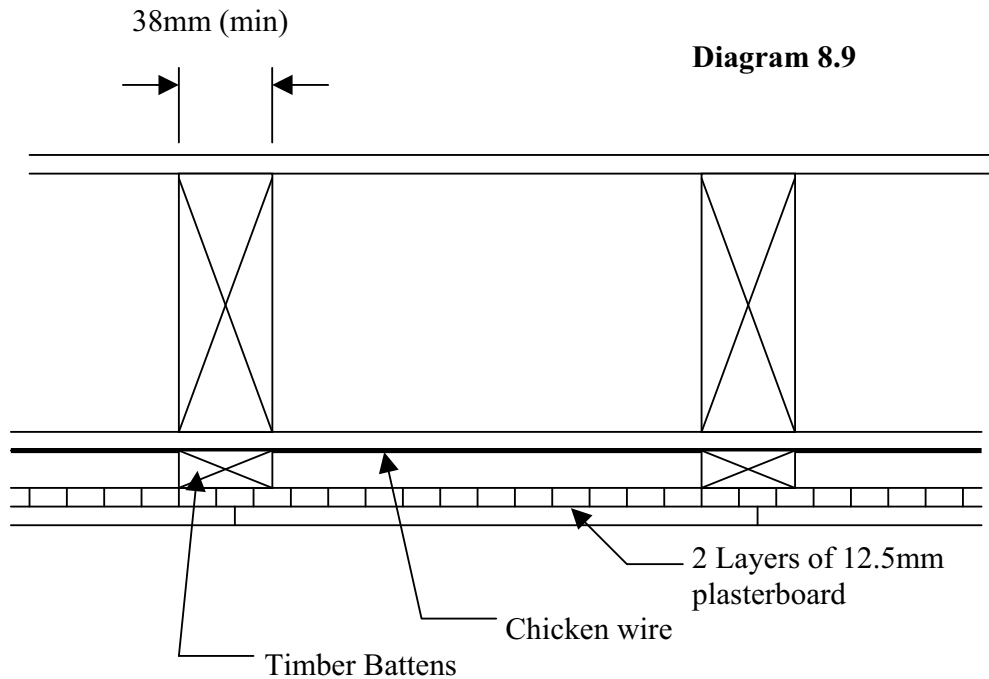
#### a) Protection Added to the Underside of Existing Ceiling

**Table 8.3**

REQUIRED PERIOD OF FIRE RESISTANCE.	EXISTING CEILING	ADDITIONAL PROTECTION
One-hour	(A) 9.5mm plasterboard with gypsum plaster finish	13mm lightweight plaster (metal lathing grade) on metal laths <sup>1</sup> (Diagram 8.8)
	(B) 12.5mm plasterboard with gypsum plaster finish	
	(C) 16mm plaster on wood or reed lath	
	A, B & C as above.	2 layers of 12.5mm on battens <sup>2</sup> (Diagram 8.9)

1. Metal lath to be fixed 10mm centres with galvanised clout head nails, spaced away from the background by some suitable means, to give a 6mm gap. Minimum joist width 38mm and maximum joist spacing of 400mm.
2. Apply chicken wire to the existing ceiling with galvanised clout nails. Batten (38mm x 25mm) out off the existing joists to receive 2 layers of 12.5mm proprietary fire insulating board with all joints staggered.



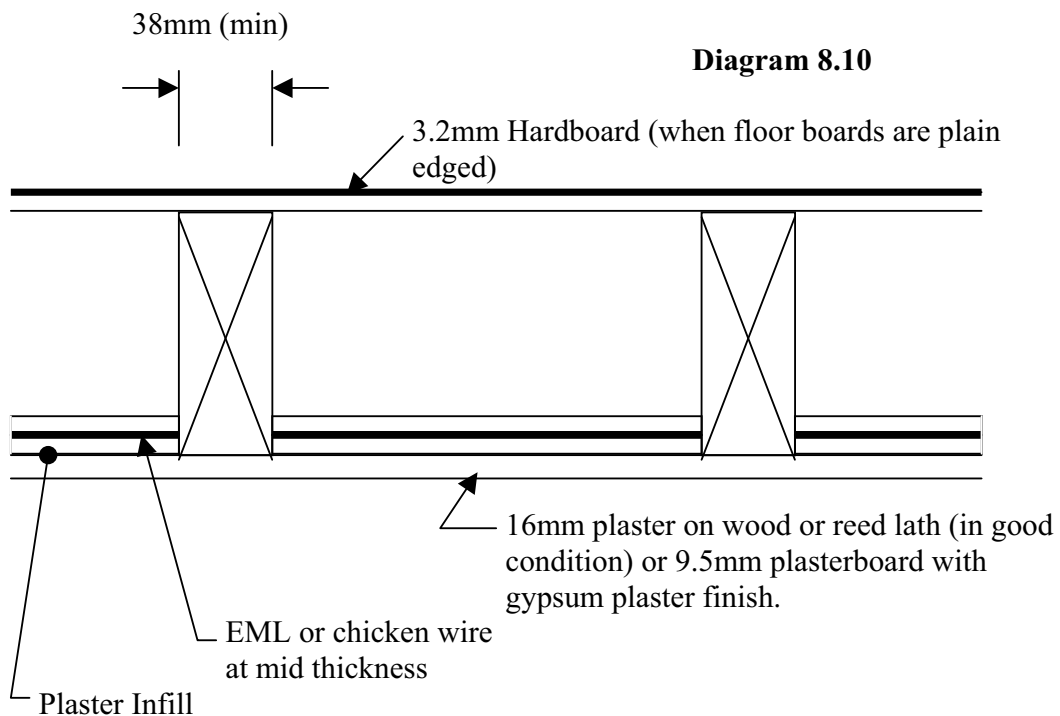


**b) Protection Applied From Above.**

**Table 8.4**

REQUIRED PERIOD OF FIRE RESISTANCE.	FLOOR BOARDING	CEILING	ADDITIONAL PROTECTION (see key below)
One-hour	Plain Edged	9.5mm plasterboard with gypsum plaster finish	1 & 2
	Plain Edged	16mm plaster on wood or reed lath	1 & 2
	21mm good fitting T&G	16mm plaster on wood or reed lath	2

1. Not less than 3.2mm standard hardboard Type S to BS 1142: Part 2 (or 4mm plywood) nailed at not more than 150mm centres on line of joists to the existing floor to break joint; joints to coincide with the line of joists.
2. 19mm lightweight aggregate gypsum plaster (metal lathing grade) trowelled between joists in conjunction with expanded metal lathing or chicken wire well turned up and fixed to the joist sides or continuous over joists. To prevent staining the existing ceiling, polythene sheet can be placed before the plaster infill. The fixing nails or staples should penetrate the joist sides to a minimum depth of 20mm and should be spaced at 150mm centres (max).



### c) Fixing to Open Joist Ceilings.

Floors with open joists (minimum width 38mm) to receive a first layer of 12.5mm proprietary fire insulating board direct to joists with a second layer fixed with all joints staggered. All joints between boards and between board edge and the wall are to be filled with plaster, scrimmed and skimmed to ensure resistance to the passage of fire, or alternatively,

Floors with open joists (minimum width 50mm) to receive 2 layers of 12.5mm plasterboard with all joints staggered, scrimmed and skimmed to provide a minimum overall thickness of 30mm.

### 8.1.3 PROPRIETARY SYSTEMS FOR UPGRADING EXISTING FLOORS TO THE SPECIFIED PERIOD OF FIRE RESISTANCE.

Proprietary systems are currently available for the upgrading of existing traditional timber/lathe and plaster floor constructions.

Existing timber/lathe and plaster floor constructions have no known, or specific, fire rating. As a consequence the modern fire control concept of compartmentation is difficult to achieve without destroying, covering or otherwise compromising ceiling finishes of architectural merit or historical value. Such systems are generally made up of lightweight, incombustible, low-density cellular material. Such proprietary systems effectively fill the voids between joists upgrading the floor to become a fire compartment boundary.

## 8.2 WALLS

Wherever a fire resistant wall or partition is required, the partition shall afford the minimum fire resistance specified and be:

an existing wall or partition which meets the criteria for the period of fire resistance required (e.g. masonry walls), or  
a new masonry wall or framework covered with boarding to meet the fire resistance required.

The fire resistance afforded by walls and partitions must not be less than that provided by any associated doors.

**Table 8.5 MASONRY CONSTRUCTION**

Construction and Materials	Minimum thickness in mm (excluding plaster) for period of fire resistance of							
	Hours/load bearing				Hours/Non-Load bearing			
	4	2	1	½	4	2	1	½
Reinforced concrete, minimum cover to main reinforcement of 25mm								
(a) Unplastered	175	100	75	75				
(b) 12.5mm vermiculite gypsum plaster	125	75	75	75				
Bricks of clay, concrete or sand lime								
(a) Unplastered	200	100	100	100	169	100	75	75
(b) 12.5mm vermiculite gypsum plaster	100	100	100	100	100	100	75	75
Concrete block of Class 1 aggregate								
(a) Unplastered	150	100	100	100	150	75	75	50
Concrete block of Class 11 aggregate								
(a) Unplastered		100	100	100	150	100	75	50
(b) 12.5mm vermiculite plaster	100	100	100	100	100	75	75	50
Cavity wall with outer leaf of bricks and not less than 100mm thick and:-								
(a) Inner leaf of bricks or concrete of sand lime	100	100	100	100	100	75	75	75

**Class 1** aggregate means foamed slag, pumice, blast furnace slag, pelleted fly ash, crushed brick and burnt clay products, well burnt clinker and crushed limestone.

**Class 11** aggregate means flint gravel, granite, and all crushed natural stones other than limestone.

Any reference to plaster means, in the case of any wall, plaster applied to both faces.

## FRAMED CONSTRUCTION (NON-LOADBEARING)

**TABLE 8.6**

<b>STEEL OR TIMBER FRAME WITH FACINGS ON EACH SIDE OF:-</b>	<b>PERIOD OF FIRE RESISTANCE IN HOURS</b>
Metal lathing with cement sand or gypsum plaster of thickness of:-	
(a) 18.75mm	1
(b) 12.5mm	½
Metal lathing with vermiculite-gypsum plaster of thickness of:-	
(a) 25mm	2
(b) 12.5mm	1
9.5mm plasterboard with gypsum plaster of thickness of:-	
(a) 4.5mm	½
9.5mm plasterboard with vermiculite-gypsum plaster of thickness of:-	
(a) 25mm	2
(b) 9.5mm	1
(c) 4.5mm	½
12.5mm plasterboard	
(a) Unplastered	½
(b) with gypsum plaster of thickness of 12.5mm	1
12.5mm plasterboard with vermiculite-gypsum plaster of thickness of:-	
(a) 25mm	2
(b) 9.5mm	1
Asbestos insulating board of not less than 9mm, fillets to face studs	½
25mm woodwool stabs with gypsum plaster of thickness of 12.5mm	1

Where partition walls are unplastered the joints should be taped and filled using joint compound as recommended by the board manufacturer. Any gaps between the walls and surrounding structure should be filled flush using the jointing compound.

### 8.3 PIPES PASSING THROUGH STRUCTURE.

*Any pipes passing through fire resisting structure should be protected to prevent fire penetrating. This can be done in several ways.*

Pipes of incombustible materials e.g. steel or cast iron may pass through the structure without any fire resisting cladding subject to a maximum diameter of 160mm and being fire-stopped at the junction of the pipe and the wall or floor. Pipes of PVC, lead or aluminium or fibre cement may pass through fire resisting structure but should be fire-stopped where they pass through floors and should be protected by half-hour fire resisting cladding for their full height. Any openings for the passage of pipes should be as small as practicable and fire stopped around the pipe. The cladding should otherwise be imperforate except for any access panel and not of sheet metal. As an alternative any pipe can remain unprotected if it is fitted with an approved intumescent collar and the pipe is of a material that would be effectively sealed in the event of a fire. The collars are usually fixed to the underside of the fire-resisting ceiling.

In the case of pipes of 40mm diameter or less of any material these need no protection but should be fire stopped where they pass through the structure.

Fire stopping may consist of any proprietary material that has been shown by test to be suitable. Generally cement mortar, gypsum plasters, certain glass and rock fibres and intumescent mastics are suitable. Non rigid materials may require support.

## 9.0 GLAZING

For the purpose of this document glazing can be used to give periods of fire resistance of up to one hour, the actual fire resistance is determined by the nature and dimensions of the glass, the type of frame and method of securing the glass.

To upgrade existing HMOs it is generally acceptable to use uninsulated fire resisting glazing above 1.1 metres in height above the adjoining floor in the enclosures of a protected route (half hour fire resistance) or an area of higher risk (one hour fire resistance). However, fire-resisting glazing should not be introduced in locations where the means of escape standards would be made worse than before.

The replacement of existing non fire resisting glazing with fire resisting glazing in existing buildings may be considered an acceptable improvement.

The limitations on the use of uninsulated fire resisting glazing in existing buildings may be considered an acceptable improvement.

The limitations on the use of uninsulated fire resisting glazing for Building Regulation purposes are described in the table below and it should be noted in this case that uninsulated fire resisting glazing is not permitted between residential/sleeping accommodation and a protected corridor or lobby.

Wired glass should not be used in panes exceeding 1.2m<sup>2</sup> in area and should be 6mm thick for half-hour fire resistance. For one-hour fire resistance panes should not exceed 0.5m<sup>2</sup>.

The design data for wired glazing in different frames is set out below and is applicable to glazed areas in walls and partitions:-

### 9.1 HALF HOUR FIRE RESISTANCE

The frame members and dividing bars should be not less than 56mm deep and 44mm wide with the rebate worked from the solid material. For the protection of timber beading intumescent paints have proved satisfactory, but a more durable method using metal capping is preferable.

Alternatively, non-combustible beads may be used. These should not melt or disintegrate at temperatures below 900° Celsius.



## **9.2 ONE HOUR FIRE RESISTANCE**

It is impractical to use wooden frames and beading alone, however substantial they may be. Generally the glass should be held in non-combustible inserts, (proprietary systems are available), fixed to timber frames. The inserts should preferably not be of metal since it is necessary to reduce the heat conduction and the material from which they are made should not melt or disintegrate below 900° Celsius.

## **9.3 GLAZING IN FIRE DOORS**

Where existing HMOs are being upgraded fire resisting glazing is permitted in doors forming the enclosure of a protected route (half hour fire resistance) and also where enclosing an area of higher fire risk (one hour fire resistance).

Uninsulated fire resisting glazing is only permitted over 1.1 metres above the adjoining floor level. Any glazing below that height should also have the appropriate insulation criterion of BS 476.

Fire resisting glazing in fixed fanlights above the door is also permitted in the above situation.

Where Building Regulations are applied to the work (e.g. conversion to self-contained flats) the limitations on the use of uninsulated glazed elements are adequately described in Table 18, of Technical Booklet E (page 29) which supports the Northern Ireland Building Regulations 1994. A copy of this table has been reproduced below. It should be noted that there are greater restrictions on the use of glazing in this case.

Glazing within fire doors or associated fixed fanlights should be 6mm wired glass fixed in accordance with BS 6262 or using the manufacturers test information and instructions.

For half hour fire resisting glazing beading should be non-combustible or if timber is used it should be protected with intumescent paint or metal capping.

Fire resistant glazing should not be introduced in locations where the means of escape standards would be made worse than before.

#### **9.4 USE OF SAFETY GLASS**

Glazing which is below 800mm in walls and partitions or below 1500mm if located in a door or adjoining side panel should be constructed in accordance with the Northern Ireland Building Regulations.

This would require the use of a glass which either: -

- \* Breaks safely, if it breaks (this would not usually apply to fire resisting glazing; or
- \* is robust; or
- \* is glazed in small panes; or
- \* is permanently protected, e.g. by robust screen.

Wired glass may in itself not satisfy these conditions and careful consideration should be given to the location of glazing particularly where guarding is also required.

The use of safety glazing, which is also fire resisting, may be necessary to meet the above criteria.

<b>Table 9A Limitations on the use of uninsulated glazed elements on escape routes. (These limitations do not apply to glazed elements which satisfy the relevant insulation criterion)</b>			
Position of glazed element	Maximum total glazed area in parts of a building with access to:		Door-leaf
	Single stairway	More than one stairway	
	Walls	Door-leaf	Walls
1. single family dwelling houses within the enclosure of a protected stairway or within fore-resisting separation	Fixed fanlights only	Unlimited	Fixed fanlights only
2. within the enclosure of a protected entrance hall or protected landing of a flat or maisonette	Fixed fanlights only	Unlimited above 1.1m from floor	Fixed fanlights only
3. Between residential/sleeping accommodation and a common escape route (corridor, lobby or stair)	Nil	Nil	Nil
4. Between a protected stairway (1) and:	Nil	25% of door area	Unlimited above
i. the accommodation; or			50% of door area.
ii. a corridor which is not a protected corridor. Other than in item 3 above.			
5. Between:	Unlimited above 1.1m from floor	Unlimited above 0.1m from floor	Unlimited above 0.1m from floor
i. a protected stairway and a protected lobby or protected corridor; or			
ii. accommodation and a protected lobby, other than in item 3 above			
6. Between the accommodation and a protected corridor forming a dead end. Other than in item 3 above	Unlimited above 1.1m from floor	Unlimited above 0.1m from floor	Unlimited above 0.1m from floor
7. Between accommodation and any corridor; or subdividing corridors. Other than in item 3 above.	Not applicable	Not applicable	Unlimited above 0.1m from floor
<b>Notes</b>			
1. If the protected stairway is also a protected shaft or firefighting stair there may be further restrictions on the use of glazed elements.			
2. Measures vertically from the landing floor level at the landing pitch line.			

## 10.0 SURFACE FINISHES OF WALLS, CEILINGS ETC APPLICABLE TO SELF CONTAINED UNITS AND HOSTEL TYPE ACCOMMODATION

In the early stages of a fire in a building, the personal hazard to residents can be severely affected by the surface linings and finishes of the walls and ceilings and of partitions, space dividers and similar vertical surfaces.

Materials likely to be found in situ in existing buildings are often difficult to assess in terms of their contribution to the spread of flame and the development of fire.

Where buildings have been subject to requirements relating to internal fire spread (linings) – in connection with the depositing of plans with the local authority for the purpose of Building Regulations – the surface finishes of walls and ceilings should be of the same standard in respect of which Building Regulations approval was obtained.

In all other circumstances the surface finishes of walls and ceilings should generally be of a standard not lower than that indicated in the table below.

Class 0	In circulation spaces and escape routes
Class 1	In rooms other than small rooms and places of assembly
Class 3	In small rooms – not exceeding 4m <sup>2</sup>

The following are examples of the type of finishes, which should meet the required standards. Where there is doubt as to whether a manufactured or treated surface finish meets the appropriate standard written evidence of the standard achieved should be obtained and suitable maintenance of any special coatings should be provided for where appropriate.

### EXAMPLES OF ACCEPTABLE FINISHES

#### **CLASS 0: ACCEPTABLE IN ALL LOCATIONS INCLUDING CIRCULATION SPACES AND ESCAPE ROUTES.**

*Brickwork, blockwork, concrete, plasterboard, ceramic tiles, plaster finishes (including rendering on wood or metal laths), woodwool slab, thin vinyl and paper coverings on inorganic surface – other than heavy flock wallpaper, and certain thermosetting plastics.*

**CLASS 1: ACCEPTABLE IN ALL ROOMS**

Timber, hardboard, block-board, particleboard (chipboard), heavy flock wallpapers, thermosetting plastics that have been flame retardant treated.

**These are not acceptable on escape routes such as stairways, corridors and entrance halls.**

**CLASS 3: ACCEPTABLE IN SMALL ROOMS AND ON PARTS OF THE WALLS OF OTHER ROOMS IF THE TOTAL AREA OF THOSE PARTS DOES NOT EXCEED AN AREA EQUIVALENT TO ONE HALF OF THE FLOOR AREA SUBJECT TO A MAXIMUM OF 20M<sup>2</sup>**

Timber, hardboard, block-board, particleboard (chipboard), heavy flock wallpapers, thermosetting plastics and thermoplastics (expanded polystyrene wall and ceiling linings)

**Not acceptable on escape routes such as stairways, corridors, entrance halls or in rooms other than as specified as above.**

**NOTES:**

- Classes 1 and 3 are classifications determined by reference to a test method specified in BS 476: Part 7, Class 1 being the best.
- The classification Class 0 is not referred to in a British Standard test but refers to a standard which restricts both the spread of flame across a surface and also the rate at which heat is released from it. It is higher standard than Class 1 and is referred to in Technical Booklet E that gives guidance on the way in which the functional requirements of the Building Regulations may be met in Northern Ireland.

## 11.0 EMERGENCY/ESCAPE LIGHTING

### 11.1 1 AND 2 STOREY HMOs.

**Emergency/escape lighting is not required in 1 and 2 storey HMOs**

*Except*

**If the route of escape is complex or lengthy or**

The HMO is occupied by 6 or more persons or

Where no natural light is available

Where it is provided then it shall conform to **paragraph 11.3 below.**

### 11.2 3 STOREY HMOs.

**Emergency lighting is not required in 3 storey HMOs**

*Except*

**If the route of escape is complex or lengthy or**

The HMO is occupied by 6 or more persons or

Where no natural light is available

Where it is provided then it shall conform to **paragraph 11.3 below.**

### 11.3 HMOs WITH 4 OR MORE STOREYS

***Emergency/Escape lighting should be provided throughout the escape route of all HMOs with 4 or more storeys and may be required in communal rooms.***

When the supply to the normal lighting or parts of the normal lighting to a HMO fails, emergency escape lighting is required to fulfil the following functions:

- a) to indicate clearly and unambiguously the escape routes;
- b) to provide illumination along such routes to allow safe movement towards and through the exits provided;
- c) to ensure that fire alarm call points and fire fighting equipment provided along the escape routes can be readily located.

Emergency lighting should be provided in accordance with British Standard 5266. Part 1:1999. Code of Practice for the Emergency lighting of Premises other than cinemas and certain other specified premises used for entertainment.

Regard must be had to BS 5266 Part 1:1999 together with BS EN 1838 in relation to the siting of the luminaries. The number and position of luminaries will also be further dependent on the layout of the premises and the product chosen.

The Emergency/Escape lighting should be provided within 5 seconds of the failure of the normal lighting supply.

***For routes that are permanently unobstructed and up to 2m wide the horizontal illuminance at floor level on the centre line of the escape route should be not less than 0.2 lx but preferably 1 lx. For points of emphasis the minimum horizontal illuminance at the floor along the centre line of the escape route should be not less than 1 lx. In addition, for escape routes up to 2m wide, 50% of the route width should be lit to a minimum of 0.1 lx.***

In addition to providing the minimum illuminance as above, the Emergency/Escape lighting should indicate clearly the exit route and highlight any hazards such as staircases, changes in floor levels or changes in direction.

The whole system shall be tested and maintained regularly in accordance with the requirements of BS 5266 Part 1: 1999.

## 12.0 GENERAL PROVISIONS

### 12.1 ELECTRICITY SUPPLY

There should be continuity of supply to the fire detection and emergency lighting systems serving the house and to the ordinary domestic lighting circuits serving the common areas.

Pre-payment electricity meters of whatever kind serving these installations are unacceptable.

### 12.2 ROOM LAYOUT AND OTHER MISCELLANEOUS MATTERS

A major principal of room layout is that escape should not involve travel from a lower risk room through a higher risk room. **See section 5.**

### 12.3 SITING OF COOKING FACILITIES

*Cooking facilities shall be safely situated and should not, for example, be located immediately adjacent to room exits or windows.*

### 12.4 NOTICES AND SIGNS

All fire safety signs, notices and graphical symbols should conform as far as practicable with British Standard 5499: Part 1: Specification for Fire Safety Signs, where applicable British Standard 2560: Specification for Exit Signs (internally illuminated) and Health and Safety (Signs and Signals) Regulations (NI) 1996. Existing signs and notices need not be replaced immediately if they are fulfilling their purpose effectively. They should, however, be examined and be replaced if they are found to be inadequate.

A door fitted with a panic bolt or panic latch should have the words “push bar to open” in conspicuous lettering of appropriate size printed on the door immediately above the push-bar.

A sign with the words “Fire Door-Keep Shut” should be permanently displayed at about eye level on both faces of all fire doors except doors which are kept open and which close automatically on the operation of fire sensors. Doors of the latter kind should be marked in lettering of appropriate size “Automatic Fire Door – Keep Clear”–“Close at Night” as appropriate. **“Fire Door” signs need not be displayed on the entrance doors to each individual occupied room in category A, B or D or on the doors to or within self-contained units (category F.)**

A sign with the words “Fire Door – Keep Locked” should be permanently displayed on the outside of all fire doors to cupboards and boiler rooms.



A sign with the words “Fire Escape – Keep Clear” should be permanently displayed at about eye level on each face of all doors which are provided solely as means of escape in case of fire and which, because they are not normally used, are liable to be obstructed. This is particularly relevant in the case of communicating or by-pass doors used as fire exits which pass through habitable rooms – see **paragraph 5.6**

With reference to Regulation 10(2) of the management regulations, it is intended that any exit which is not a normal route of travel from a building should be indicated by a sign bearing the words “Fire Exit” in lettering of appropriate size. The sign should be displayed immediately above the exit opening, wherever possible. Where this is not possible a position should be chosen where the sign is least likely to be obstructed and most likely to be seen.

At suitable points along an escape route where an exit sign cannot be seen or where a person escaping might be in doubt as to the location of an exit, a sign should be provided bearing, in lettering of appropriate size, the words “Fire Exit” and the necessary directional arrow. Such signs should be fixed in conspicuous positions, wherever possible between 2 metres and 2.5metre above floor level.

***Exit and directional signs should be internally or otherwise illuminated so as to be clearly seen.***

### 13.0 FIRE FIGHTING EQUIPMENT

Fire fighting equipment shall be provided in all HMOs.

The number and siting of all fire extinguishers will depend on the size and layout of the property being considered. However the following is given as a guide:

The provision shall be:

A multi-risk fire extinguisher of 13A rating situated on each floor.

A fire blanket in each room used for cooking in accordance with BS 6575.

A carbon dioxide (CO<sub>2</sub>) extinguisher adjacent to any incoming mains electric supply cupboard.

Extinguishers shall be installed and maintained in accordance with BS EN-3: Part 3 and BS 5306 Part 3 (1985).

### 13.1 TYPES OF FIRE EXTINGUISHERS

Their uses and their colour coding according to BS EN 3: 1996

*The contents of an extinguisher are indicated by a zone of colour on the red body of the extinguisher.*

EXTINGUISHER TYPE	WATER	POWDER	FOAM	CARBON DIOXIDE (CO <sub>2</sub> )
Colour of indicating zone	Red	Blue	Yellow	Black
Types of fires the extinguisher should be used on	For wood, paper, textile and solid material fires	For liquid and electrical fires	For use on liquid fires	For liquid and electrical fires
Types of fires the extinguisher should not be used on	DO NOT USE on liquid, electrical or metal fires	DO NOT USE on metal fires	DO NOT USE on electrical or metal fires	DO NOT USE on metal fires.

Halon extinguishers are not shown since no new halon production is permitted in the UK

#### **14.0 STAFF FIRE INSTRUCTION AND DRILL IN HOSTEL -TYPE ACCOMMODATION (CATEGORY D)**

In the event of a fire the safety of residents is enhanced by the ability of staff to respond promptly. It is of vital importance therefore that all members of staff should be aware of, and instructed and trained to ensure that they understand, the fire precautions applicable to the duties outside the normal working hours. The aim should be to ensure that all staff receive instruction, practical demonstration and training appropriate to their responsibilities in the event of an emergency. These should be based on written instructions.

All residents in hostel type accommodation should be made aware of the evacuation procedures to be followed in the event of a fire and should be encouraged to participate in fire drills.

Instructions should be given by a competent person at such intervals as will ensure that all members of staff are instructed at least twice in each period of 12 months.

Instruction and training for staff generally should cover the following matters:

- i) The action to be taken upon discovering fire.
- ii) The action to be taken upon hearing the fire alarm.
- iii) Raising the alarm and the location of alarm call points and alarm indicator panels.
- iv) The correct method of calling the fire brigade.
- v) The location and use of fire fighting equipment.
- vi) Knowledge of the escape routes.
- vii) Appreciation of the importance of fire doors and of the need to close all doors at the time of a fire and on hearing the fire alarm.

Except in small hostel-type establishments, practice fire drills should be carried out at least twice a year. These should assume conditions in which one or more of the escape routes are obstructed by smoke. During these drills the fire alarm should be operated by a member of staff who is told of the supposed outbreak and, thereafter, the fire routine should be rehearsed as fully as circumstances allow. In small premises where not more than two members of staff are available the exercise should take the form of a walk over the escape routes, checking fire doors, the position of fire alarms and fire fighting equipment.

## **15.0 DUCTED AIR HEATING SYSTEMS AND MECHANICAL VENTILATION SYSTEMS.**

### **15.1 DUCTED AIR HEATING SYSTEMS**

A warm air heating system, which is designed to reduce the spread of fire and smoke, will contain the following components.

1. In situations where warm air is ducted to an entrance hall or stair, the return air shall be ducted back to the heater;
2. If a duct passes through any partition (wall, floor or ceiling) of an entrance hall or stair, all the joints between the duct and the surrounding partitions are sealed.
3. A Thermostat with a maximum setting of 35<sup>0</sup>C shall be located in the living room at a height between 1370mm and 1830mm. If the ambient temperature exceeds the 35<sup>0</sup>C setting the heater and any circulation fan will be switched off.

It should be noted that 4 and 5 will apply.

4. Transfer grilles shall not be fitted between any room and the entrance hall or stair;
5. Supply and return grilles shall not be installed more than 450mm above floor level.

If air is re-circulated within the system, smoke detectors will be provided in every extract duct to cause the recirculation of air to stop and direct all extract air to the outside of the building in the event of fire.

### **15.2 MECHANICAL VENTILATION SYSTEMS**

A system of mechanical ventilation designed to reduce the spread of fire and smoke is one where:

the system is of a suitable design and construction; and

1. it ensures, so far as is practicable, that air movement is directed away from escape routes; and
2. ducts within the system are of suitable design and construction; and
3. where a ventilating duct serving sleeping accommodation penetrates walls between sleeping accommodation, either above or below the ceiling, the duct is adequately protected to ensure that it cannot permit the spread of fire. Any automatic damper or shutter or other device in the duct is activated by smoke.

## **16.0 USER INSTRUCTIONS AND ROUTINE TESTING.**

### **16.1 USER INSTRUCTIONS.**

The supplier of the equipment should provide the owner/letting agent with written information on the following:

- I. Operation of the system;
- II. Action in the event of a fire alarm signal;
- III. Avoidance of false alarms;
- IV. Action in the event of a false alarm;
- V. Routine testing of the system;
- VI. Servicing and maintenance of the system (including intervals at which any batteries should be replaced);
- VII. The need to keep a clear space around all detectors and manual call points;
- VIII. Special precautions relevant to any lithium batteries used in the system;
- IX. Checking the system on reoccupation of the dwelling after a vacation, etc.;
- X. The need to avoid contamination of the detectors by paint.

The operating instructions should be sufficient to enable a lay person to understand fully the use of all controls and the meaning of all visual and audible signals that the system is capable of giving. The instructions should describe the circumstances under which silencing and disablement facilities should be used, but should stress the importance of maintaining the system in the normal state, in which fire can be detected and the alarm signals given.

The recommended action in the event of fire should stress the importance of ensuring that all occupants leave the building as quickly as possible and that the Fire Brigade is summoned immediately; it should be made clear that the Brigade should be summoned regardless of the size of the fire and regardless of whether there is a facility for transmission of alarms to a remote manned centre.

Guidance should be given to the owner/letting agent concerning common causes of false alarms and their avoidance. The landlord/agent should be advised to take precautions to prevent false alarms and damage to detectors by contamination during work that gives rise to dust, smoke, paint spray, etc. The means for resetting after false alarms should be made clear in the instructions.

**The landlord/letting agent should make available to each occupant of the dwelling all the user instructions.**

## **16.2 ROUTINE TESTING.**

The instructions should make it clear that the landlord/letting agent is responsible for routine testing of the system. All detectors should be tested at least once every year by a competent person to ensure that they respond to smoke. Tests should not involve the use of open flame or any other form of smoke or aerosol that could contaminate the detection chamber or the electronics of the detector. Suitable test aerosols are available.

## **17.0 FIRE PRECAUTIONS APPROPRIATE TO DISABLED PERSONS**

Managers of HMOs should inform tenants of the nature, function and capabilities of fire precautions that have been designed into the building, and especially those whose nature may be less evident. This enables a better understanding of the responsibility for ensuring that a high standard of safety is maintained.

### **17.1 PROVISION FOR ESCAPE**

The presumption of independent capability to use steps and stairs for egress is clearly inadequate when considering the safety of some disabled people. It is essential that all tenants are able to leave quickly any area in which they may be in danger from fire. Escape routes should be free from any features that might impede movement, such as unsuitable door ironmongery or raised thresholds or steps between changes of level within a storey. The width of door openings and circulation areas should be such that a wheelchair user or someone in need of assistance can move freely without undue obstructions. The Executives policy shall be that all reasonable measures are undertaken to ensure that disabled HMO tenants have sufficient time to safely egress from the building either directly or via refuge areas.

Advice can be obtained from: -

Disability Action  
Portside Business Park  
189 Airport Road West  
Belfast  
BT3 9ED  
Tel 028 9029 7880

### **17.2 FIRE ALARM SYSTEMS**

In the event of fire it is essential that all the occupants of a HMO are alerted as speedily as possible. Conventional fire alarm equipment and systems may not always be entirely satisfactory in certain circumstances for disabled people. Alternative types of alarm signals may be necessary, for example visual alarms, paging systems, vibrating devices or sound signals within carefully selected frequency bands. If such equipment is required the extent and type of coverage should be the subject of consultation with the fire authority. Technical advice on the selection of suitable devices may be obtained from the Royal National Institute for Deaf People.

## GLOSSARY

### GLOSSARY OF TERMS USED IN THE GUIDANCE.

**Access Room**

A room through which passes the only escape route from an inner room.

**Alternative escape routes**

Escape routes sufficiently separated by either direction and space, or by fire-resisting construction, to ensure that one is still available should the other be affected by fire.

**Circulation Area: Circulation Space**

An area or space, including a stairway, mainly used as a means of passage between a room and an exit from the building.

**Dead End**

Means a place from which escape is possible in one direction only or in directions less than 45° apart which are not separated by fire resisting construction.

**Detector**

A component of a fire detection and alarm system that contains at least one sensor which constantly, or at frequent intervals, monitors at least one physical and/or chemical phenomenon associated with fire, and that provides at least one corresponding signal to initiate a warning.

**Distance of travel**

Means the actual distance that a person must travel between any point in a building and the nearest final exit, or door to a stairway which is a protected route, or door to a protected lobby leading to a stairway, or door to adjoining premises as the case may be.

**Dwelling**

A unit of residential accommodation occupied (whether or not as a sole or main residence):

- by a single person or by people living together as a family; or
- by persons who do not live together as a family, but who live in self-contained single family flats or maisonettes within the unit.

**Final Voltage (of a battery)**

The voltage at which the cell manufacturer considers the cells to be fully discharged at the specified discharge current



**Control Equipment**

Equipment that, on receipt of a fire signal, controls the giving of a fire alarm by one or more of the following:

- fire alarm sounders;
- indicating equipment;
- a transmitter which is capable of transmitting fire alarm signals to a remote location

**Indicating Equipment**

Equipment that provides visual indication of any fire alarm or fault warning signal received from control equipment.

**Fire Alarm Sounder**

A component of a fire detection and alarm system for giving an audible warning of fire

**Fire Detection and Alarm System**

A system that comprises a means for automatically detecting one of the characteristic phenomena of fire and a means for providing a warning to occupants.

**Fire-resisting Construction**

Construction that is able to satisfy for a stated period of time some or all of the appropriate criteria given in the relevant parts of BS 476.

**Fire Risk**

A combination of the probability of fire occurring and the magnitude of the consequences of fire.

**Flat**

A dwelling, forming part of a larger building, that has all its rooms on one level or not more than half a storey height apart.

**House in Multiple Occupation**

A HMO is a “house which is occupied by persons who do not form a single household.” (Housing (NI) Order 1992.)

**Habitable Room**

Any room in a dwelling other than a kitchen, utility room bathroom, dressing room or WC.

**Inner Room**

A room from which escape is possible only by passing through another room (the access room.)

**Maisonette**

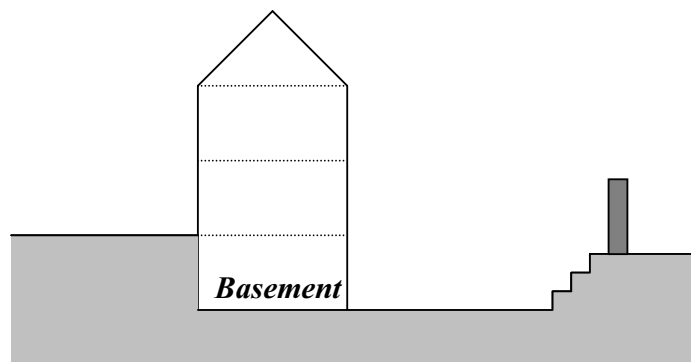
A dwelling, forming part of a larger building, which includes rooms on two or more levels that are more than half a storey height apart

**Normal Supply**

The supply from which the fire detection and alarm system is expected to obtain its power

**Occupied Basements**

An occupied basement is one, which has either a bedroom or living room below the level of the highest external ground level.

**Sheltered Housing**

A block or group of dwellings, with each dwelling incorporating its own cooking and sanitary facilities, designed specifically for persons who might require assistance, e.g. elderly people, and where some form of assistance is available at all times.

**Smoke**

Particulate and aerosol products of combustion, whether this is of the smoldering or open flame type.

**Smoke Alarm**

A device containing within one housing all the components, except possibly the energy source, necessary for detecting smoke and for giving an audible alarm.

**Social Alarm System**

A system that provides facilities for alarm initiation, signal transmission, alarm reception, reassurance and assistance, for use by elderly and other persons considered to be living at risk.

**Standby Supply**

An electricity supply that provides power to the normal fire detection and alarm system when the normal supply fails.

**Storey Height**

The distance in metres from the external ground level to the internal floor level of the storey under consideration.

**Vulnerable Person.**

This term is defined as an elderly person (over 60), children under 10, mentally or physically impaired persons, ill or depressed persons and persons on medication and known substance abusers (alcohol or drugs).

**Zone**

A subdivision of the protected premises such that the occurrence of the fire within it will be indicated by a fire alarm system separately from a fire in any other subdivision.

**BRITISH STANDARD 5839: PART 1, 1988****L Type Systems – Summary Explanation**

L type systems are installed primarily for the protection of life. There are 3 levels of protection:

- L3** Protection of Escape Routes (First Level of Protection):  
Automatic fire detection along the route of escape and within the adjacent rooms.

The system is to be designed so that in the event of a fire an alarm is given at a sufficiently early stage to allow time for the escape routes to be used before they are blocked by smoke. A detector should be sited in each room (other than a toilet) that opens directly onto any stairway and at each storey level. Detectors may be necessary in dormitories.

The absence of structural separation in roof voids could allow a fire to spread from an unprotected room and affect adjoining escape routes. Where the possibility of fire spread is not eliminated by structural means detectors should be sited either in the areas where fire might start or in the areas through which the fire products might reach the escape routes.

**L2 Protection of Vulnerable Areas (Second Level of Protection):**

Installation of detectors in those parts of the premises where the most vulnerable people are likely to be, or where the most dangerous fires are likely to start, as well as the escape routes.

Initial coverage is within the escape route as the L3 system described above.

Additionally:

- Those areas in which the normal occupants are especially vulnerable to fire starting in their vicinity and
- Those areas having a particularly high probability of ignition and from which fire or fire products could spread to affect the building occupants.

**L1 Total Coverage (Third Level of Protection)**

Requires fire detection in all parts of the premises.

In those areas which would have a direct effect on the occupants or their escape routes smoke detectors should be installed. Where fire would only affect the occupants or the escape routes after fire spread has occurred beyond the room of origin, either heat or smoke detectors may be installed.

## References

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20. B.S.5499: Part 1: 1990 Specification for fire safety signs.
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