

Building Control Guidance Note

Subject

**APPROVED DOCUMENT B (FIRE
SAFETY) – VOLUME 2
Buildings other than dwelling houses
(2006 Edition) – MAIN CHANGES.**

14B

Issued

01/10/10

Rev

Page

1

A new updated version of Approved Document B comes into force from the 6th April 2007.

This revised guidance is split into two separate documents:-

Volume 1 – Dwelling Houses

Volume 2 – Buildings other than Dwelling Houses

Transitional Provisions.

Applications for any new building work that are made on or after 6th April 2007 will be required to follow the new guidance.

This Guidance Note covers the main changes to Volume 2 – Buildings other than Dwelling Houses.

Flats are not included in this guide but are covered by this Approved Document.

Rather than go through every provision of the new guidance, the main changes will be identified and guidance provided.

Reference should be made to the full versions of the documents, which can be downloaded from Tameside Web Page (link).

SPRINKLER SYSTEMS.

The document has expanded the guidance on sprinklers, which can significantly reduce the risk to life and degree of damage incurred in a fire.

Sprinkler protection can be used as compensatory features against some of these Approved Documents Recommendations.

As a general rule, sprinkler protection should be provided throughout the building where it is intended to be provided. However, where the sprinklers are being installed as a compensatory feature to address a specific risk or hazard, it may be accepted to only part of the building, for instance a separated part or separate fire compartment.

Systems to be designed and installed in accordance with:

- (a) For dwellings and residential buildings – BS 9251:2005 Sprinkler systems for residential and domestic occupancies
- (b) For non-residential buildings or dwellings and residential buildings outside the scope of BS 9251, either
 - i) the requirements of BS 5306-2:1990, including the relevant hazard classification, together with the additional requirements for life safety.
 - ii) the requirements of BSEN12845:2004 including the relevant hazard classification together with the special requirements for life safety systems.

NOTE: Any sprinkler system installed to satisfy Part B requirements must be a 'LIFE SAFETY SYSTEM'.

However, there may be some circumstances where a particular life safety requirement, specified in BS 5306-2 or BS EN 12845 is inappropriate or unnecessary.

Water supplies for non-residential sprinkler should consist of either:

(a) ***For systems designed and installed to BS5306-2:***

- (i) 2 single water supplies complying with clause 13.1.2 where each is independent of the other; or
- (ii) 2 stored water supplies, where:
 - (1) gravity or suction tanks should be either Type A, Type D or their equivalent (clause 17.4.11.5); and
 - (2) any pump arrangements should comply with BS 5306-2 clause 17.4.1.5; and
 - (3) the capacity of each tank should be equivalent to at least half the specified minimum water volume of a single full capacity tank, appropriate to the hazard; or
 - (4) one tank should be equivalent to half the specified water volume of a single full capacity tank and the other shall not be less than half the minimum volume of a reduced capacity tank (see Table 25), appropriate to the hazard; and

NOTE: the requirements for inflow should be met.

- (5) whichever water storage arrangement is used at (3) or (4) above, the total design capacity of the water supply, including any inflow for a reduced capacity tank should be at least equivalent to a single full holding capacity tank complying with Table 21, 22, 23 or 24, as appropriate to the hazard and pipework design.

(b) ***For systems designed and installed to BS EN 12845:***

- (i) 2 single water supplies complying with clause 9.6.1 where each is independent of the other; or
- (ii) 2 stored water supplies, where:
 - (1) gravity or suction tanks should satisfy all the requirements of clause 9.6.2(b) other than capacity; and
 - (2) any pump arrangements should comply with clause 10.2; and
 - (3) the capacity of each tank is equivalent to half the specified minimum water volume of a single full capacity tank, appropriate to the hazard; or
 - (4) one tank should be at least equivalent to half the specified water volume of a single full capacity tank and the other shall not be less than the minimum volume of a reduced capacity tank clause 9.3.4 appropriate to the hazard; and

NOTE: the requirement for inflow should be met.

- (5) whichever water storage arrangement is used at (3) or (4) above, the total capacity of water supply, including any inflow for a reduced capacity tank should be at least equivalent to a single full holding capacity tank complying with Table 9, 10 or clause 9.3.2.3 as appropriate to the hazard and pipework design.

Where pumps are used to draw water from 2 tanks, then each pump should be arranged to draw water from either tank and arranged so that any one pump on either tank could be isolated.

The sprinkler water supplies should generally not be used as connections for other services or fixed fire fighting systems.

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INCLUSIVE DESIGN.

Fire safety aspects of the Building Regulations apply to all persons, including people with disabilities.

Fire safety measure must be incorporated into a building taking in to account people of all ages and disabilities.

The guidance offered covers most reasonable standard provision, however, there may be some situations where additional measures may need to be provided to accommodate special needs of certain groups of people.

Healthcare Premises.

HTM 05 'Firecode' should be used for the design of hospitals and similar health care premises.

Schools.

Schools should now be designed in accordance with Building Bulletin 100. Part B will typically be satisfied where the life safety guidance in this document is followed.

Sheltered Housing.

Many of the provisions set out in this guide for flats are applicable to sheltered housing, however, the occupancy nature may necessitate some additional fire protection measures dependent upon the form of development.

FIRE ALARMS TO BUILDINGS OTHER THAN FLATS.

Depends upon type of occupancy and means of escape strategy (e.g. simultaneous, phased or progressive horizontal evacuation).

Sleeping areas constitute a higher risk to occupants.

General guidance on A.F.D. systems can be found in Table A1 of BS 5839-1:2002.

Fire Alarm Systems.

All building to have arrangements for detecting fire.

SMALL BUILDINGS / PREMISES – this could be a simple method of raising an alarm, e.g. if all occupants can see and hear each other – shouted warnings may be sufficient. It must be determined that the warning can be heard and understood throughout the premise including for example in toilets, etc.

Manual sounders could be an improvement, i.e. gongs/hand bells may also be appropriate.

A simple manual call point combined with a bell, battery and charger would obviously be better still.

IN ALL OTHER CASES – building should be provided with a suitable electrically operated fire alarm system with manual call points sited adjacent to exit doors and sufficient sounders to be clearly audible throughout the building, e.g. in compliance with BS 5839-1:2002.

BS 5839-1 specifies 3 categories of system: 'L' – protection of life / 'M' – manual alarm systems / 'P' – protection of property.

Category 'L' is sub-divided into:

- L1 - systems installed throughout the protected building.
- L2 - systems installed in only defined parts of the protected building (normally includes the coverage offered by an L3 system)
- L3 - systems designed to give warning of a fire to allow escape before escape routes become impassable due to a fire.
- L4 - systems installed within those parts of the escape routes comprising circulation areas and circulation spaces, such as corridors and stairways; and
- L5 - systems in which the protected area(s) and/or the location of detectors is designed to satisfy a specific fire safety objective (other than that of a L1, L2, L3 or L4 system).

Type P systems –

- P1 - systems installed throughout the protected building.
- P2 - systems installed only in defined parts of the protected building.

Call points for electrical alarm system to comply with BS 5839-2:1983 or Type A BS EN54-11:2001 and be installed in accordance with BS 5839-1. Type B call points only to be used with approval of Building Control.

Type A call points – (direct operation triggering immediate alarm activation)

Type B call points – (indirect operation – alarm will only be triggered when a separate manual operation of the operating element by the user after the frangible element is broken or displaced.

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To improve occupants' response to an alarm activation, voice alarm systems have significant benefits in advising occupants of an alarm situation. BS 5839-8:1998 provides guidance. Fire alarm warning systems must be distinct from other signals, which may be in general use.

In certain premises, e.g. large shops, places of assembly, an initial alarm may be undesirable because of the number of members of the public present. The need for fully trained staff to effect pre-planned procedures for safe evacuation will therefore be essential. Activation of the fire alarm system will cause staff to be alerted, e.g. by discreet sounders, personal paging systems. Provision will normally be made for full evacuation of the premises by sounders or a message broadcast over the public address system. In all other respects, any staff alarm systems should comply with BS 5839-1.

Warnings for People with Impaired Hearing.

Suitable method of warning (e.g. a visual and audible fire alarm signal) should be provided in buildings where it is anticipated that one or more persons with impaired hearing may be in relative isolation (e.g. hotel bedrooms and sanitary accommodation) and where there is no other suitable method of alerting them.

In buildings such as schools, colleges and offices where the population is controlled, a vibrating paging system may be more appropriate – useful for alerting people with other disabilities as well.

Clause 18 BS 5839-1:2002 provides guidance.

Automatic Fire Detection and Fire Alarm Systems.

Institutional and other residential occupancies to have an automatic fire detection and alarm system fitted in accordance with BS 5839-1.

Automatic fire detection systems are not normally needed in non-residential occupancies. However, there are often circumstances where a fire detection system, in accordance with BS 5839-1, may be needed.

- e.g.
- a) to compensation for some departure from guidance in the Approved Document;
 - b) as part of the operating system for some fire protection systems, such as pressure differential systems, smoke control systems or automatic door releases, etc.,
 - c) where fires can start and develop unobserved in unoccupied areas, e.g. basements/stores, etc., and could prejudice the premises' means of escape.

Atrium buildings – refer to BS 5588-7:1997 for the systems design.

Design and Installation of Systems.

Systems must be designed, installed and commissioned in accordance with the appropriate British Standard.

Commissioning certificates must be provided on completion.

Interface between fire detection and fire alarm systems and other systems.

Fire detection and fire alarm systems are sometimes used to initiate the operation, or change of state of other systems, e.g. smoke control systems, fire extinguishing systems, door releases, etc.

To ensure adequate means of escape is maintained, the interface between systems must have a high degree of reliability.

Particular care should be taken if the interface is facilitated via another system. Where any part BS 7273 applies to actuation of other systems), the recommendations of that standard should be followed.

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B1 - Means of Escape.

Schools references now removed throughout as now covered by Building Bulletin 100.

3.7 – Active Control Measure.

Measures incorporated into the design of a building to restrict access to the building or parts of it should not adversely affect fire safety provisions.

Whilst it may be reasonable to secure some escape routes outside of normal business hours, the measures left in place should be sufficient to allow safe evacuation of any persons left inside the building (see para 5.11).

Table 2 – Limitations on Travel Distance.

Table 2 Limitations on travel distance				
Purpose group	Use of the premises or part of the premises	Maximum travel distance ⁽¹⁾ where travel is possible in:		
		One direction only (m)	More than one direction (m)	
2(a)	Institutional	9	18	
2(b)	Other residential:			
	a. in bedrooms ⁽²⁾	9	18	
	b. in bedroom corridors	9	35	
	c. elsewhere	18	35	
3	Office	18	45	
4	Shop and commercial ⁽³⁾	18 ⁽⁴⁾	45	
5	Assembly and recreation:			
	a. buildings primarily for disabled people	9	18	
	b. areas with seating in rows	15	32	
	c. elsewhere	18	45	
6	Industrial ⁽⁵⁾	Normal Hazard	25	45
		Higher Hazard	12	25
7	Storage and other non-residential ⁽⁶⁾	Normal Hazard	25	45
		Higher Hazard	12	25
2-7	Place of special fire hazard ⁽⁶⁾	9 ⁽⁷⁾	18 ⁽⁷⁾	
2-7	Plant room or rooftop plant:	a. distance within the room	9	35
		b. escape route not in open air (overall travel distance)	18	45
		c. escape route in open air (overall travel distance)	60	100

**Industrial and storage
purpose groups – now have
Normal and Higher Hazard
maximum travel distances.**

Notes:

1. The dimensions in the Table are travel distances. If the internal layout of partitions, fittings, etc is not known when plans are deposited, direct distances may be used for assessment. The direct distance is taken as 2/3rds of the travel distance.
2. Maximum part of travel distance within the room. (This limit applies within the bedroom (and any associated dressing room, bathroom or sitting room, etc) and is measured to the door to the protected corridor serving the room or suite. Sub-item (b) applies from that point along the bedroom corridor to a storey exit.)
3. Maximum travel distances within shopping malls are given in BS 5588: Part 10. Guidance on associated smoke control measures is given in a BRE report *Design methodologies for smoke and heat exhaust ventilation* (BR 368).
4. BS 5588: Part 10 applies more restrictive provisions to units with only one exit in covered shopping complexes.
5. In industrial and storage buildings the appropriate travel distance depends on the level of fire hazard associated with the processes and materials being used. Higher hazard includes manufacturing, processing or storage of significant amounts of hazardous goods or materials, including: any compressed, liquefied or dissolved gas, any substance which becomes dangerous by interaction with either air or water, any liquid substance with a flash point below 65°C including whisky or other spirituous liquor, any corrosive substance, any oxidising agent, any substance liable to spontaneous combustion, any substance that changes or decomposes readily giving out heat when doing so, any combustible solid substance with a flash point less than 120° Celsius, any substance likely to spread fire by flowing from one part of a building to another.
6. Places of special fire hazard are listed in the definitions in Appendix E.
7. Maximum part of travel distance within the room/area. Travel distance outside the room/area to comply with the limits for the purpose group of the building or part.

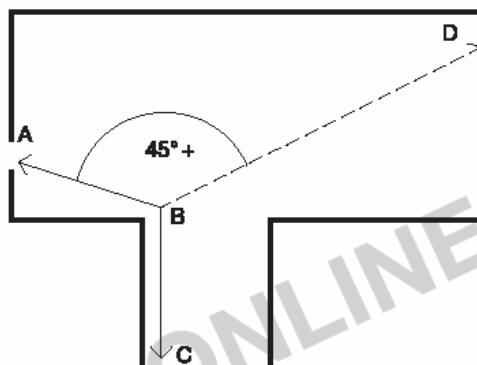
Note 5 - explains what are Higher hazards.

Diagram 15 – Travel Distance in Dead-End Condition.

Requirement to add 2.5° divergence for every metre travelled in dead end has been deleted.

Diagram 10 Travel distance in dead-end condition

See para 3.7

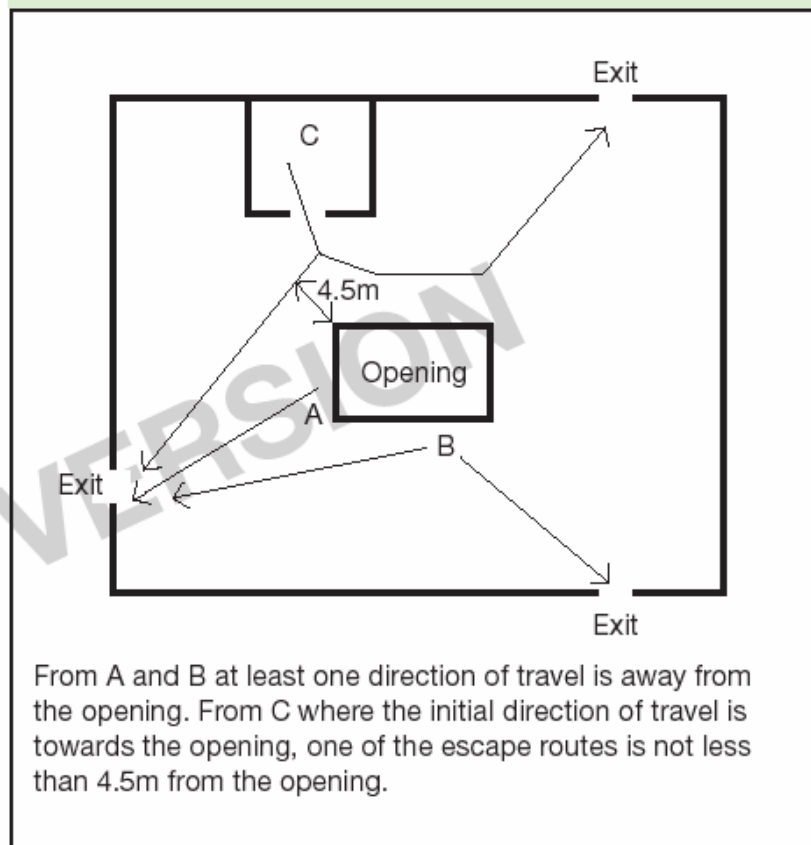


Angle ABD should be at least 45°. CBA or CBD (whichever is less) should be no more than the maximum distance of travel given for alternative routes and CB should be no more than the maximum distance for travel where there are no alternative routes.

Open Spatial Planning.

3.12 and diagram 14 added

Diagram 14 **Open connections**



Escape routes should not be prejudiced by openings between floors, such as an escalator (see diagram 14).

An escape route should not be within 4.5m of the openings unless:

- (a) the direction of travel is away from the opening; or
- (b) there is an alternative escape route which does not pass within 4.5m of the open connection.

Width of Escape Routes and Exits.

Table 4 remains the same – but the rules for measuring door clear width has changed, resulting in wider requirements – now same as Approved Document M.

Table 4 Widths of escape routes and exits

Maximum number of persons	Minimum width mm ^{(1) (2) (3)}
60	750 ⁽⁴⁾
110	850
220	1050
More than 220	5 per person ⁽⁵⁾

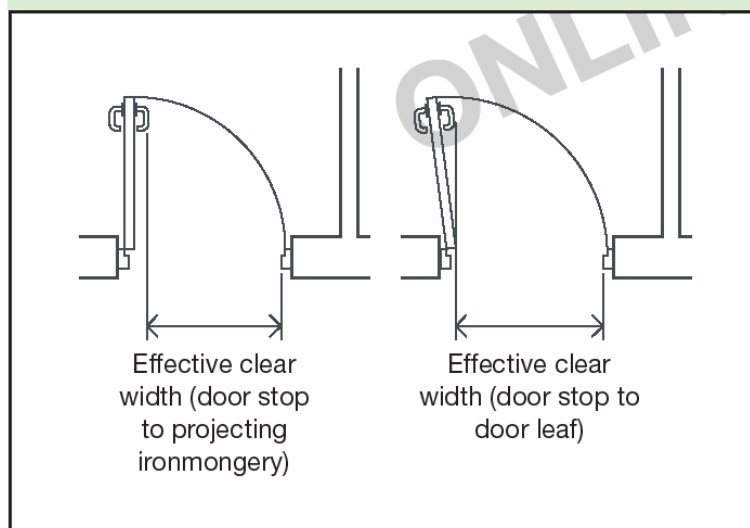
Notes:

1. Refer to Appendix C on methods of measurement.
2. In order to follow the guidance in the Approved Document to Part M the widths given in the table may need to be increased.
3. Widths less than 1050mm should not be interpolated.
4. May be reduced to 530mm for gangways between fixed storage racking, other than in public areas of Purpose Group 4 (shop and commercial).
5. 5mm/person does not apply to an opening serving less than 220 persons.

APPENDIX C – Methods of Measurement - Door Clear Widths.

Now measured the same as a disabled doorset new diagram C1 – this will result in the doors having to be wider than previously accepted for means of escape purposes.

Diagram C1 Measurement of door width



APPENDIX C – Methods of Measurement.

This is relocated from front of old document and has been updated.

Table C1 floor space factors have been updated as indicated.

Table C1 Floor space factors ⁽¹⁾

Type of accommodation ⁽²⁾⁽³⁾	Floor space factor m ² /person
1. Standing spectator areas, bar areas (within 2m of serving point) similar refreshment areas	0.3
2. Amusement arcade, assembly hall (including a general purpose place of assembly), bingo hall, club, crush hall, dance floor or hall, venue for pop concert and similar events and bar areas without fixed seating	0.5
3. Concourse, queuing area or shopping mall ⁽⁴⁾⁽⁵⁾	0.7
4. Committee room, common room, conference room, dining room, licensed betting office (public area), lounge or bar (other than in 1 above), meeting room, reading room, restaurant, staff room or waiting room ⁽⁶⁾	1.0
5. Exhibition hall or studio (film, radio, television, recording)	1.5
6. Skating rink	2.0
7. Shop sales area ⁽⁷⁾	2.0
8. Art gallery, dormitory, factory production area, museum or workshop	5.0
9. Office	6.0
10. Shop sales area ⁽⁸⁾	7.0
11. Kitchen or library	7.0
12. Bedroom or study-bedroom	8.0
13. Bed-sitting room, billiards or snooker room or hall	10.0
14. Storage and warehousing	30.0
15. Car park	Two persons per parking space

Notes:

- As an alternative to using the values in the table, the floor space factor may be determined by reference to actual data taken from similar premises. Where appropriate, the data should reflect the average occupant density at a peak trading time of year.
- Where accommodation is not directly covered by the descriptions given, a reasonable value based on a similar use may be selected.
- Where any part of the building is to be used for more than one type of accommodation, the most onerous factor(s) should be applied. Where the building contains different types of accommodation, the occupancy of each different area should be calculated using the relevant space factor.
- Refer to section 4 of BS 5588-10:1991 Code of practice for shopping complexes for detailed guidance on the calculation of occupancy in common public areas in shopping complexes.
- For detailed guidance on appropriate floor space factors for concourses in sports grounds refer to "Concourses" published by the Football Licensing Authority ISBN: 0 95462 932 9.
- Alternatively the occupant capacity may be taken as the number of fixed seats provided, if the occupants will normally be seated.
- Shops excluding those under item 10, but including - supermarkets and department stores (main sales areas), shops for personal services such as hairdressing and shops for the delivery or collection of goods for cleaning, repair or other treatment or for members of the public themselves carrying out such cleaning, repair or other treatment.
- Shops (excluding those in covered shopping complexes but including department stores) trading predominantly in furniture, floor coverings, cycles, prams, large domestic appliances or other bulky goods, or trading on a wholesale self-selection basis (cash and carry).

Item 1 Bar areas (within 1m of serving point)

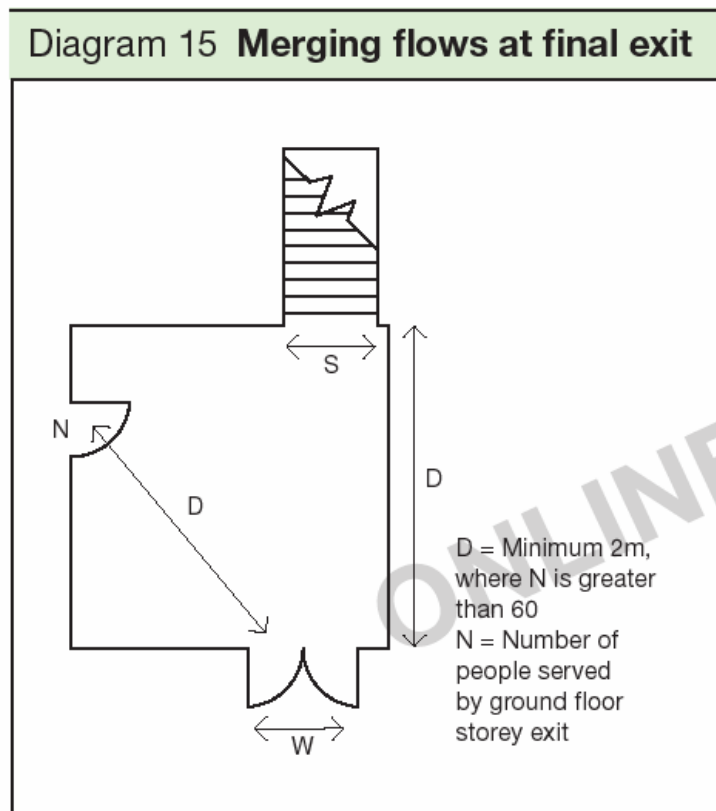
Item 2 and Bar areas without fixed seating

Note 5 refers to determining floor space factors from concourses by Football Licensing Authority for concourses in sports ground.

Calculating Exit Capacity.

3.23 – new requirement.

Where a ground floor storey exit shares a final exit with a stair via ground floor lobby, the width of the final exit should be sufficient to enable a maximum evacuation flow rate equal to or greater than that from the storey exit and stair combined (see Diagram 15)



This can be calculated from the following formula:

$$W = ((N/2.5 + (60 S))/80)$$

Where:

W = width of final exit, in metres

N = number of people served by ground floor storey exit

S = Stair width in metres

Note: where the number of persons (N) entering the lobby from the ground floor is more than 60 then the distance from the foot of the stair, or the storey exit, to the final exit should be 2m minimum.

Where this cannot be achieved then the width of the final exit (W) should be no less than the width of the stair plus the width of the storey exit.

Worked Example:

Ground floor storey exit 250 persons share a common final exit with 1.2m wide stair

Required final exit = $((250/2.5) + (1.2 \times 60))/80$ width (metres) = 2.150m

Protected Corridors.

3.24 – Clarification added that recesses and extensions not exceeding 2m deep are not treated as dead end conditions.

3.26 - Sub-Division of Corridors.

Additional guidance added to buildings of Purpose Groups 2 to 7 requiring cavities above corridor smoke control sub division doors to have either of the following:

- (a) Fitting a cavity barrier on the line of the enclosure(s) to and across the corridor (refer to Diagram 16(a)); or
- (b) Sub-dividing the storey using fire resisting construction passing through the line of the corridor sub-division (see Diagram 16(b)).

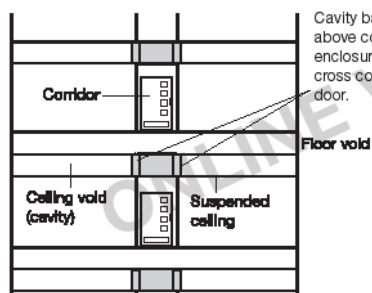
Any void above this sub-division should be fitted with cavity barriers on the line of sub-division of the storey and the corridor; or

- (c) enclosing the cavity on the lower side by a fire resisting ceiling which extends throughout the building, compartment or separate part.

Any door which could provide a path for smoke to bypass the sub-division should be made self-closing (but need not necessarily be fire resisting).

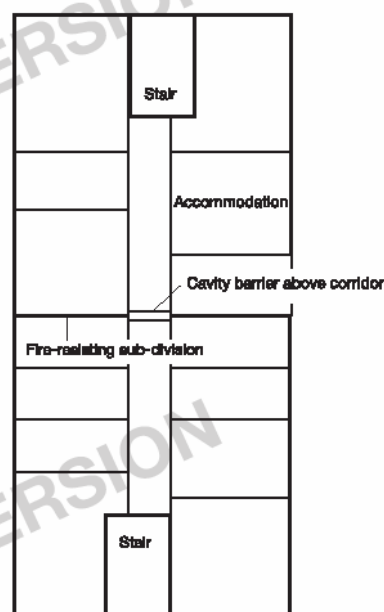
Diagram 16 Subdivision of corridors

a. SECTION TO SHOW USE OF CAVITY BARRIERS ABOVE THE CORRIDOR ENCLOSURE see paragraph 3.26 a.



Where the corridor is a protected escape route, cavity barriers may also be required in any floor void beneath the corridor enclosure (see paragraph 9.4)

b. PLAN SHOWING SUB-DIVISION OF THE STOREY BY FIRE-RESISTING CONSTRUCTION See paragraph 3.26 b.



The sub-division should be carried full storey height and includes sub-division of the corridor. A cavity barrier may be used in any ceiling void over the sub-division.

Small Premises.

Completely new section bringing in BS 5588-11 provisions into the Approved Document.

They do not apply to premises used principally for the storage and/or sale of highly flammable liquids or materials.

In covered shopping complexes you must refer to small units' design requirements in BS 5588-10.

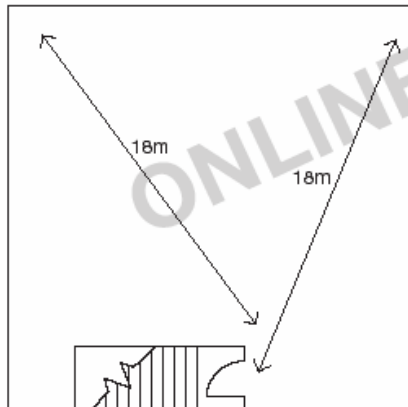
Requirements:

- (a) Premises to be in single occupancy and to comprise of no more than a basement, a ground floor and a first floor. Maximum 280m² floor area to each storey (see dia 18).
- (b) Kitchens or other cooking arrangements to be sited at the extremity of any dead end and be remote from the exits; and
- (c) Planned seating accommodation or assessed standing accommodation (see Table C1) for small premises comprising a bar or restaurant should not exceed 30 persons per storey. This can be increased on the ground storey to 100 if it has an independent final exit.

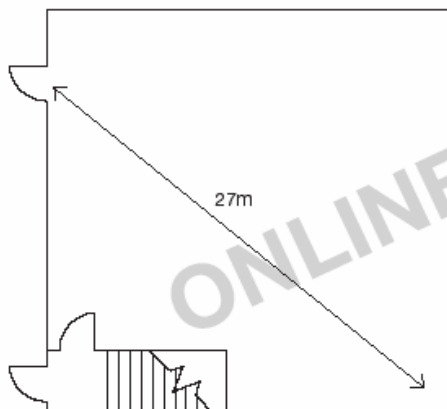
Diagram 18 Maximum travel distances in a small two or three storey premises with a single protected stair to each storey

See para 3.33

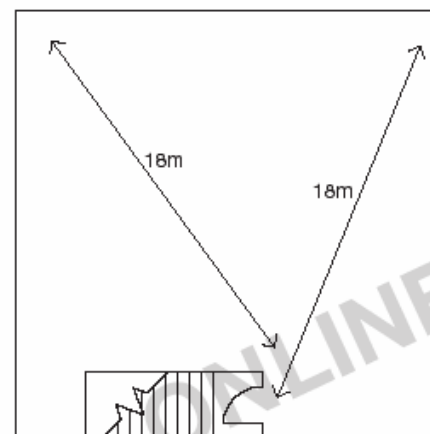
a. FIRST STOREY



b. GROUND STOREY



c. BASEMENT



Note: Maximum floor area in any one storey 280m².
Restricted accommodation if used as a restaurant or bar.

Construction:

1. Floor areas to be generally undivided (except for kitchens, ancillary offices and stores) ensure that exits are clearly visible from all parts of the floor areas.
2. Store rooms to be enclosed in fire resisting construction.
3. Sufficient glazed area to be provided in any partitions separating a kitchen or ancillary office from the open floor area to enable inner room occupants to obtain early visual warning of a fire outbreak or provide automatic fire detection in access room area.

Distance of Travel and Number of Escape Routes.

Escape routes from any storey so that limits set in Table 5 are complied with to the nearest storey exits.

**Table 5 Maximum distances of travel
in small premises with a
protected stair**

Storey	Maximum Travel Distance
Ground storey with a single exit	27
Basement or first storey with a single stair	18
Storey with more than one exit/stair	45

Note:

The dimensions in the Table are travel distances. If the internal layout of partitions, fittings, etc is not known when plans are deposited, direct distances may be used for assessment. The direct distance is taken as 2/3rds of the travel distance.

Note: The distance of travel in small premises with an open stairway is measured to the foot of the stair in a basement or to the head of the stair in the first storey.

The siting of 2 or more exits or stairs should be such that they afford effective alternative directions of travel from any relevant point in a storey.

Design for Vertical Escape Clause 4.6 - Single Escape Stairs in Small Premises

Single stair may be used from:

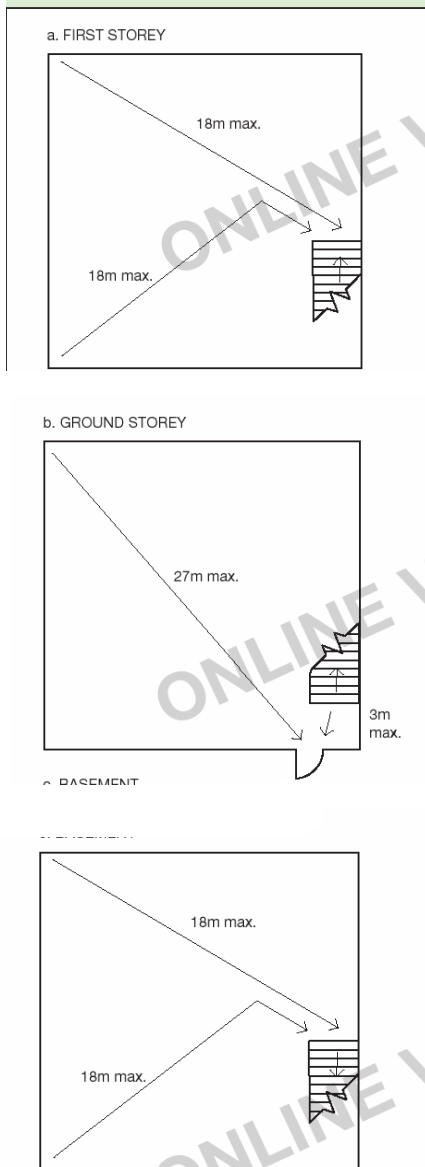
- (a) small premises (previously described above), other than bars or restaurants.
- (b) an office building comprising N.MT 5 storeys above ground storey, provided that:
 - (i) all travel distances comply with one direction restrictions in table 2 above.
 - (ii) every storey at a height greater than 11m has an alternative means of escape.
- (c) A factory comprising NMT:
 - (i) 2 storeys above ground storey (normal risk building) provided all travel distances comply with single direction restrictions above; or
- (d) Process plant buildings with NMT 10 occupants.

Protection of escape stairs - 4.33 - Small Premises.

A small premises stair (not a bar or restaurant) may be open if it does not connect more than 2 storeys and delivers into the ground storey NMT 3m from the final exit (see diagrams 22 and 23) and either;

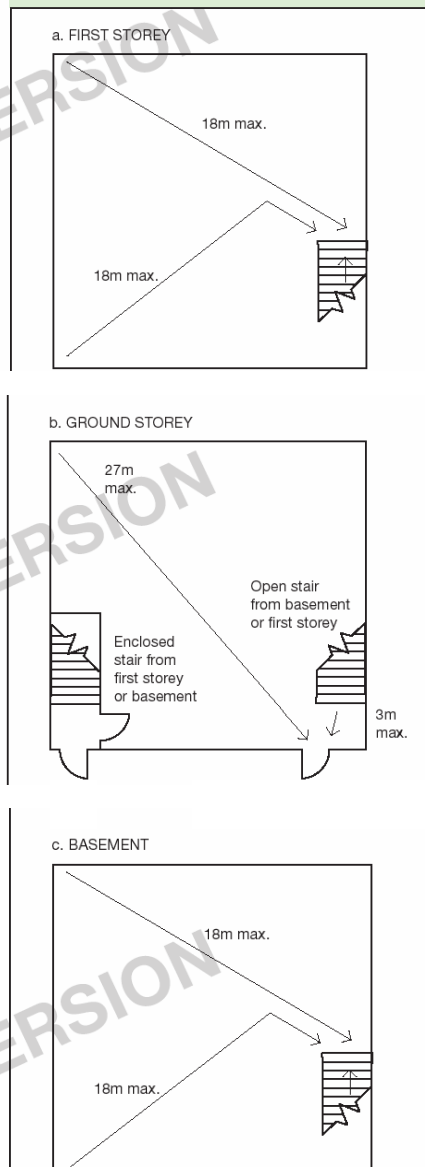
- (a) the storey is also served by a protected stairway; or
- (b) it is a single stair in a small premise with the floor area in any storey not exceeding 90m² and, if the premises contains 3 storeys, the stair serving either the top or bottom storey is enclosed with fire resisting construction at the ground storey level and discharges to a final exit independent of the ground storey (see diagram 23).

Diagram 22 Maximum travel distance in a small two-storey premises with a single open stair



Note 1: Maximum floor area in any one storey 90m².
Note 2: The premises may not be used as a restaurant or bar.
Note 3: Only acceptable in two storey premises (a+b or b+c).
Note 4: Travel distances are set out in Table 4.

Diagram 23 Maximum travel distance in a small three-storey premises with a single stair to each storey



Note 1: Maximum floor area in any one storey 90m².
Note 2: Enclosed stair at ground storey level may be from either the basement or the first storey.
Note 3: The premises may not be used as a restaurant or bar.
Note 4: Travel distances are set out in Table 4.

RESIDENTIAL CARE HOMES. New guidance section.

Fire Strategy design of these types of premises is dependent upon the way the building is designed, furnished, staffed and managed, and the level of dependency on the residents.

Care homes for elderly will rely on a degree of assisted evacuation – as such these should be designed for progressive horizontal evacuation.

For other types of care home, a judgement has to be made as to whether progressive horizontal evacuation should be followed.

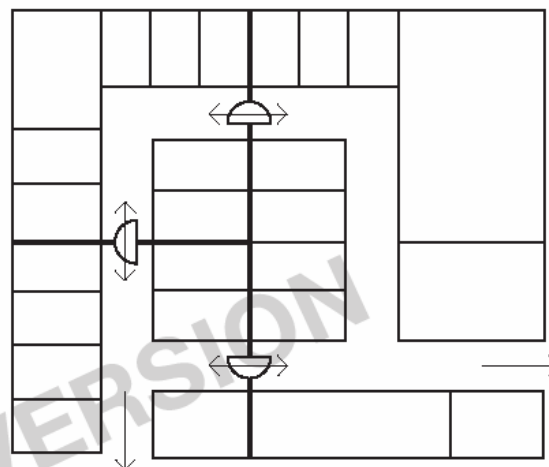
Whatever fire strategy is chosen, this must be recorded and communicated to the building management to ensure that procedures are adopted that are compatible with the building design.

For more complicated care homes/hospitals FIRECODE documentation should be followed.

Planning for Progressive Horizontal Evacuation.

- Areas of residential care to be sub-divided into protected areas separated by compartment walls and floors – thereby allowing horizontal escape into adjacent compartments.
- Each storey used for residential care to be divided into minimum 3 protected areas by compartment walls and all floors should be compartment floors.
- Every protected area is to have minimum 2 exits to adjoining, but separate protected areas. Travel distance not to exceed Table 2 distance.
- The maximum travel distance from any point to be no more than *64m to a storey exit or final exit.*
- A fire in any one protected area should not prevent the occupants of any other area from reaching a final exit (see diagram 19).

Diagram 19 **Progressive horizontal evacuation in care homes**



→ Escape route to adjacent compartment, storey exit or final exit.

— Compartment wall

Note: Bedrooms and all ancillary accommodation should be enclosed in fire-resisting construction.

- Escape routes should not pass through ancillary accommodation (as listed below).
- Number of residents' beds in a protected area to be established based on an assessment of levels of staffing available and the level of assistance the residents require.
- In no case should this exceed 10 beds in any one protected area.
- Adjoining protected areas into which horizontal evacuation may take place should each have a floor area sufficient to accommodate their own residents and the evacuated residents from the largest adjoining protected area.

Fire Detection.

L1 – BS 5839-1:2002 fire alarm and detection system to be installed.

Bedrooms.

- All bedrooms to be enclosed in fire resisting construction, with fire doors and every corridor serving bedrooms should be a protected corridor.
- Bedrooms are not to contain more than 1 bed (including double bed).

Ancillary Accommodation.

To be enclosed in fire resisting construction, e.g.

- a) chemical stores;
- b) cleaners' stores;
- c) clothes storage;
- d) day rooms'
- e) smoking rooms;
- f) disposal rooms;
- g) plant rooms;
- h) linen stores;
- i) kitchens;
- j) laundry rooms;
- k) staff changing and locker rooms; and
- l) store rooms.

Door Closing Devices.

Specification of door closing devices must take account of the residents' needs, particularly where they would present an obstacle to the residents then the following hardware in accordance with BS EN 1155:1997 would be appropriate:

Bedrooms - free swing door closers / Circulation spaces - hold open devices

Sprinkler Systems.

Where sprinklers are installed, the following variations can be made:

- (a) Fire doors to bedrooms do not need self-closers.
- (b) Protected areas may have more than 10 beds.
- (c) Bedrooms may contain more than one bed.

Note: Management procedure will need to take account of the larger number of residents that may need assistance and the need to manually close bedroom doors during sleeping hours.

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Provisions of Disabled Refuges.

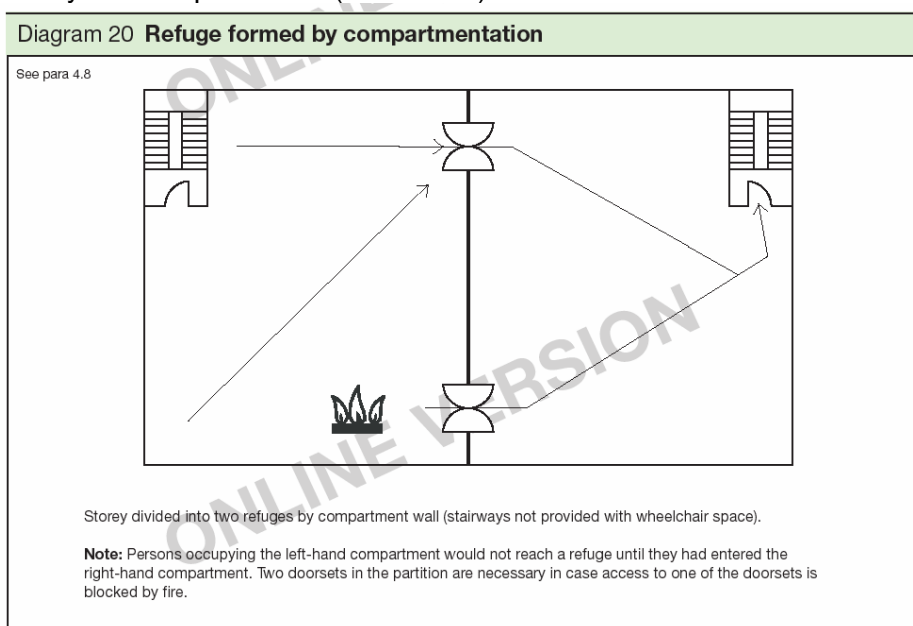
Disabled refuges should be provided for each protected stairway from each storey, except storeys consisting of plant rooms. Refuges do not necessarily have to be located within the stair enclosure, but should have direct access to the stair.

Number of refuge spaces – do not have to match the number of wheelchair users in the building.

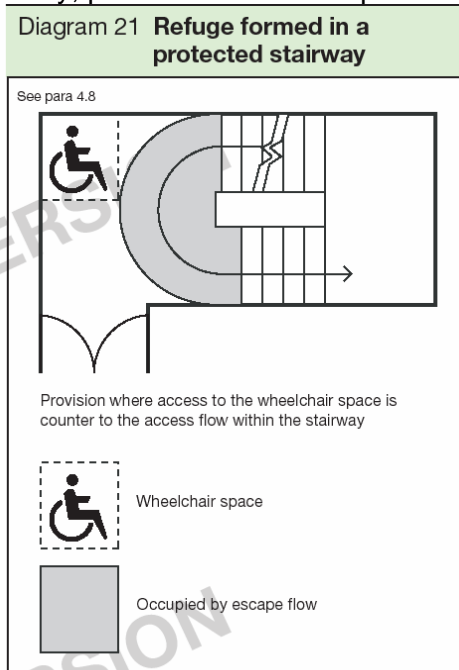
Refuges are intended to form part of a management plan to evacuate disabled persons from the building.

Provisions –

- (a) Refuges formed by fire compartments (see dia 20)



- (b) Refuges formed by protected lobby, protected corridor or protected stairway (see dia 21)



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(c) An area in open air such as a flat roof, balcony, podium or similar place, which is sufficiently protected (or remote) from any fire risk and provided with its own means of escape.

Refuges to be at least 900mm x 1400mm to allow a wheelchair to be parked clear of the normal escape route widths and should not reduce any escape routes or obstruct the flow of persons making escape.

Refuges and evacuation lifts must be suitably signed and where in a lobby or stairway area to be marked and signed 'Refuge – Keep Clear'.

Communication.

To facilitate evacuation of persons in refuges, an emergency voice communication (EVC) system should be installed. This allows persons in refuge to alert others and to receive reassurance that assistance is coming.

EVC to comply with BS 5839-9:2004. Type B outstations communicating with a master station in the building control room (if one exists) or adjacent to the fire alarm panel.

This EVC can be wireless.

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Phased Evacuation.

4.27 – Buildings over 30m with phased evacuation strategy – design to consider the interaction of fire fighters with people escaping the building – this could be discounting of stairs.

GENERAL PROVISIONS.

Doors on Escape Routes.

Additional guidance on electronic security devices to doors.

5.11 Doors on escape routes where secured against entry when the building or part is occupied, it should only be fitted with a lock or fastening which is readily operated, without a key, from the side approached by people making their escape.

Doors operated by codes/swipe cards, etc., must be overridable from the escape side.

Electronic powered locks should return to the unlocked position:

- (a) on operation of the fire alarm system;
- (b) on loss of power or system error;
- (c) on activation of a manual door release unit (Type A) to BS En 54 – 11:2001 positioned at the door on the escape side. Where the door provides escape in either direction, a unit should be installed on both sides of the door.

5.12 In non-residential buildings it may also be appropriate to accept on some final exit doors locks for security that are used only when the building is empty. In these cases the emphasis for the safe use of these locks must be placed on management procedures.

TABLE 9 – EMERGENCY LIGHTING.

Minor changes to provisions.

Purpose group Office, Storage and Other non-residential, Shop and commercial and Car parks – emergency lighting provisions now applies irrespective of whether public are admitted or not

Table 9 Provisions for escape lighting	
Purpose group of the building or part of the building	Areas requiring escape lighting
1. Residential	All common escape routes ⁽¹⁾ , except in 2-storey flats
2. Office, Storage and Other non-residential	<ul style="list-style-type: none"> a. Underground or windowless accommodation b. Stairways in a central core or serving storey(s) more than 18m above ground level c. Internal corridors more than 30m long d. Open-plan areas of more than 60m²
3. Shop and Commercial and car parks	<ul style="list-style-type: none"> a. Underground or windowless accommodation b. Stairways in a central core or serving storey(s) more than 18m above ground level c. Internal corridors more than 30m long d. Open-plan areas of more than 60m² e. All escape routes to which the public are admitted ⁽¹⁾ (except in shops of three or fewer storeys with no sales floor more than 280m², provided that the shop is not a restaurant or bar)
4. Assembly and Recreation	All escape routes ⁽¹⁾ , and accommodation except for: <ul style="list-style-type: none"> a. accommodation open on one side to view sport or entertainment during normal daylight hours
5. Any Purpose Group	<ul style="list-style-type: none"> a. All toilet accommodation with a floor area over 8m² b. Electricity and generator rooms c. Switch room/battery room for emergency lighting system d. Emergency control room

Any Purpose group – windowless w.c.'s under 8m² now deleted from requiring emergency lighting.

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Protected Power Circuits.

The potential for damage should be limited by the use of robust cables, selection of cable routes and / or by protection in areas where cables may be susceptible to damage.

Cable supports should generally be non-combustible and such that circuit integrity will not be reduced below that afforded by the cable.

Cables should meet PH 3.0 classification when tested in accordance with BS EN 50200; 2006 (incorporating Appendix E) or an equivalent standard.

Cables should pass only through parts of the building in which the fire risk is negligible and separate from any circuit provided for another purpose.

In large or complex buildings there may be a need to operate for an extended period during a fire. Further information is given in BS 5839-1, BS 5266-1 and BS 7346-6

Evacuation Lifts.

Similar provisions with the additional provision, but where a fire fighting lift has been provided to safety requirement B5, this can be utilised as part of a management plan for evacuating disabled people. Any such plan should include a contingency for when the Fire and Rescue Service arrive.

Mechanical Ventilation and Air Conditioning Systems.

Completely revised section 5.46 – 5.53

- Mechanical ventilation systems are to be designed so that in a fire the ductwork does not transfer fire and smoke through the building and prejudice means of escape routes.
- Exhaust points should be sited as not to jeopardize the building i.e. sited away from final exits, combustible claddings or roofing materials and openings into buildings.
- Ventilation ducts supplying or extracting air directly to or from a protected escape route should not also serve other areas. (Separate ventilation system should be provided for each protected stair).
- Ductwork serving more than one part of a sub-divided escape routes, a fire damper should be provided where ductwork enters each section of escape route operated by a smoke detector or suitable fire detection system. Fire dampers are to close when smoke is detected.
- Ducts passing through the protected escape route enclosure should be fire-resisting.
NOTE: Fire dampers activated only by fusible links are not suitable for protected escape routes (ES classified fire and smoke damper activated by a suitable fire detection system may be used.)
- Systems that re-circulates air must have smoke detectors fitted in the extract ductwork before the point of separation of the re-circulated air and the air to be discharged to open air and before any filters or other air cleaning equipment. Such detectors should:
 - a. Immediately shut down the system; and
 - b. Switch the ventilation system from re-circulating mode to extraction to open air, so as divert any smoke out to outside.
- Non-domestic kitchens, car parks and plant rooms are to have separate and independent extraction systems and the extracted air should not be re-circulated
- Guidance of mechanical ventilation in 'places of assembly' – refer to BBS5588-6: 1991
- Where a pressure differential system is installed, ventilation and air conditioning plant requirements are given in BS5720: 1979
- Guidance on the provision of smoke detectors in ventilation ductwork is given in BS5839-1; 2002. Refer also to BS 5588: Part 9 *Fire precautions - Code of practice for ventilation and air conditioning ductwork.*

B3 – INTERNAL FIRE SPREAD STRUCTURES.

Internal fire spread (structure)

B3. (1) The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period.

(2) A wall common to two or more buildings shall be designed and constructed so that it adequately resists the spread of fire between those buildings. For the purposes of this sub-paragraph a house in a terrace and a semi-detached house are each to be treated as a separate building.

(3) Where reasonably necessary to inhibit the spread of fire within the building, measures shall be taken, to an extent appropriate to the size and intended use of the building, comprising either or both of the following:

- (a) sub-division of the building with fire-resisting construction;
- (b) installation of suitable automatic fire suppression systems.

(4) The building shall be designed and constructed so that the unseen spread of fire and smoke within concealed spaces in its structure and fabric is inhibited.

Requirement B3(3) does not apply to material alterations to any prison provided under Section 33 of the Prison Act 1952.

**Revised
wording
mentioning
automatic fire
suppression
systems.**

SECTION 8 – COMPARTMENTATION.

Flats additional requirements

8.14 – Blocks of flats with a floor more than 30m above ground level should be fitted with a sprinkler system.

NOTE: Sprinklers to be fitted to flats only and do not have to be fitted to common areas. For the purposes of this paragraph the limit on the scope of BS 9251: 2005 to buildings below 20m in height can be ignored.

Institutional Buildings including healthcare.

8.16 – cross referencing to progressive horizontal evacuation compartmentation in means of escape provisions

TABLE 12 – MAXIMUM DIMENSIONS OF BUILDING OR COMPARTMENT (NON-RESIDENTIAL BUILDINGS) – revised table - schools references deleted

Table 12 Maximum dimensions of building or compartment (non-residential buildings)				
Purpose Group of building or part	Height of floor of top storey above ground level (m)	Floor area of any one storey in the building or any one storey in a compartment (m ²)		
		In multi-storey buildings	In single-storey buildings	
Office	No limit	No limit	No limit	
Assembly and recreation Shop and commercial:				
a. Shops – not sprinklered	No limit	2000	2000	
Shops – sprinklered ⁽¹⁾	No limit	4000	No limit	
b. Elsewhere – not sprinklered	No limit	2000	No limit	
Elsewhere – sprinklered ⁽¹⁾	No limit	4000	No limit	
Industrial ⁽²⁾				
Not sprinklered	Not more than 18 More than 18	7000 2000 ⁽³⁾	No limit N/A	
Sprinklered ⁽¹⁾	Not more than 18 More than 18	14,000 4000 ⁽³⁾	No limit N/A	

Height of floor of top storey above ground level (m)	maximum compartment volume m ³	maximum floor area (m ²)	maximum height (m) ⁽⁴⁾
	multi-storey buildings	single-storey buildings	
Storage ⁽³⁾ and other non-residential:			
a. Car park for light vehicles	No limit	No limit	No limit
b. Any other building or part:			
Not sprinklered	Not more than 18 More than 18	20,000 4000 ⁽³⁾	20,000 N/A 1.8 N/A
Sprinklered ⁽¹⁾	Not more than 18 More than 18	40,000 8000 ⁽³⁾	No limit No limit

Notes:

- 'Sprinklered' means that the building is fitted throughout with an automatic sprinkler in accordance with paragraph 0.16.
- There may be additional limitations on floor area and/or sprinkler provisions in certain industrial and storage uses under other legislation, for example in respect of storage of LPG and certain chemicals.
- This reduced limit applies only to storeys that are more than 18m above ground level. Below this height the higher limit applies.
- Compartment height is measured from finished floor level to underside of roof or ceiling.

New Note 4 – how to measure 'Compartment Height' i.e. from finished floor level to underside of roof or ceiling.

Single storey max floor area / height without sprinklers or compartmentation

Construction of Compartment Walls and Compartment Floors.

8.20 - new Note 2 – where services are incorporated within the construction that could provide a potential source of ignition, care should be taken to ensure the risk of fire developing and spreading prematurely into adjacent compartments is controlled.

8.28 – 8.27 new requirement.

At a compartment floor's junction with an external wall having no fire resistance (e.g. curtain walling) the external wall must be restrained at floor level to reduce wall movement away from floor edge when exposed to fire.

Compartment walls must be able to accommodate the predicted deflection of the floor above by either:

- having a suitable head detail between wall and floor, that can deform but maintain the junction's fire integrity;
- wall to be designed to resist additional vertical load from the floor above as it says under fire conditions and thus maintain integrity.

NOTE: Where compartment walls are located within the middle half of a floor between vertical supports, the predicted deflection may be assumed to be 40mm unless a smaller value can be justified by assessment. Outside this area the limit can be reduced linearly to zero at the supports for steel beams that do not have the required fire resistance, reference should be made to SCI Publication 288 fire safe design – 'A New Approach to Multi-Storey Steel-Framed Buildings.'

Junction of Compartment Wall with Roof.

Various changes.

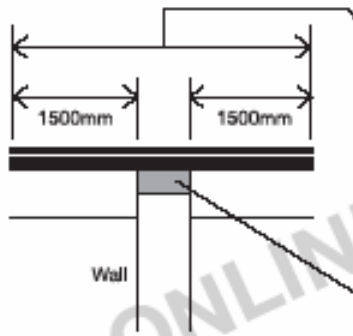
8.29 - Note 1 - Thermoplastic roof lights should not be used in 1500mm compartment wall / roof zone.

8.31 – 375mm extension of compartment walls above roof coverings can be reduced to 200mm with roof coverings AA, AB or AC.

Diagram 30 Junction of compartment wall with roof

See paras 8.28-8.31

a. ANY BUILDING OR COMPARTMENT



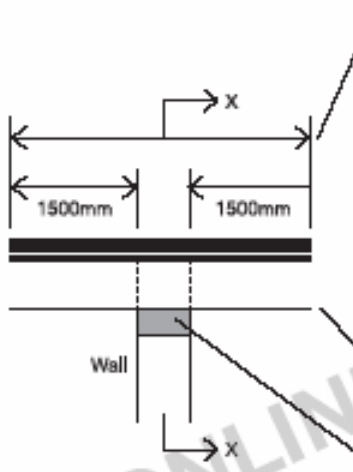
Roof covering over this distance to be designated AA, AB or AC on deck of material of limited combustibility. Roof covering and deck could be composite structure, e.g. profiled steel cladding.

Double-skinned insulated roof sheeting should incorporate a band of material of limited combustibility at least 300mm wide centred over the wall.

If roof support members pass through the wall, fire protection to these members for a distance of 1500mm on either side of the wall may be needed to delay distortion at the junction (see note to paragraph 8.20).

Resilient fire-stopping to be carried up to underside of roof covering, e.g. roof tiles.

b. RESIDENTIAL (NOT INSTITUTIONAL), OFFICE OR ASSEMBLY USE AND NOT MORE THAN 15M HIGH



Roof covering to be designated AA, AB or AC for at least this distance.

Boarding (used as a substrate), wood wool slabs or timber tiling battens may be carried over the wall provided that they are fully bedded in mortar (or other no less suitable material) where over the wall.

Thermoplastic insulation materials should not be carried over the wall.

Double-skinned insulated roof sheeting with a thermoplastic core should incorporate a band of material of limited combustibility at least 300mm wide centred over the wall.

Sarking felt may also be carried over the wall.

If roof support members pass through the wall, fire protection to these members for a distance of 1500mm on either side of the wall may be needed to delay distortion at the junction (see note to paragraph 8.20).

Fire-stopping to be carried up to underside of roof covering, boarding or slab.

Section X-X



Roof covering to be designated AA, AB or AC for at least 1500mm either side of wall.

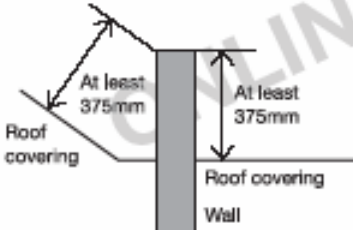
Roofing battens and sarking felt may be carried over the wall.

Fire-stopping to be carried up to underside of roof covering. Above and below sarking felt.

Notes

- 1 Fire-stopping should be carried over the full thickness of the wall.
- 2 Fire-stopping should be extended into any eaves.
- 3 The compartment wall need not necessarily be constructed of masonry.

c. ANY BUILDING OR COMPARTMENT



The wall should be extended up through the roof for a height of at least 375mm above the top surface of the adjoining roof covering.

Where there is a height difference of at least 375 mm between two roofs or where the roof coverings on either side of the wall are AA, AB or AC the height of the upstand/parapet wall above the highest roof may be reduced to 200mm.

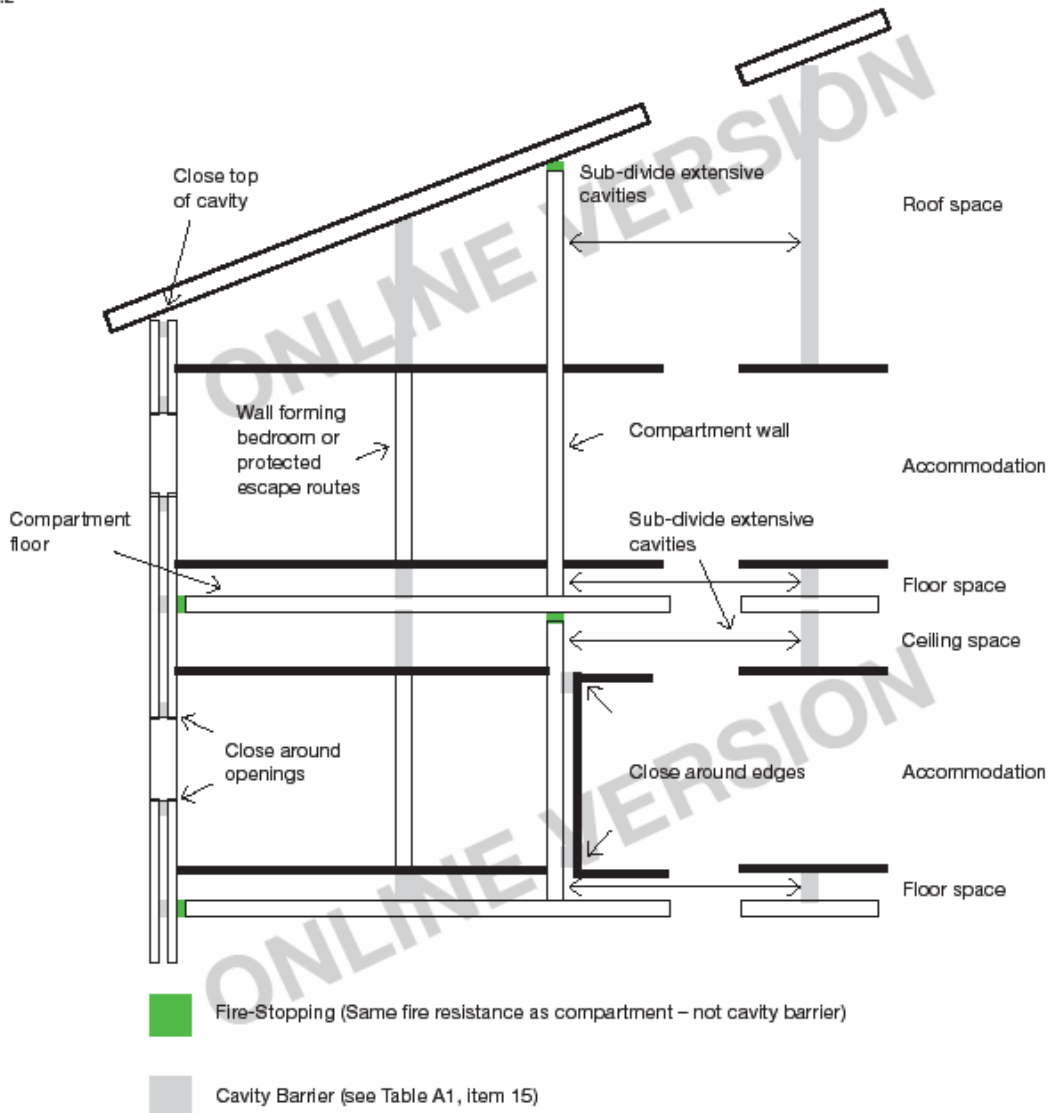
Section 9: Concealed Spaces (Cavities).

This has been overhauled with new diagrams added and more text on cavity barriers locations (previously contained in a table).

New diagram 33 added.

Diagram 33 Provisions for cavity barriers

See para 9.2



Previous Table 13 has been incorporated into the text of this section as to the location of cavity barriers to avoid confusion and aid understanding.

Table 13 Maximum dimensions of cavities in non-domestic buildings (Purpose Groups 2–7)

Location of cavity	Class of surface/product exposed in cavity (excluding the surface of any pipe, cable or conduit, or any insulation to any pipe)		Maximum dimensions in any direction (m)
	National class	European class	
Between roof and a ceiling	Any	Any	20
Any other cavity	Class 0 or Class 1	Class A1 or Class A2-s3, d2 or Class B-s3, d2 or Class C-s3, d2	20
	Not Class 0 or Class 1	Not any of the above classes	10

Notes:

- 1 Exceptions to these provisions are given in paragraphs 9.10 to 9.12.
- 2 The national classifications do not automatically equate with the equivalent classifications in the European column, therefore, products cannot typically assume a European class unless they have been tested accordingly.
- 3 When a classification includes "s3, d2", this means that there is no limit set for smoke production and/or flaming droplets/particles.

9.10 Under floor service voids now require cavity barrier sub-division.

9.13 Window frames and doors frames are now regarded as cavity barriers and if they are constructed of steel or timber they must comply with the relevant requirements, i.e. timber minimum 38mm thick / steel 0.5mm thick – watch the use of upvc windows, a ½hr cavity closer will be required.

Diagram 34 Cavity wall excluded from provisions for cavity barriers

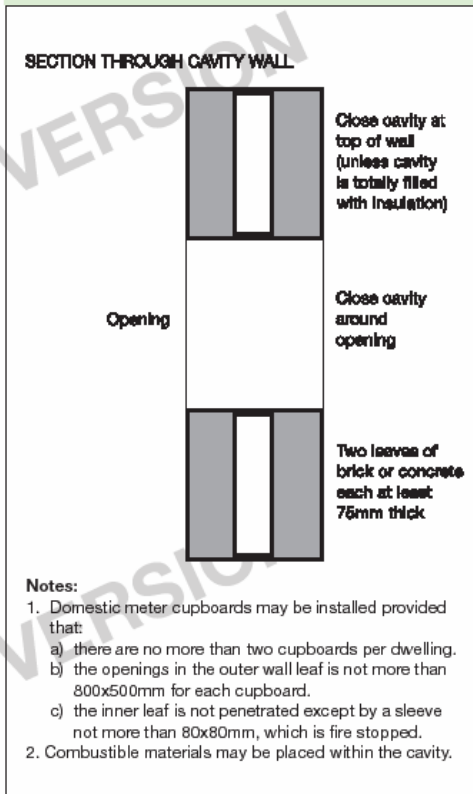


Diagram 34 amended – cavities to be closed around full opening, including cill (which was previously not required).

SECTION 10: PROTECTION OF OPENINGS AND FIRE STOPPING.

Clause 10.11 – 10.15. Comprehensive guidance now provided on fire dampers requiring.

- (a) Fire dampers to be securely fixed.
- (b) Provisions to prevent displacement by expansion in a fire of the ductwork to which they are fitted.
- (c) Adequate access to be provided for inspection / testing / maintenance.
- (d) Dampers to buildings involving a sleeping risk, e.g. hotel or residential care homes are to be actuated by smoke detector – controlled automatic release mechanism, in addition to thermally actuated devices.

Some exceptions if occupants can make their own escape unaided and a L1 fire alarm system is install throughout are:

- (a) If on detection of smoke, the alarm system signals the immediate evacuation of all occupants, then fire / smoke dampers are not needed; and
- (b) If the building is divided into fire compartments and the alarm system is arranged to signal the immediate evacuation of all occupants of the fire compartment in which the fire has been detected, then smoke detector operated fire/smoke dampers need only be provided where ductwork enters or leaves the fire compartment.

NOTE – Fire dampers actuated only by fusible links are not suitable for protecting escape routes. However, an ES classified fire and smoke damper, which is activated by a suitable fire detection system, may be used.

Reference to BS 5720: 1979 on design and installation / BS EN 1366-2 and BS EN 13501-3 as to testing dampers.

**SECTION 11: SPECIAL PROVISIONS FOR CAR PARKS AND SHOPPING
COMPLEXES.**

Minor revisions:

- 11.3
- (c) Where one element of structure supports or carries or gives stability to another, the fire resistance of the supporting element should be N.LT the minimum period of fire resistance for the other element (whether that other element is loadbearing or not).
 - (d) If the building is also used for any other purpose, the part forming the car park is a separated part and the fire resistance of any element of structure that supports or carries or gives stability to another element in the other part of the building should be NLT the minimum period of fire resistance for the elements it supports, and
 - (e) All materials used in the construction of the building, compartment or separated part should be NON COMBUSTIBLE.

B4 – EXTERNAL FIRE SPREAD.

Section 12 – Construction of external walls

12.7 Insulation Materials/Products (new requirement)

In a building with a storey more than 18m above ground level any insulation products, filler material (not including gaskets, sealants and similar), etc., used in the external wall construction should be of limited combustibility (other than to masonry cavity wall construction which complies with Diagram 34).

12.8 – 12.9 Cavity Barriers (new notes)

12.8 Cavity barriers should be provided in accordance with Section 9. above

12.9 In the use of an external wall construction of a building which, by virtue of paragraph 9.10d external cladding system with a masonry or concrete inner leaf, is not subject to the provisions of Table 13 Maximum dimensions of cavities in non-domestic buildings, the surfaces which face into cavities should also meet the provisions of Diagram 40.

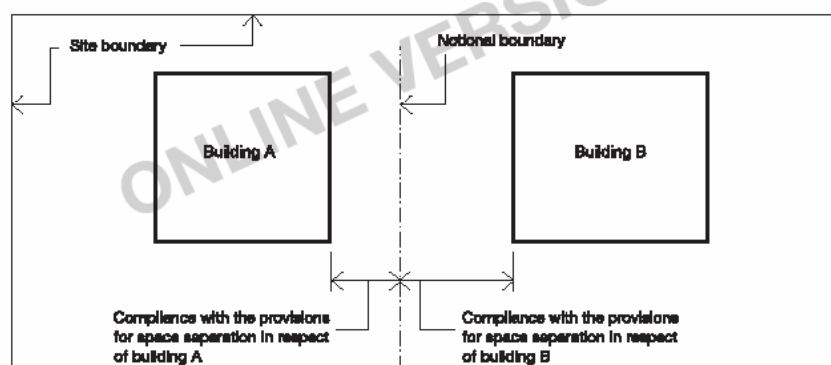
Section 13 – Space Separation

13.6 Notional boundaries now need to be determined and assessed between buildings constructed on the same site, but is to be operated / managed by different organisations.

Previously this only applied to Residential and Assembly and Recreational purpose groupings.

Diagram 42 Notional boundary

See para 13.6



The notional boundary should be set in the area between the two buildings using the following rules:

1. The notional boundary is assumed to exist in the space between the buildings and is positioned so that one of the buildings would comply with the provisions for space separation having regard to the amount of its unprotected area. In practice, if one of the buildings is existing, the position of the boundary will be set by the space separation factors for that building.
2. The siting of the new building, or the second building if both are new, can then be checked to see that it also complies, using the notional boundary as the relevant boundary for the second building.

Table 15 – Permitted unprotected areas in small buildings or compartments

Table 15 Permitted unprotected areas in small buildings or compartments

Minimum distance between side of building and relevant boundary (m)		Maximum total percentage of unprotected area %
Purpose groups		
Residential, office, assembly and recreation	Shop and commercial industrial, storage and other non-residential	
(1)	(2)	(3)
n.a.	1	4
1	2	8
2.5	5	20
5	10	40
7.5	15	60
10	20	80
12.5	25	100

Notes:

n.a. = not applicable

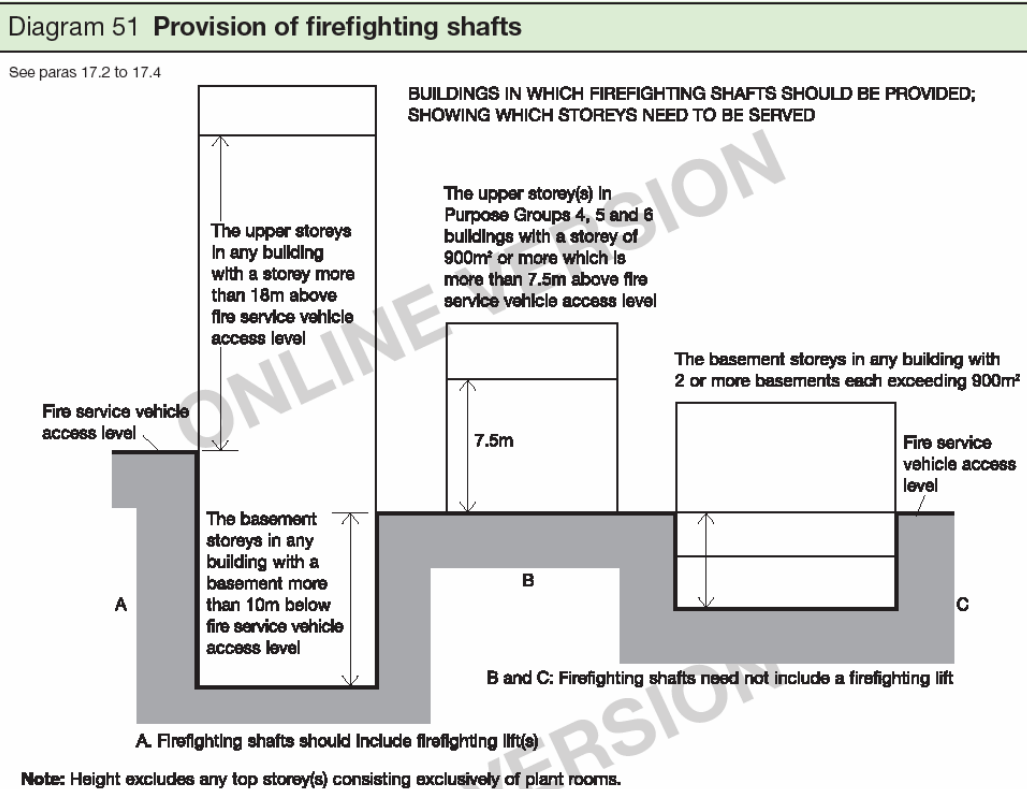
- Intermediate values may be obtained by interpolation.
- For buildings which are fitted throughout with an automatic sprinkler system, see para 13.17.
- In the case of open-sided car parks in Purpose Group 7(b), the distances set out in column (1) may be used instead of those in column (2).
- The total percentage of unprotected area is found by dividing the total unprotected area by the area of a rectangle that encloses all the unprotected areas and multiplying the result by 100.

Minor addition to clarify how this table should be used, i.e. the total percentage of unprotected area is found by dividing the total unprotected area by the area of a rectangle that encloses all the unprotected areas and multiplying this result by 100.

Section 17- Access to Building for Fire Fighting Personnel.

Revised Guidance

- 17.3 Fire fighting shafts now been to be provided to Assembly and Recreational purpose groups in addition to shops (purpose group 4) and Industrial (Purpose group 6) with storeys over 900m², where the floor is more than 7.5m above Fire and Rescue Service vehicle access level.



Number and Location of Fire Fighting Shafts.

Revised text – hose distances added.

- 17.8 Fire fighting shafts should be located to meet maximum hose distance set out below and at least 2 should be provided in buildings with storeys over 900m², where the floor is more than 18m above Fire Service vehicle access level (or above 7.5m for purpose groups 4, 5 and 6).
- 17.9 Buildings with sprinklers fitted throughout – sufficient fire fighting shafts to be provided so that every part of the storey that is more than 18m above Fire Service vehicle access level (or above 7.5m for Purpose Groups 4, 5 and 6), is N.MT 60m from a fire main outlet in a fire fighting shaft, measure on a route suitable for laying hoses.
- 17.10 Buildings without sprinklers – every part of every storey over 18m or 7.5m as previous above Fire Service access level is not more than 45m from a fire main outlet contained in a protected shaft and 60m from fire main outlet in a fire fighting shaft measured along a route suitable for laying hoses.

NOTE: To meet the 45m distance it may be necessary to provide additional fire mains in escape stairs (these do not all have to be designed as fire fighting shafts).

B5 – ACCESS FOR FIRE FIGHTING.

Various amendments made.

Design and Construction of Fire Mains.

The outlets from fire mains should be located within the protected enclosure of a stairway or a protected lobby where one is provided.

Guidance on other aspects of the design and construction of fire mains, not included in the provisions of this Approved Documents, should be obtained from BS 9990:2006 (new code).

NOTE: Wet fire mains should be provided in buildings with a floor as more than 50m (previously 60m) above Fire and Rescue Service vehicle access level. In lower buildings where fire mains are provided, either wet or dry mains are suitable.

Provision of Private Hydrants (new provision 15.7 – 15.8)

Where a building has a compartment of 280m² or more and is erected more than 100m from an existing hydrant, additional hydrants need to be provided.

- (a) Buildings provided with fire mains – hydrants should be provided within 90m of dry fire main inlets.
- (b) Building not provided with fire mains – hydrants should be provided within 90m of any entry point to the building and not more than 90m apart.

Each fire hydrant should be clearly indicated by a plate affixed nearby in a conspicuous position in accordance with BS 3251:1976.

Where no piped water supply is available or where there is insufficient pressure and flow in the water main, or an alternative arrangement is proposed, the alternative source of supply should be provided in accordance with the following recommendations:

- (a) A charged static water tank of at least 45,000 litre capacity; or
- (b) A spring, river, canal or pond capable of providing or storing at least 45,000 litres of water at all times of the year, to which access space and a hard standing are available for a pumping appliance; or
- (c) Any other means of providing a water supply for fire fighting operations considered appropriate by the Fire and Rescue Authority.

Vehicle Access.

Provisions similar, other than you are now required for blocks of flats to have fire fighting pump vehicle access to within 45m of all points within each dwelling (previously it was only to flat entrance doors).

Dia 49 Relationship between building and hardstanding / access roads for high reach appliance and Table 20 Typical fire and rescue service vehicle access route specification-

Notes added that - not all fire fighting appliances are standardised and you must check with the Building Control Body and Fire and Rescue Service for relevant dimensions and ground load bearing capacity. (Establish GMC provisions – update information)

- 16.5 Every elevation to which fire fighting vehicle access is provided should have suitable doors, NLT 750mm wide giving access to the building's interior.

New requirement – Doors should be provided such that there is no more than 60m between each door and / or the end of that elevation (e.g. a 150m elevation would need at least 2 doors).

Variations for Block of Flats.

17.14 Provided compartmentation and design of the flats is in accordance with the Approved Document – you do not have to provide a fire fighting lobby between the fire fighting stair(s) and the protected corridor or lobby provided for means of escape purposes.

Similarly, the fire fighting lift can open directly into such a protected corridor or lobby, but the fire fighting lift landing doors are to be N.M.T. 7.5m from the fire fighting stair door.

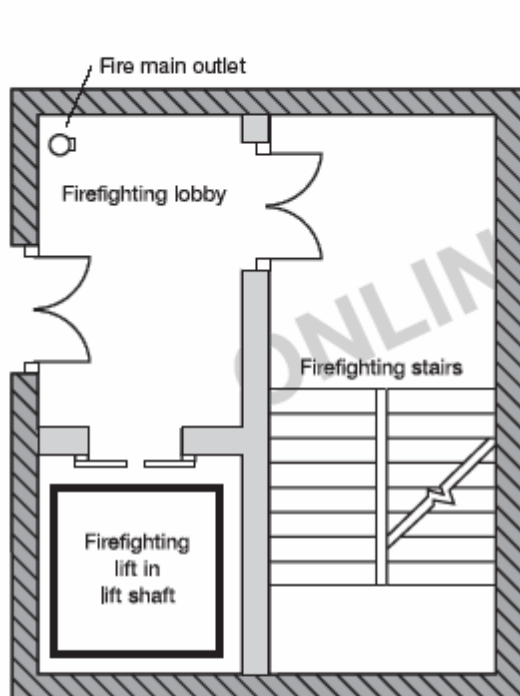
Dia 52 – Components of a Fire Fighting Shaft.

Diagram has been updated and added to.

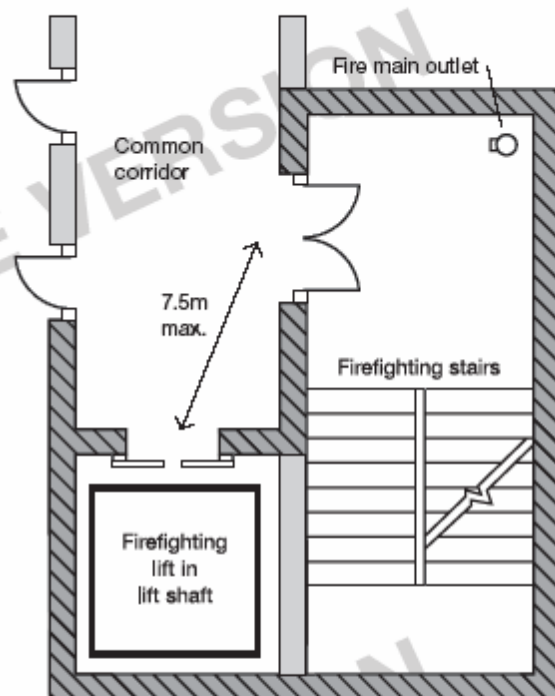
Diagram 52 Components of a firefighting shaft

See para 17.1

a. Any building



b. Shafts serving flats



- Minimum fire resistance 60 minutes from both sides with 30 minute fire doors
- Minimum fire resistance 120 minutes from accommodation side and 60 minutes from inside the shaft with 60 minute fire doors

Notes:

1. Outlets from a fire main should be located in the firefighting lobby or, in the case of a shaft serving flats, in the firefighting stairway (see Diagram b).
2. Smoke control should be provided in accordance with BS 5588-5:2004 or, where the shaft only serves flats, the provisions for smoke control given in paragraph 2.25 may be followed instead.
3. A firefighting lift is required if the building has a floor more than 18m above, or more than 10m below, fire service vehicle access level.
4. This Diagram is only to illustrate the basic components and is not meant to represent the only acceptable layout. The shaft should be constructed generally in accordance with clauses 7 and 8 of BS 5588-5:2004.

APPENDIX A.

Table A2 - Minimum periods of fire resistance.

Updated and minor changes.

Table A2 Minimum periods of fire resistance

Purpose group of building	Minimum periods of fire resistance (minutes) in a:					
	Basement storey ⁽⁸⁾ including floor over		Ground or upper storey			
	Depth (m) of a lowest basement		Height (m) of top floor above ground, in a building or separated part of a building			
	More than 10	Not more than 10	Not more than 5	Not more than 18	Not more than 30	More than 30
1. Residential:						
a. Block of flats						
– not sprinklered	90	60	30*	60**†	90**	Not permitted
– sprinklered	90	60	30*	60**†	90**	120**
b. Institutional	90	60	30*	60	90	120#
c. Other residential	90	60	30*	60	90	120#
2. Office:						
– not sprinklered	90	60	30*	60	90	Not permitted
– sprinklered ⁽⁹⁾	60	60	30*	30*	60	120#

Flats over 30m require sprinkler protection.

Notes:

1. Refer to Table A1 for the specific provisions of test.
 2. "Sprinklered" means that the building is fitted throughout with an automatic sprinkler system in accordance with paragraph 0.16.
 3. The car park should comply with the relevant provisions in the guidance on requirement B3, Section 11.
 4. For the purposes of meeting the Building Regulations, the following types of steel elements are deemed to have satisfied the minimum period of fire resistance of 15 minutes when tested to the European test method:
 - i) Beams supporting concrete floors maximum $H_p/A=230m^{-1}$ operating under full design load.
 - ii) Free standing columns, maximum $H_p/A=180m^{-1}$ operating under full design load.
 - iii) Wind bracing and struts, maximum $H_p/A=210m^{-1}$ operating under full design load.
- Guidance is also available in BS5950 Structural use of steelwork in building. Part 8 Code of practice for fire resistant design.

Note 4 - added on unprotected steelwork/fire resistance.

APPENDIX B: Fire Doors.

1. All fire doors should be fitted with a self-closing device except fire doors to cupboards and to service ducts, which are normally kept locked shut and fire doors within flats (self closing devices are still necessary on flat entrance doors).
2. All rolling shutters should be capable of being opened and closed manually for fire fighting purposes.
3. Because fire doors often do not provide any significant insulation, there should be some limitation on the proportion of doorway openings in compartment walls. Therefore, no more than 25% of the length of a compartment wall should consist of door openings, unless the doors provided both integrity and insulation to the appropriate level.

NOTE: Where it is practicable to maintain a clear space on both sides of the doorway, then the above percentage may be greater.

4. Table B1 Provision of fire doors – has been amended to include item 9 and 10 and European standards.

Table B1 Provisions for fire doors

Position of door	Minimum fire resistance of door in terms of integrity (minutes) when tested to BS 476-22 ⁽¹⁾	Minimum fire resistance of door in terms of integrity (minutes) when tested to the relevant European standard ⁽³⁾
1. In a compartment wall separating buildings	As for the wall in which the door is fitted, but a minimum of 60	As for the wall in which the door is fitted, but a minimum of 60
2. In a compartment wall:		
a. If it separates a flat from a space in common use;	FD 30S ⁽²⁾	E30 Sa ⁽²⁾
b. Enclosing a protected shaft forming a stairway situated wholly or partly above the adjoining ground in a building used for Flats, Other Residential, Assembly and Recreation, or Office purposes;	FD 30S ⁽²⁾	E30 Sa ⁽²⁾
c. enclosing a protected shaft forming a stairway not described in (b) above;	Half the period of fire resistance of the wall in which it is fitted, but 30 minimum and with suffix S ⁽²⁾	Half the period of fire resistance of the wall in which it is fitted, but 30 minimum and with suffix Sa ⁽²⁾
d. enclosing a protected shaft forming a lift or service shaft;	Half the period of fire resistance of the wall in which it is fitted, but 30 minimum	Half the period of fire resistance of the wall in which it is fitted, but 30 minimum
e. not described in (a), (b), (c) or (d) above.	As for the wall it is fitted in, but add S (2) if the door is used for progressive horizontal evacuation under the guidance to B1	As for the wall it is fitted in, but add Sa ⁽²⁾ if the door is used for progressive horizontal evacuation under the guidance to B1
3. In a compartment floor	As for the floor in which it is fitted	As for the floor in which it is fitted
4. Forming part of the enclosures of:		
a. a protected stairway (except as described in item 9) ; or	FD 30S ⁽²⁾	E30 Sa ⁽²⁾
b. a lift shaft (see paragraph 5.42b); which does not form a protected shaft in 2(b), (c) or (d) above.	FD 30	E30
5. Forming part of the enclosure of:		
a. a protected lobby approach (or protected corridor) to a stairway;	FD 30S ⁽²⁾	E30 Sa ⁽²⁾
b. any other protected corridor; or	FD 20S ⁽²⁾	E20 Sa ⁽²⁾
c. a protected lobby approach to a lift shaft (see paragraph 5.42)	FD 30S ⁽²⁾	E30 Sa ⁽²⁾
6. Affording access to an external escape route	FD 30	E30
7. Sub-dividing:		
a. corridors connecting alternative exits;	FD 20S ⁽²⁾	E20 Sa ⁽²⁾
b. dead-end portions of corridors from the remainder of the corridor	FD 20S ⁽²⁾	E20 Sa ⁽²⁾
8. Any door within a cavity barrier	FD 30	E30
9. Any door forming part of the enclosure to a protected entrance hall or protected landing in a flat;	FD 20	E20
10. Any door forming part of the enclosure		
a. to a place of special fire risk	FD30	E30
b. to ancillary accommodation in care homes (see paragraph 3.50).	FD30	E30

European standards

Note:

- To BS 476-22 (or BS 476-8 subject to paragraph 5 in Appendix A).
- Unless pressurization techniques complying with BS EN 12101-6:2005 Smoke and heat control systems – Part 6: Specification for pressure differential systems – Kits are used, these doors should also either:
 - have a leakage rate not exceeding 3m³/m²/hour (head and jambs only) when tested at 25 Pa under BS 476 Fire tests on building materials and structures, Section 31.1 Methods for measuring smoke penetration through doorsets and shutter assemblies, Method of measurement under ambient temperature conditions; or
 - meet the additional classification requirement of Sa when tested to BS EN 1634-3:2001, Fire resistance tests for door and shutter assemblies, Part 3 – Smoke control doors.
- The National classifications do not automatically equate with the equivalent classifications in the European column, therefore products cannot typically assume a European class unless they have been tested accordingly.

Table D1 Classification of Purpose Groups

Title	Group	Purpose for which the building or compartment of a building is intended to be used
Residential (dwellings)	1(a)*	Flat.
	1(b)†	Dwellinghouse which contains a habitable storey with a floor level which is more than 4.5m above ground level.
	1(c)‡	Dwellinghouse which does not contain a habitable storey with a floor level which is more than 4.5m above ground level.
Residential (Institutional)	2(a)	Hospital, home, school or other similar establishment used as living accommodation for, or for the treatment, care or maintenance of persons suffering from disabilities due to illness or old age or other physical or mental incapacity, or under the age of 5 years, or place of lawful detention, where such persons sleep on the premises.
(Other)	2(b)	Hotel, boarding house, residential college, hall of residence, hostel and any other residential purpose not described above.
Office	3	Offices or premises used for the purpose of administration, clerical work (including writing, book keeping, sorting papers, filing, typing, duplicating, machine calculating, drawing and the editorial preparation of matter for publication, police and fire and rescue service work), handling money (including banking and building society work), and communications (including postal, telegraph and radio communications) or radio, television, film, audio or video recording, or performance (not open to the public) and their control.
Shop and commercial	4	Shops or premises used for a retail trade or business (including the sale to members of the public of food or drink for immediate consumption and retail by auction, self-selection and over-the-counter wholesale trading, the business of lending books or periodicals for gain and the business of a barber or hairdresser and the rental of storage space to the public) and premises to which the public is invited to deliver or collect goods in connection with their hire repair or other treatment, or (except in the case of repair of motor vehicles) where they themselves may carry out such repairs or other treatments.
Assembly and recreation	5	Place of assembly, entertainment or recreation; including bingo halls, broadcasting, recording and film studios open to the public, casinos, dance halls; entertainment, conference, exhibition and leisure centres; funfairs and amusement arcades; museums and art galleries; non-residential clubs, theatres, cinemas and concert halls; educational establishments, dancing schools, gymnasia, swimming pool buildings, riding schools, skating rinks, sports pavilions, sports stadia; law courts; churches and other buildings of worship, crematoria; libraries open to the public, non-residential day centres, clinics, health centres and surgeries; passenger stations and termini for air, rail, road or sea travel; public toilets; zoos and menageries.
Industrial	6	Factories and other premises used for manufacturing, altering, repairing, cleaning, washing, breaking-up, adapting or processing any article; generating power or slaughtering livestock.
Storage and other non-residential+	7(a)	Place for the storage or deposit of goods or materials (other than described under 7(b)) and any building not within any of the Purpose Groups 1 to 6.
	7(b)	Car parks designed to admit and accommodate only cars, motorcycles and passenger or light goods vehicles weighing no more than 2500kg gross.

New notes added

Notes:

This table only applies to Part B.

* Includes live/work units that meet the provisions of paragraph 2.52.

† includes any surgeries, consulting rooms, offices or other accommodation, not exceeding 50m² in total, forming part of a dwellinghouse and used by an occupant of the dwellinghouse in a professional or business capacity.

+ A detached garage not more than 40m² in area is included in purpose group 1(c); as is a detached open carport of not more than 40m², or a detached building which consists of a garage and open carport where neither the garage nor the open carport exceeds 40m² in area.

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APPENDIX E – DEFINITIONS.

New definitions added:

EXIT PASSAGEWAY – A protected passageway connecting a protected stairway to a final exit (exit passageways should be protected to the same standard as the stairway they serve).

FIRE DAMPER – Mechanical or intumescent device within a duct or ventilation opening which is operated automatically and designed to prevent the passage of fire and which is capable of achieving an integrity E classification and/or an ES classification to BS En 13501-3:2005.

FIRE AND SMOKE DAMPER – Fire damper which when tested in accordance with BS EN 1366-2:1999 meets the ES classification requirements defined in EN 13501-3:2005 and achieves the same fire resistance in relation to integrity, as the element of the building construction through which the duct passes.

GALLERY – A floor or balcony, which does not extend across the full extend of a building’s footprint and is open to the floor below.

LIVE/WORK UNIT – A flat, which is intended to serve as a workplace for its occupants and for persons who do not live on the premises.

PLACES OF SPECIAL FIRE HAZARD – Now revised deleting reference to school labs/mat stores – as guidance in Building Bulletin 100 should be used.

Oil filled transformer and switchgear rooms, boiler rooms, storage spaces for fuel or other highly flammable substances and rooms housing a fixed internal combustion engine.

SCHOOL – A place of education for children older than 2 and younger than 19 years. Includes nursery schools, primary schools and secondary schools as defined in the Education Act 1996.

SHELTERED HOUSING includes:

- (a) 2 or more dwellings in the same building;
- (b) 2 or more dwellings on adjacent sites where those dwellings are, in each case, designed and constructed for the purpose of providing residential accommodation for vulnerable or elderly who receive, or who are to receive, a support service.

STOREY includes:

- (a) any gallery in an assembly building (Purpose Group 5); and
- (b) any gallery in any other type of building if its area is more than half that of the space into which it projects; and

NOTE: *Where there is M.T one gallery and all the total area of the galleries in any one space is more than half of the area of the space then the building should be regarded as being a multi storey building.*

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APPENDIX G – FIRE SAFETY INFORMATION.

Regulation 16B requires that, where building work involves the erection or extension of a relevant building, or a relevant change of use of a building, fire safety information shall be given to the responsible person at the works completion or on first occupation of the building or extension. ***Building Control do not have to issue a 'Completion Certificate' if the relevant information has not been provided and the persons responsible could be subject to enforcement action if they do not provide such information.***

- ◆ **'fire safety information'** means information relating to the building's or extension's design and construction, and the services, fittings and equipment provided in or in connection with the building or extension which will assist the responsible person to operate and maintain the building or extension with reasonable safety;
- ◆ **a 'relevant building'** is a building to which the Regulatory Reform (Fire Safety) Order 2005 applies (S.I. 2005/1541, see article 6), or will apply after the completion of building work;
- ◆ **a 'relevant change of use'** is a material change of use where, after the change of use takes place, the Regulatory Reform (Fire Safety) Order 2005 will apply, or continue to apply, to the building; and
- ◆ **'responsible person'** has the meaning given in article 3 of the Regulatory Reform (Fire Safety) Order 2005.

The information below is only intended as a guide as to the type and level of information to be provided, as it will vary from building to building and should be therefore be considered on a case-by-case basis.

Simple Buildings.

For most buildings basic information on the location of fire protection measures may be all that is necessary. An as-built plan of the building should be provided showing:

- a. escape routes;
- b. compartmentation and separation (i.e. location of fire separating elements, including cavity barriers in walk-in spaces);
- c. fire doors, self-closing fire doors and other doors equipped with relevant hardware (e.g. panic locks).
- d. locations of fire and/or smoke detector heads, alarm call-points, detection/alarm control boxes, alarm sounders, fire safety signage, emergency lighting, fire extinguishers, dry or wet risers and other fire fighting equipment and location of hydrants outside the building;
- e. any sprinkler system(s), including isolating valves and control equipment;
- f. any smoke-control system(s) (or ventilation system with a smoke-control function), including mode of operation and control systems;
- g. any high-risk areas (e.g. heating machinery);
- h. specifications of any fire safety equipment provided, in particular any routine maintenance schedules; and
- i. any assumptions in the design of the fire safety arrangements regarding the management of the building.
- j. any provision incorporated into the building to facilitate the evacuation of Disabled people. This information can then be used when designing suitable Personal Emergency Escape Plans.

Complex Buildings.

These require a more detailed record of the fire safety strategy and procedures for operating and maintaining any fire protection measures of the building. Further guidance is available in BS 5588-12:2004 - Fire precautions in the design, construction and use of buildings: Managing fire safety (Annex A Fire Safety Manual).

These records should include:

- a. The fire safety strategy, including all assumptions in the design of the fire safety systems (such as fire load).
- b. Any risk assessments or risk analysis.
- c. All assumptions in the design of the fire safety arrangements regarding the management of the building.
- d. Escape routes, escape strategy (e.g. simultaneous or phased) and muster points.
- e. Details of all passive fire safety measures, including compartmentation (e.g. location of fire separating elements), cavity barriers, fire doors, self-closing fire doors and other doors equipped with relevant hardware (e.g. electronic security locks), duct dampers and fire shutters.
- f. Fire detector heads, smoke detector heads, alarm call-points, detection/alarm control boxes, alarm sounders, emergency communications systems, CCTV, fire safety signage, emergency lighting, fire extinguishers, dry or wet risers and other fire fighting equipment, other interior facilities for the fire and rescue service, emergency control rooms, location of hydrants outside the building, other exterior facilities for the fire and rescue service.
- g. Details of all active fire safety measures, including.
 - ◆ Sprinkler system(s) design, including isolating valves and control equipment; and
 - ◆ Smoke-control system(s) (or HVAC system with a smoke-control function) design, including mode of operation and control systems.
- h. Any high-risk areas (e.g. heating machinery) and particular hazards.
- i. As-built plans of the building showing the locations of the above.
- j. Specifications of any fire safety equipment provided, including operation details, operators' manuals, software, system zoning and routine inspection, testing and maintenance schedules. Records of any acceptance or commissioning tests.
- k. Any provision incorporated into the building to facilitate the evacuation of disabled people.
- l. Any other details appropriate for the specific building.