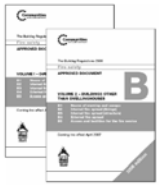
Introduction

- Changes are a result of extensive consultation and research.
- Take a pragmatic approach.
- Aim to simplify and clarify.
- Take account of "human" factors – including needs of the disabled and of Fire-fighters.
- Closely linked to the changes made in October last year - when the Regulatory Reform (Fire Safety) Order 2005 was introduced.
- Particular emphasis placed on ensuring relevant information is available to the "Responsible Person" who will take responsibility for ensuring the safe operation of the building.
- Are changes an improvement – I think so.

Introduction

- There are only two key changes to the "mandatory" regulations.
- The majority of the change comes in the form of revised guidance in the new Approved Documents
- The Approved Documents have been split –
  - Volume 1 covers dwellinghouses
  - Volume 2 covers everything else (including flats)

  But –
  - for Schools refer to BB100
  - For Healthcare premises refer to HTM 05 series



- This effectively means all buildings covered by the requirements of the RRO are in Volume 2

What has not changed !

- There are no general changes to required periods of fire resistance to elements of structure.
- Requirements for travel distances generally remain unchanged.

New Regulations – B3

- The requirements
  - ***B1 - Means of warning and escape***
  - ***B2 - Internal fire spread (linings)***
  - ***B4 - External fire spread***
  - ***B5 - Access and facilities for the fire service***

  are completely unchanged

- Requirement B3 - Internal fire spread (structure) however has a major change –

(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.

New regulations – 16B

Fire safety information

- (1) This regulation applies where building work
  - (a) consists of or includes the erection or extension of a relevant building; or
  - (b) is carried out in connection with a relevant change of use of a building, and Part B of Schedule 1 imposes a requirement in relation to the work.
- (2) The person carrying out the work shall give fire safety information to the responsible person not later than the date of completion of the work, or the date of occupation of the building or extension, whichever is the earlier

New regulations – 16B

(a) "**fire safety information**" means information relating to the design and construction of the building or extension, 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;

(b) "**relevant building**" is a building to which the Regulatory Reform (Fire Safety) Order 2005 applies, or will apply after the completion of building work;

(c) "**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

(d) "**responsible person**" has the meaning given by article 3 of the Regulatory Reform (Fire Safety) Order 2005.".

New regulations – Other

- Regulation 17 (Completion Certificates) has been modified so that a certificate cannot be issued in respect of Part B for a building to which the RRO applies until the requirements of Regulation 16B have been met.
- There are other changes made to Schedule 2A which extends the range of works covered by Competent Persons Schemes.

Transitional Provisions

- All valid applications received before 6th April 2007 can be checked and built under the "old" Part B – provided that works start on site within three years.
- But – you might not want to!
- You may want to start using some of the "new" guidance anyway – even for work already approved but not completed.
- For example – door closers are no longer required on most fire doors in dwellings.
- We need to be careful not to cherry pick just the bits we like !

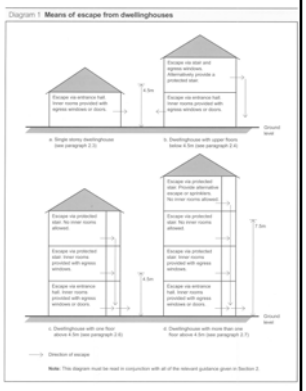
Fire alarm and detection systems

- All new dwellings must have a fire detection and alarm system to Grade D category LD3 standard BS 5839-6 2004.
- A higher specification required in large dwellings (ie those with a storey over 200m2)
- Where new habitable rooms added to existing dwellings
  - Above ground floor level
  - At ground floor level - no final exit from the new room.

  Smoke alarms should be provided in the circulation spaces so they can be heard in the new room.
- All smoke alarms should now have a standby power supply.

Means of escape

- New diagram 1 clarifies escape requirements as number of storeys increase.
- Where <u>more</u> than one floor over 4.5m, an alternative escape route OR a sprinkler system to BS 9251:2005 fitted throughout.
- A second internal stairway could be considered as an option.



Means of escape

- Size of emergency escape windows has not been changed but –
- Should not be relied on for means of escape for floors over 4.5m above ground.
- Must be designed so that they remain open without needing to be held.
- Locks, with or without removable keys **<u>may</u>** be fitted.
- Stays may be fitted but must have a release catch which may be child resistant.

Replacement windows

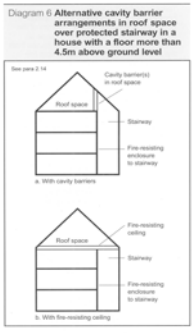
- Where windows are replaced in a room which requires an emergency escape window -
  - (a) If the existing window already has an opening which would meet the requirements for an escape window – then the replacement window must also have a suitable opening. If the opening in the existing window is larger than required, it can be reduced.
  - (b) Where the existing window does not have a suitable opening, then replacement is the ideal opportunity to provide one – but this is not a requirement of the Regulations provided the opening size in the replacement window is no worse than that in the existing window.

Loft Conversions

- The alternative approach for loft conversions has been removed.
- So - no more creating a fire resistant box around the conversion with a roof window as an alternative escape route.
- Escape from loft conversions is treated in the same way as any other dwelling with the same number of storeys.
- Escape should be via a protected stairway
- Protecting structure should achieve half hour fire resistance.
- All doors into protected stairway should be FD 20 (E20) fire doors.
- No self closers needed !
- Existing doors may be upgraded (but no advice is given about how!)

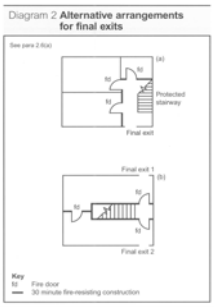
Loft Conversions

- Protecting structure around stairway must continue to roof level or "capped" at top.
- Floor of loft extension may not need to have fire resistance upgraded.
- Modified half hour standard is acceptable providing –
  - Only one storey being added.
  - New storey contains no more than two habitable rooms.
  - Total area of new storey does not exceed 50m2.



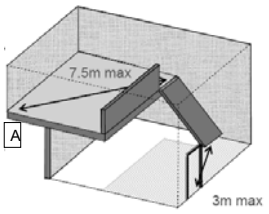
Loft Conversions

- Arrangements for final escape at ground level is the same as for other buildings.
- However, if a third story is created and the existing ground floor is open plan –
  - Fire door and structure must separate stairway from room.
  - Access must be available to a suitable emergency escape window at first floor level.
  - Sprinkler protection must be provided in open plan area.
  - Any cooking facilities must be separated from open plan area with fire resisting construction.



Gallery floors

- Gallery floors should not cover more than 50% of the floor area of the main room unless the gallery has a separate means of escape.
- Any cooking facilities in the room should be enclosed in fire resisting construction or "remote" from the stair to the gallery and positioned so as not to prejudice escape from the gallery.



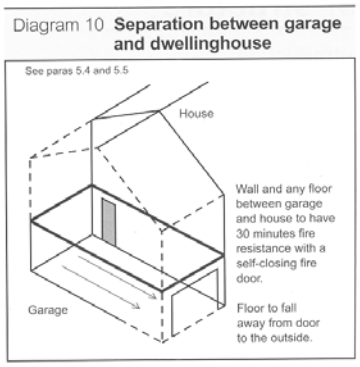
Internal Garages

Floor of garage may now slope instead of having a 100mm step up into the house.

But - gradient not specified

Door must be FD30s (E30Sa).

This is the only situation in dwelling houses where a self closer is still required on the fire door.



Access for fire service

- Access for a pump appliance should now be provided to within 45m of **all points within the dwellinghouse** – not just to the front door.
- Effectively this means the appliance must be able to get much closer to the house than before
- It may be better to aim for 30m in most circumstances.

Part B Volume 2

Buildings other than Dwellinghouses

Management

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.

Note - for small premises, the guidance given in BS 5588-11 has been incorporated into the text of the AD.

Third Party Certification

- As the new requirements place a greater emphasis on the performance of construction and materials, significant reference is made to the use of third party certification.
- Where there is an established UK or European standard for a product, certification should generally be to this standard. Such testing organisations will generally have UKAS accreditation to carry out the tests.
- New and innovative products are still a problem – who decides what testing is appropriate and to what standard.
- Ultimately that role falls to the Building Control Body – must "establish scheme is adequate for the purposes of the Building Regulations".

Sprinkler systems

- Guidance on flats now includes specific reference to the use of residential sprinkler systems as a compensatory feature.
- B1 – 2.7 Flats with more than one story.
- B3 – 8.14 Sprinklers must be provided to all flats in blocks over 30m high. Note this means the whole building must be sprinkler protected – not just parts over 30m !
- Design to BS 9251 acceptable even though code says it should not be used for buildings over 20m.
- B4 - 9.15 Space separation

Unprotected areas

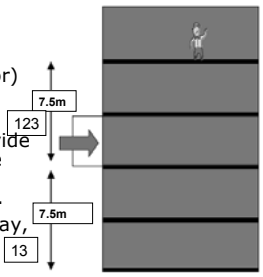
- If a building is fitted throughout with a sprinkler system designed to BS 9251 then –
- The total unprotected area in any elevation may be double that allowed in a similar but unsprinklered building

or

- The distance to the boundary may be half that required for a similar but unsprinklered building.

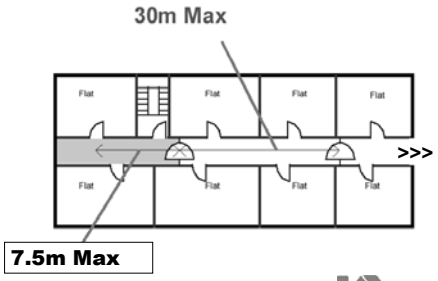
Multi-storey flats

- Three different approaches given for flats <u>without</u> an external entrance at ground level, and with a floor over 4.5m above external ground level–
  - Alternative exit from each habitable room not on entrance floor.
  - Alternative exit from each floor (except entrance floor) with protected landing.
  - Where max floor to floor distance under 7.5 m provide protected stairway, smoke alarms in habitable rooms plus heat alarm in kitchen.
  - Provide a protected stairway, a sprinkler system and smoke alarms.



Smoke control in blocks of flats

- Considerable thought given to the need for ventilation of common corridors and lobbies.
- Subdivision of corridors using fire doors was (and is) primary means of controlling smoke spread.



Smoke control in blocks of flats

- It was decided that corridors and lobbies should have some means of ventilation to control smoke and protect the stairway when doors open – perhaps during firefighting operations.
- Advice in the AD now gives specific size and position information for such ventilation.
- This is intended to provide additional protection to that provided by the fire doors around the stair.
- Guidance on the design of smoke control systems using pressure differentials available in the new Euro standard BS EN 12101-6:2005

Air circulation systems

- Some changes to the advice given on air circulation systems with a floor over 4.5m above ground level.
- Ducts passing through enclosure of protected stairway should be rigid steel and all joints fire-stopped.
- Ventilation ducts supplying a protected stairway should not serve other areas as well.
- Mechanical recirculation systems should shut down if smoke detected within system
- Note - guidance is now included on the specification and installation of fire dampers (Para 10.11 etc)

Fire alarms systems

- In Flats, guidance now amended to refer to smoke alarms being installed in accordance with BS 5839 – 6 :2004.
- Simple guidance for most purposes is included in the AD – for instance that all smoke alarms should have a standby power supply.
- Guidance for buildings other than dwellings updated to take account of the 2002 edition of BS 5839 - 1

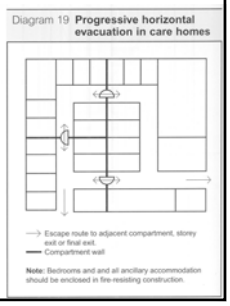
Final exit capacity

- A new method has been provided for calculating final exit widths where escape routes merge at ground floor level.
- This can be calculated using the formula
  W = ((N / 2.5)+(60 x S)) / 80
  - where W is the width of the final exit
  - N is the number of people served by the ground floor story exit
  - S is the stair width in metres.
- For example – a ground floor storey exit serving 250 persons shares a common final exit with a 1.2m wide stair.
- The required width of final exit would be **((250 /2.5) + (60 x 1.2) /80 = 2.150m**

(See diagram 15 and Para 3.23)

Care homes

- Advice on design of care homes is now incorporated into the AD. This supersedes the green book and other similar documents.
- Makes clear that a safe fire strategy for such buildings depends on an assessment of the management, staffing and dependency of the residents.
- For progressive horizontal evacuation –
  - Min 3 protected areas
  - Max 1 bed per room
  - Max 10 beds in each protected area.
  - Bedrooms to have free swing door closers.
  - Circulation spaces can have hold open devices.



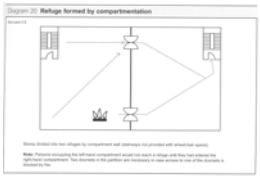
Care homes

- Where a sprinkler system is provided however –
  - No door closers are required on bedroom doors.
  - There can be more than 10 beds in each protected area.
  - There can be more than one bed in each room.
- Overall limits now determined by escape strategy – which must be reasonable and manageable.

Inclusive design

Refuges

- A refuge should be provided for each protected stairway – but should not impair the use of the stair.
- Refuges can be located outside the stair enclosure, providing direct access to the stair is available.
- Refuges should have an emergency voice communication system.
- Alternative technologies could sometimes be appropriate – eg wireless communications systems.



Inclusive design

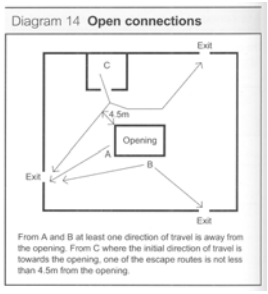
- Suitable warning systems for those with hearing impairments should be provided, where such people may be in relative isolation (hotel bedrooms, sanitary accommodation etc.
- Final exits should not present an obstacle to wheelchair users.
- Where the exit can be accessed without having to use a stairway, a level access and (where necessary) a ramp should be provided.

Te

text

Buildings with openings between floors

- 3.12 Escape routes should not be prejudiced by openings between floors.
- 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 opening.

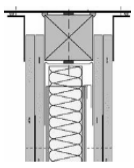


Phased evacuation

- Where phased evacuation is appropriate – consideration needs to be given to the interaction between fire-fighters entering the building and those trying to leave it.
- This begins to be a significant problem in buildings over 30m high. For very tall buildings (45m and over) it may be necessary to incorporate physical measures – for example by providing an additional stairway for the use of fire-fighters only.

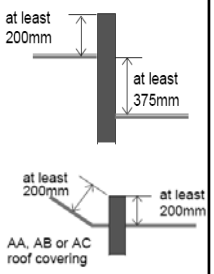
Junctions between compartment walls and floors

- Account must now be taken of likely deflections of the structure which can be predicted to occur in a fire so that they do not compromise the required compartment fire separation.
- This could be achieved by using wall head details that can accommodate the predicted deflection; or
- By deigning the walls to take additional loading from the structure above without failure.



Roof junctions with compartment walls

- Some changes made to dimensions where compartment walls project above the roof.
- Additional guidance provided on firestopping party walls between dwellings. Roofing felt and battens may be carried over wall
- Thermoplastic materials must not be carried over compartment walls.
- Double skinned insulated sheeting with a thermoplastic core should incorporate a band of material of limited combustibility at least 300mm wide centred over the wall.

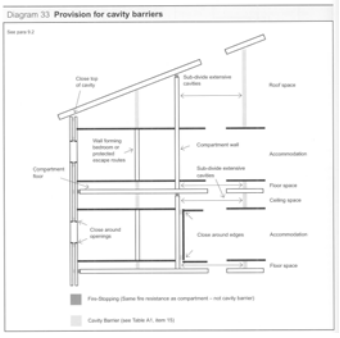


Compartmentation

- Self storage warehouses are now classed as purpose group 4 (shop and commercial)
- The effect is to impose a smaller compartment size.
- Single storey warehouses without sprinklers now have a maximum compartment size of 20,000m2 floor area and 18m high.
- Height is limited as fire load extends upwards rather than mainly at floor level as in most buildings.

Cavity Barriers

- Guidance on use of cavity barriers is revised and clarified.
- The dreaded table 13 is no more!
- The difference between fire stopping and cavity barriers is also highlighted.
- Clarified requirement for cavity barriers in floor voids

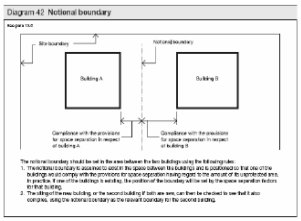


Cavity Barriers

- Window and door frames are only suitable for use as cavity barriers if –
  - made of steel (min 0.5mm thick) or
  - timber (min 38mm thick).
- The frames of UPVC or aluminium windows or doors should **not** be used as cavity barriers.
- New guidance is given on cavity barriers used in conjunction with fire doors to sub divide protected corridors (**3.26**).

Notional Boundaries

- The scope of the requirement to consider a notional boundary between two buildings on the same site has been extended.
- It now applies where more than one building is constructed on the same site ***but is to be operated/managed by different organisations***.
- This provision is not limited to residential or assembly and recreation purpose groups

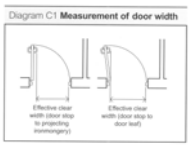


Car parks

- Guidance is simplified on car parks.
- Reduced periods of fire resistance may be acceptable on open sided car parks provided;
  - It does not support or stabilise a part of the structure which requires a higher period of fire resistance.
  - Materials used are non-combustible
- Reductions do not apply if car park is not open sided

General

- In buildings with a a storey 18m or more above ground level, any insulation product or filler material used in the external wall construction should be of limited combustibility.
- Door sizes are now measured in the same way as AD M



Advice is also given on how the free area of smoke vents should be measured **(Diagram C7)**

Access for fire service

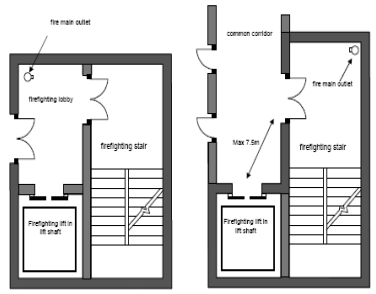
- For blocks of flats not fitted with a fire main there should be access for a pump appliance to within 45m of all points within each dwelling.
- Fire mains should meet the new BS 9990 standard.
- Wet mains should now be provided to all buildings over 50m high (formerly 60m)
- Where buildings are fitted with dry fire mains, there should be access for a pump appliance to within 18m of the inlet, which should typically be on the face of the building and visible from the appliance.

Access for fire service

- Firefighting shafts should be provided in assembly and recreational buildings (PG5) which are over 7.5m high and have a storey of 900m2 or more.
- Requirement is no longer applicable to storage buildings (PG7a) less than 18m high.
- The number of firefighting shafts/fire mains needs to be planned to meet minimum hose distances below. Floors over 900m2 must be served by a minimum of two shafts.
  - In unsprinklered buildings, 45m from a fire main outlet contained in a protected stairway or 60m from a fire main in a firefighting shaft.
  - In sprinklered buildings 60m from a fire main in a firefighting shaft.

Access for fire service

- Firefighting shafts and location of fire main outlets.



Any Building Flats

Access for fire service

- Where a building which has a compartment of 280m2 or more is being erected more than 100m from an existing fire hydrant, additional hydrants should be provided.
- For buildings with fire mains, a hydrant should be provided within 90m of the inlet.
- For buildings without fire mains, hydrants should be provided within 90m of an entry point into the building and not more than 90m apart.