Communities and Local Government

Part B

- Background
- Procedural Changes
- Volume 1 - Dwellinghouses
- Volume 2 - Buildings other than Dwellinghouses

Communities and Local Government

Background

Stakeholder Engagement

- Client
- Building User
- Designer
- Main Contractor
- Fire Safety Consultant / Engineer
- Health & Safety Executive
- **Building Control Body**
- **Fire Authority**
- Insurer
- Manufacturers

Communities and Local Government

Background

Stakeholder Engagement

Backward Look

- Questionnaires
- Interviews

Forward Look

- Workshops
- Internet Questionnaire

Communities and Local Government

Background

Stakeholder Engagement

Key Findings

- Fire Safety Management
- Residential Sprinklers
- Means of Escape for Disabled People - Inclusive Design

Communities and Local Government

Background

Supporting Research

- Forward Look
- The Impact of the ADB 2000 (Backward Look)
- Effectiveness of Sprinklers in Residential Premises
- Smoke Ventilation of Common Access Areas of Flats and Maisonettes
- An Independent Guide on Water Mist Systems for Residential Buildings
- Fire Suppression in Buildings using Water Mist, Fog or Similar Systems
- The Integrity of Compartmentation in Buildings During a Fire
- A Review of the Guidance in AD B on the Provision of Cavity Barriers
- Fire Resistance Requirements for Dampers and Ducts
- The Production of Smoke and Burning Droplets from Wall and Ceiling Linings
- Effect of Local Acts on Fire Risks

Communities and Local Government

Background

Building Disaster Assessment Group

- Operational Physiological Capabilities of Firefighters
- Physiological Assessment of Firefighting, Search and Rescue in the Built Environment
- Collection and Analysis of Human Behaviour Data
- Collection and Analysis of Emergency Services Data
- Firefighting in Under Ventilated Compartments
- Effect of Reduced Pressures on Performance of Firefighting Branches in Tall Buildings
- Hydraulic Calculation of Wet and Dry Risers, Hoses and Branches

Communities and Local Government

Background

Part B Working Party

Members from:

- Building Regulations Advisory Committee
- Practitioners Forum
- Business and Community Safety Forum
- Industry Experts
  - Building Control
  - Fire and Rescue Authorities
  - Fire Safety Engineers
- Officials (Scotland, Wales, N Ireland)

Communities and Local Government

Background

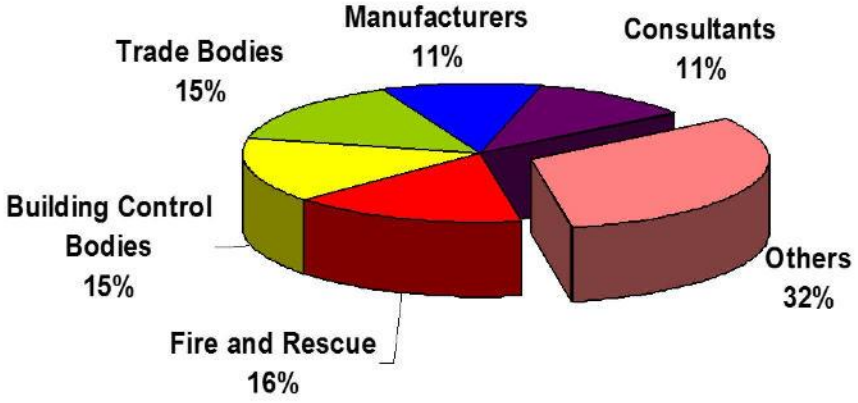
Consultation

- 948 hard copies of the consultation package were distributed
  - 618 to registered interests
  - 180 to delegates at BRE launch seminar
  - 150 requested during the consultation
- 18 separate speaking engagements - total audience 1000
- Posted on the department's & BRE websites
- 239 formal responses

Communities and Local Government

Background

239 Formal responses



Communities and Local Government

Background

Further Research

- Effectiveness of Sprinklers in Residential Premises - An Evaluation of Concealed and Recessed Pattern Sprinkler Products
- Collecting Information on Householder Interaction with Door Closure Devices
- Sprinkler Installation Trends And Fire Statistics For Warehouse Buildings
- Economic Impact of the Inclusion of BDAG Proposals for the Provision of Firefighting Equipment and Facilities in the Revised Part B of the Building Regulations
- Effectiveness of 100mm Upstand Between Integral Garages and Associated Dwellings
- Determining the Best Option for the Provision of Additional Smoke Alarms in Dwellings and Houses
- Sprinkler Effectiveness in Care Homes
- Householder Interaction with Self-Closing Devices on Doors

13

Communities and Local Government

Further information

www.communities.gov.uk
RIA, Circular and Circular Letter

www.planningportal.gov.uk
Approved Documents

www.bre.co.uk/adb
Research Reports

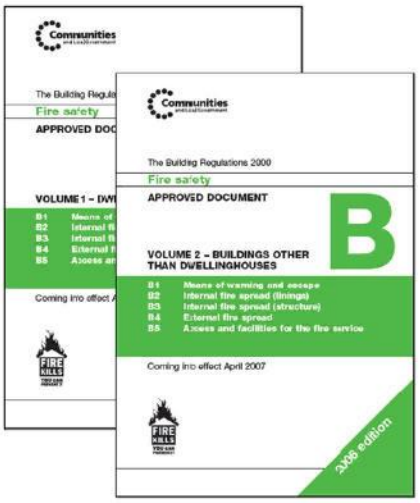
Communities and Local Government

Procedural Changes

Approved Document split into two volumes

- Volume 1 - Dwellinghouses
- Volume 2 – Buildings other than Dwellinghouses.

  Flats (including multi-storey flats & mixed-use buildings) can be found in Volume 2



Communities and Local Government

Procedural Changes

Amended Requirement B3(3) – part of Internal fire spread (Structure)

Requirement

B3.

(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.

Communities and Local Government

Procedural Changes

Fire safety Information

- New Regulation 16B typically applies to extensions and new buildings where the building affected will be covered by the Regulatory Reform (Fire Safety) Order 2005.
- The person carrying out the work must provide sufficient information for persons to operate and maintain the building in reasonable safety.

- The exact amount of information and level of detail necessary will vary depending on the nature and complexity of the building's design. Appendix G provides advice on the sort of information that should be provided.
- The Regulations have been amended to ensure that both Approved Inspectors and Local Authorities must consider whether it has been complied with when deciding whether to give a completion certificate or final notice.

Communities and Local Government

Procedural Guidance

Procedural Guidance

- Third edition - Published, on-line, September 2006
  - Incorporates changes brought about by the Fire Safety Order.
- Will be amended again to incorporate Part B changes

Communities and Local Government

Procedural Changes

Fire Safety Management (Vol 2)

0.13 Building Regulations do not impose any requirements on the management of a building. However, in developing an appropriate fire safety design for a building it may be necessary to consider the way in which it will be managed. **A design which relies on an unrealistic or unsustainable management regime cannot be considered to have met the requirements of the Regulations.**

Once the building is **in use the management regime should be maintained and any variation in that regime should be the subject of a suitable risk assessment.**

Failure to take proper management responsibility may result in the prosecution of an employer, building owner or occupier under legislation such as the upcoming Regulatory Reform (Fire Safety) Order 2005.

Communities and Local Government

Procedural Changes

Third Party Certification

Building Control Bodies **may accept** the certification of products, components, materials or structures under such schemes as **evidence of compliance with the relevant standard.**

Similarly, Building Control Bodies **may accept** the certification of the installation or maintenance of products, components, materials or structures under such schemes as **evidence of compliance with the relevant standard.**

Nonetheless, a Building Control Body will wish to establish, in advance of the work, that any such scheme **is adequate for the purposes of the Building Regulations.**

21

Communities and Local Government

Procedural Changes

Hospitals & Schools

Health Care Premises DoH

- HTM 05-02

Schools - DfES

- Building Bulletin 100

Transitional Provisions

Transitional provisions are set out in Regulation 4 of the amendment regulations and explained in Circular 05/2006.

Work will not be subject to the Part B amendments if,

before 6 April 2007:

- a building notice has been given to the local authority; or
- full plans have been deposited with the local authority (whether or not plans have been approved); or
- an initial notice, a public body's notice or an amendment notice has been to the local authority: and

Communities and Local Government

Volume 1

Domestic Sprinklers

New guidance on the use of domestic sprinklers as a compensatory feature.

Specific alternative approaches in paragraphs;

- **B1 - 2.7 Houses with more than one floor over 4.5m above ground level**
- **B1 - 2.20b Loft conversions**
- **B4 - 9.15 Space separation**

Communities and Local Government

Volume 1

Smoke & Heat Alarms

- Restructured to refer directly to BS 5839-6 – Grade D, LD3
- Mains powered with standby supply

Extensions

- Clarifies where smoke alarms should be provided:
  - Where habitable rooms are provided above the ground floor level; or
  - where new habitable rooms are provided at ground floor level and there is no final exit from the new room

Egress Windows

- Not required in houses with a floor more than 4.5m above ground level
- Locks (with or without removable keys) and stays may be fitted to egress windows, subject to the stay being fitted with a release catch, which may be child resistant

Replacement windows

a) The replacement window opening should be sized to provide at least the same potential for escape as the window it replaces; or

b) Where the original window is larger than necessary for the purposes of escape, the window opening could be reduced down to the minimum specified

Communities and Local Government

Volume 1

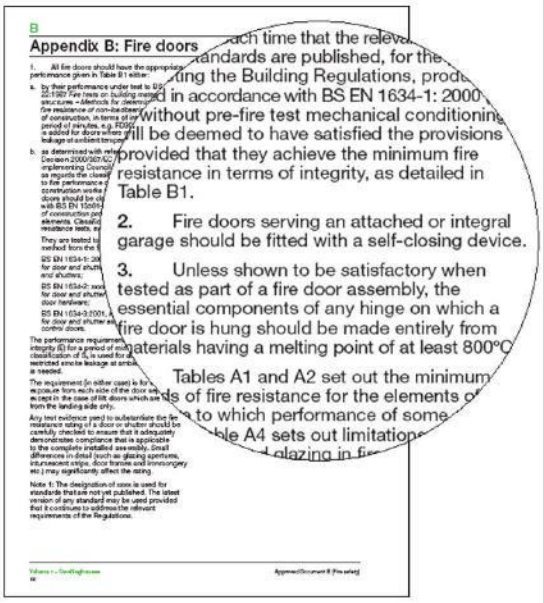
Self-closing Devices

- Self-closing devices not required on fire doors within dwellings.

except

- doors to integral garages
- flat entrance doors (vol 2)

Fire doors are still necessary



B

Appendix B: Fire doors

...ach time that the relev...
...tandards are published, for the...
...ting the Building Regulations, prod...
...d in accordance with BS EN 1634-1: 2000...
...without pre-fire test mechanical conditioning...
...ill be deemed to have satisfied the provisions...
provided that they achieve the minimum fire resistance in terms of integrity, as detailed in Table B1.

2. Fire doors serving an attached or integral garage should be fitted with a self-closing device.

3. Unless shown to be satisfactory when tested as part of a fire door assembly, the essential components of any hinge on which a fire door is hung should be made entirely from materials having a melting point of at least 800°C.

Tables A1 and A2 set out the minimum ...ds of fire resistance for the elements o... ...to which performance of some ...ble A4 sets out limitation... ...glazing in fi...

CLG00019451_0029

Communities and Local Government

Volume 1

Loft Conversions

- Alternative approach deleted
- Provide protected stair & smoke alarms
- Some existing doors could be upgraded
- Alternative approach for open plan ground floor
    - Cut off door, escape window and sprinkler protection

Integral Garages

- Compartment wall & floor
- Sloping floor or a 100mm step

See also

- Item 8 Table A1 – REI 30
- Item 2 Table 3 – Soil pipes
- Item 1b Table B1 – E30 Sa Door

Diagram 10 **Separation between garage and dwellinghouse**

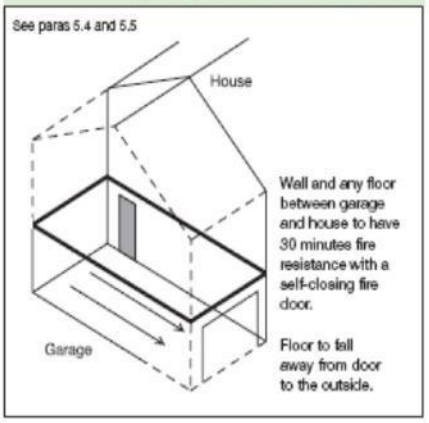
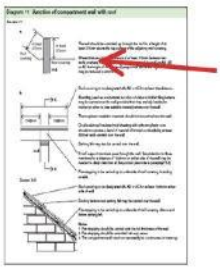
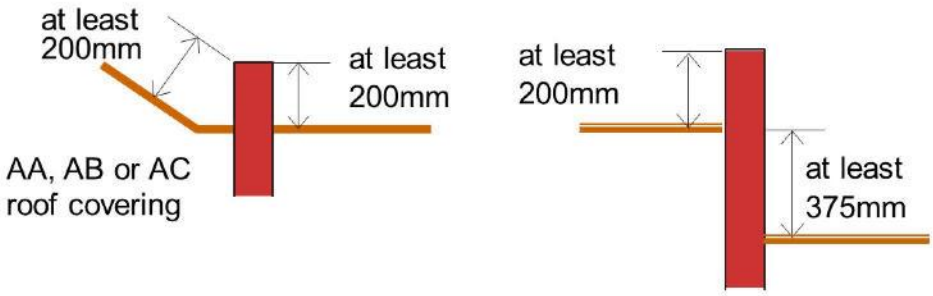


Diagram 11 - Junction of compartment wall with roof



Where there is a height difference of at least 375mm 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.



Roof Coverings (Vol 1 & 2)

- "New" European roof test
- Constructions are classified within the BS EN 13501-5: 2005 as BROOF(t4), CROOF(t4), DROOF(t4), EROOF(t4) or FROOF(t4)
- BROOF(t4) being the highest performance and FROOF(t4) being the lowest
- (t4) indicates test 4 from the soon to be BS EN 1187

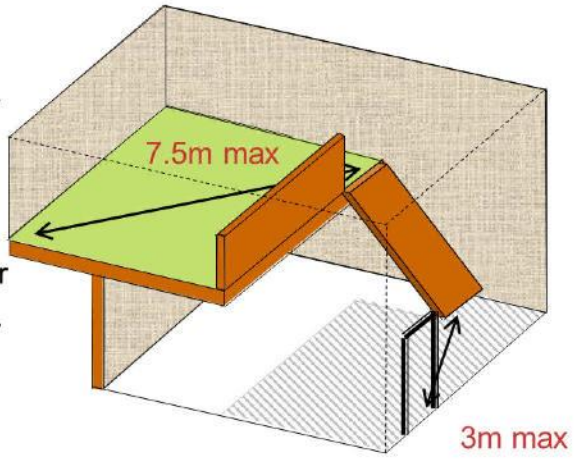
Galleries

- Alternative exit/Escape window

Or

Overlook 50% of room below

- 7.5m max travel to head of stair
- 3m max travel from foot of stair
- Cooking facilities remote or enclosed



Also applies to dwellinghouses

Communities and Local Government

Volume 2

Domestic Sprinklers

New guidance on the use of domestic sprinklers as a **compensatory feature.**

Specific alternative approaches in paragraphs;

- B1 - 2.7 flats with more than one storey
- B4 - 9.15 Space separation

Communities and Local Government

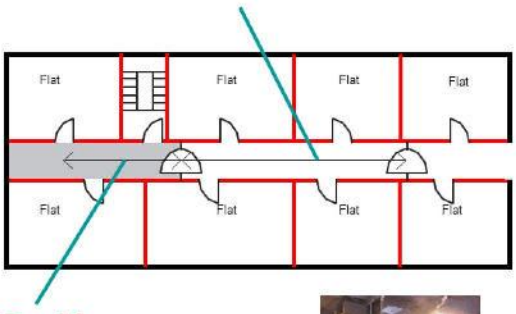
Flats with more than one storey

Communities and Local Government

Volume 2

Smoke Control in Blocks of Flats

- There should be some means of ventilating the common corridors/ lobbies to control smoke and so **protect the common stairs**
- This offers additional protection to that provided by the fire doors to the stair.
  - Single stair buildings – AOV
  - Multi stair buildings – OV
- Guidance on the design of smoke control systems using pressure differentials is available in BS EN 12101-6:2005.



Communities and Local Government

Volume 2

Domestic Sprinkler Protection for flats

- Sprinklers to be provided within '**individual** flats' in blocks over 30m in height.
- BS 9251 acceptable over 20m
  - Subject to flow rate and pressure requirements should being met

39

Communities and Local Government

Small premises

- Guidance from BS 5588 incorporated into main text
- Reduces the need to refer out to British Standards

Communities and Local Government

Care Homes

Fire safety strategy depends on the management, staffing and dependency of the residents

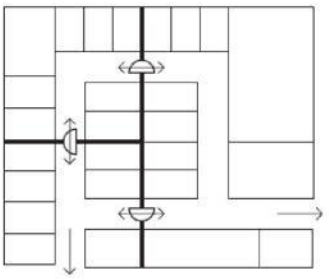
Progressive Horizontal Evacuation

- Minimum three protected areas
- No more than 10 beds in protected area
- No more than 1 bed per bedroom
- Door-closing devices
  - Bedrooms – free-swing door-closers.
  - Circulation spaces – hold-open devices.

Residential Sprinklers

- Where a sprinkler system is provided
  - No door-closers on bedrooms.
  - More than 10 beds in protected area
  - More than one bed per bedroom

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

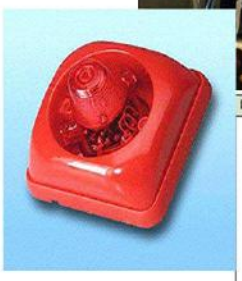


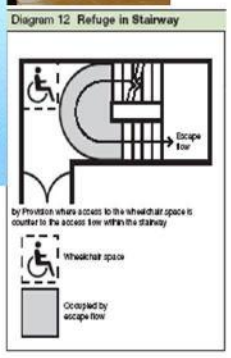
→ Escape route to adjacent compartment, storey exit or final exit.
Compartment wall

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

Inclusive Design

- Clearer guidance on refuges
- Emergency voice communication
- Use of fire fighting lifts
- Warnings for people with impaired hearing
- Level exit thresholds





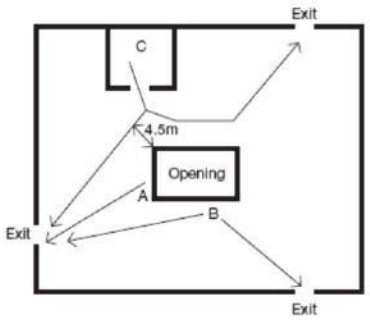
Open spatial planning

3.12 Escape routes should not be prejudiced by openings between floors, such as an escalator.

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

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

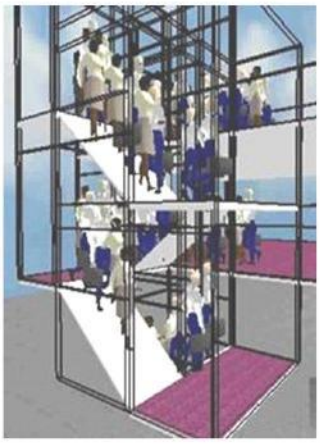
Diagram 14 **Open connections**



From A and B at least one direction of travel is away from the opening. From C where the initial direction of travel is towards the opening, one of the escape routes is not less than 4.5m from the opening.

Phased Evacuation

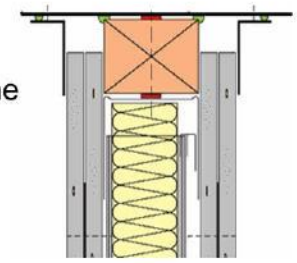
- First people to be evacuated are all those of reduced mobility and those on the storey most immediately affected by the fire
- In tall buildings over 30m in height there is a potential that persons attempting to escape could be impeded by firefighters entering and operating within the building
- In some very tall buildings(45m +) physical measures may need to be incorporated into the building (e.g. by discounting a stair or by some other suitable means)



Communities and Local Government

Volume 2

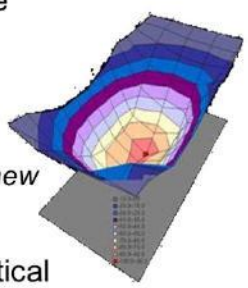
Junction of compartment walls and floors



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

A) having a suitable head detail that can deform but maintain integrity when exposed to a fire

- Walls located at mid span predicted deflection may be assumed to be 40mm, reduced linearly to zero at the supports, unless a smaller value can be justified by assessment
- For steel beams that do not have the required fire resistance - SCI Publication 288 *Fire safe design: A new approach to multi-storey steel-framed buildings*



B) the wall may be designed to resist the additional vertical load from the floor

Communities and Local Government

Volume 2

Warehouse Compartmentation

Unsprinklered single storey warehouse

- Max area 20,000m2
- Max height 18m

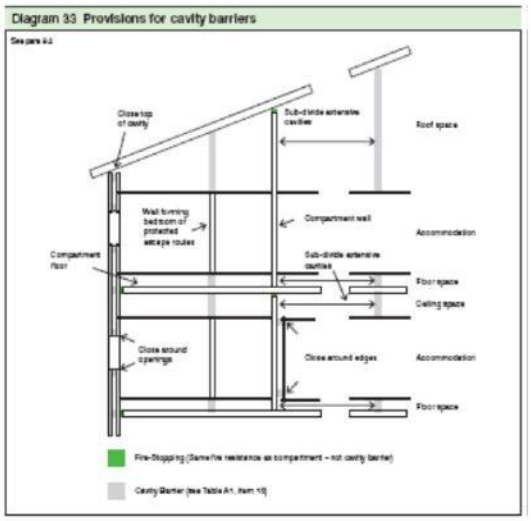
Compartment height is measured from finished floor level to underside of roof or ceiling.

Communities and Local Government

Volume 2

Cavity Barriers

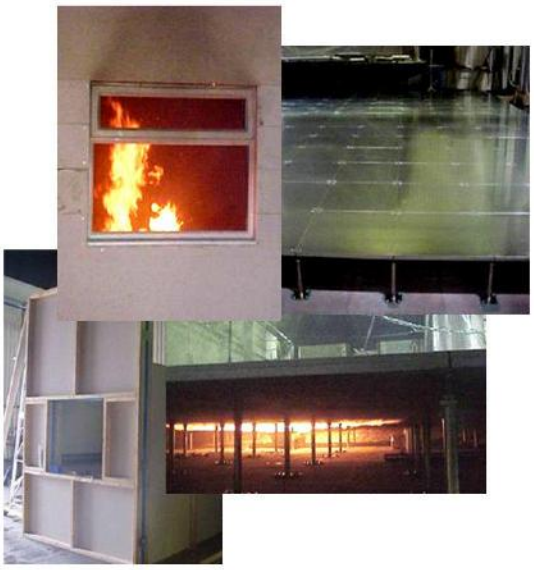
Guidance on Cavity Barriers completely reworked for better clarity



Communities and Local Government

Cavity Barriers

- Barriers in under floor voids
- Aluminium and UPVC windows not suitable for closing cavities around openings



Fire & Rescue Service Vehicle Access

Buildings not fitted with fire mains

16.3 There should be vehicle access for a pump appliance to blocks of flats to within 45m of **all points** within each dwelling

Or provide fire mains – not necessarily in a firefighting shaft

Communities and Local Government

Fire Mains

- New standard BS 9990
- Wet mains for buildings over **50m**

Dry Main Inlets

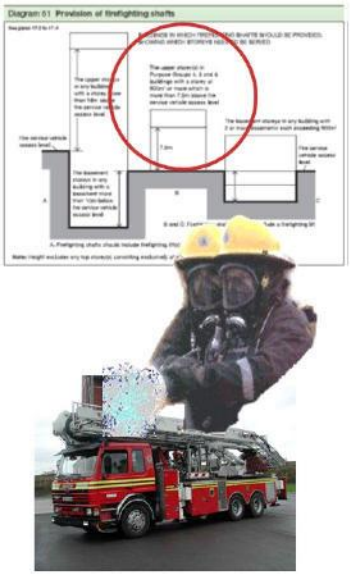
16.6 In the case of a building fitted with dry fire mains there should be access for a pumping appliance to within 18m of each fire main inlet connection point, **typically on the face of the building**. The inlet should be visible from the appliance.

Communities and Local Government

Volume 2

Fire & Rescue Service Personnel Access

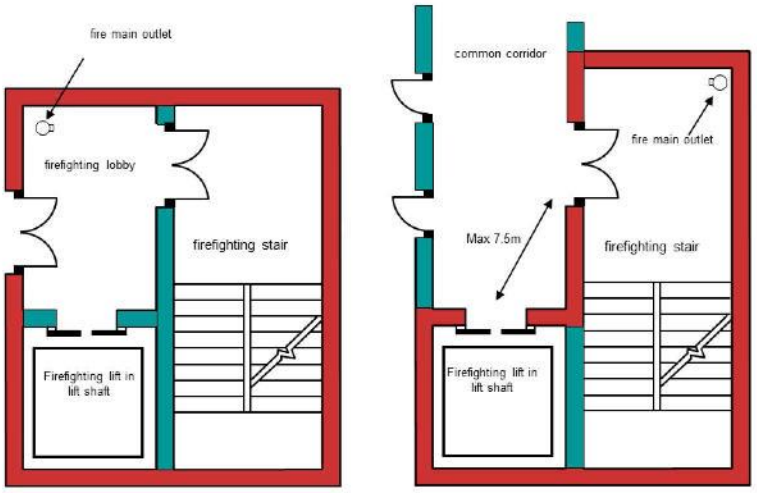
- Provide firefighting shafts in assembly and recreation buildings (PG 5) over 7.5m high with a storey of 900m2 or more. No longer applicable to storage buildings (PG 7a) below 18m
- Number of firefighting shafts/fire mains to meet minimum hose distances – Min two shafts for floors over 9000m2
    - Unsprinklered buildings - 45m from a fire main outlet contained in a protected stairway and 60m from a fire main in a firefighting shaft
    - Sprinklered buildings - 60m from a fire main in a firefighting shaft



Communities and Local Government

Volume 2

Diagram 52 - Components of a firefighting shaft



Any Building

Flats

52

Private Hydrants

15.7 Where a building, which has a compartment of 280m^2 or more in area, is being erected more than 100m from an existing fire-hydrant additional hydrants should be provided as follows;

a. **Buildings provided with fire mains** hydrants should be provided within 90m of dry fire main inlets.

b. **Buildings not provided with fire mains** hydrants should be provided within 90m of an entry point to the building and not more than 90m apart

Communities and Local Government

Car Parks

Simplified guidance

Open-sided

- Reduced period of fire resistance
  - unless supports or stabilises structure with higher period FR.
- Restrictions on combustible materials

Non open-sided

- No reduction in fire resistance

Communities and Local Government

External wall construction

Insulation Materials/Products

In a building with a storey 18m or more above ground level any insulation product, filler material (not including gaskets, sealants and similar) etc. should be of limited combustibility

Cavity barriers - Section 9

External surfaces - Diagram 40

Or

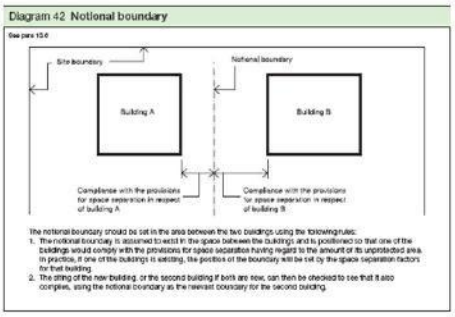
Meet the performance criteria given in BR-135 for test data from BS 8414-1:2002 or BS 8414-2:2005

Notional Boundaries

A notional boundary is assumed to exist where:

a. either or both of the buildings concerned are in the Residential or Assembly and Recreation Purpose Groups; or

b. more than one building is constructed on the same site but is to be **operated/managed** by different organisations

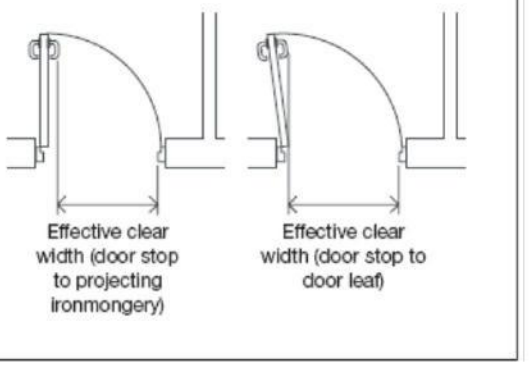


Communities and Local Government

Volume 2

Door width aligned with AD M

Diagram C1 **Measurement of door width**



Free Area of Smoke Ventilators

The free area of a smoke ventilator, specified in this Approved Document, may be measured by either:

- the declared aerodynamic free area in accordance with BS EN 12101-2:2003 – *Smoke and heat control systems – Part 2: Specification for natural smoke and heat exhaust ventilators; or,*
- the total unobstructed cross sectional area, measured in the plane where the area is at a minimum and at right angles to the direction of air flow (see diagram C7).

Diagram C7 **Free area of smoke ventilators**