



Approved Document B 2006 - Single stairways - Residential uses Part 1

The three most significant changes for small fore storey single stairway residential buildings in the new Approved Document B 2006 are the omission of self closing devices to dwelling inner halls, a higher standard of fire warning system and the addition of an automatically opening smoke vent to the stairway in one of the building types. Part 1 begins with the smallest of the residential building types. The categories I have given each building type (A, B, etc) are for the convenience of this series of articles and are not mentioned in the Approved Document.

The self closing devices debate

The omission of self closing devices to inner halls and stairway lobbies (where the inner hall can be used to protect the stairway - single stair A below), has been questioned by some people as being a lowering of standards. However let's be honest - have we not been fooling ourselves that occupant of flats and houses keep these doors closed? Surely it is better to consider the reality and factor this into the design. I recall during the early part of my career in means of escape, a former tutor said to me that he thought we had made a mistake when we started to try to enforce self closing devices past the front door of the dwelling – how right he was. Human behaviour is something that we have to accept and build means of escape schemes around. It is reasonable to suggest occupants close doors at night when they are not in use, and try to encourage that as part of the bedtime routine, but during the day – lets now be realistic.

Houses in Multiple occupation (HMO's)

Residential use includes houses in multiple occupation, however where not more than 6 persons (not living as one household) are dwelling in a building, the standard for dwelling houses can be used. Where this number is exceeded (e.g. 7 and above, the standard for flats should be used). This is a change from the 2000 ADB, which referred to the code DOE 12/92 which is now withdrawn. This code was always out of step with other codes as it permitted a 5 storey building (G + 4) without an alternative means of escape or vented lobbies. The maximum number of storeys considered suitable without an alternative escape or ventilated lobbies, is 4 (G + 3) and is in sync with other national codes including the guidance document for the Regulatory reform (Fire Safety) Order 2005, for the common parts of HMO's (Enforced by the Fire Service).

Single stair A Flats, multi level flats (maisonettes) and houses in multiple occupation

Paragraph 2.21 describes a 'small single stair building'. This type of building is limited to G + 3 (a four storey building), with a floor not more than 11m above ground level. Paragraph 2.44 states that a stair in a 'small single stair building' (2.21) can connect with a basement.

Stairway lobbies can be located inside the flats and serve also as the inner hall protection. Cases do however arise where the inner hall is not needed such as bed sits (where there are no inner 'habitable rooms', bedrooms etc). In such cases the stairway lobby must still be formed (but could in theory be inside the bedsit).

The following are two new items brought about by the 2006 revision of the Approved Document.

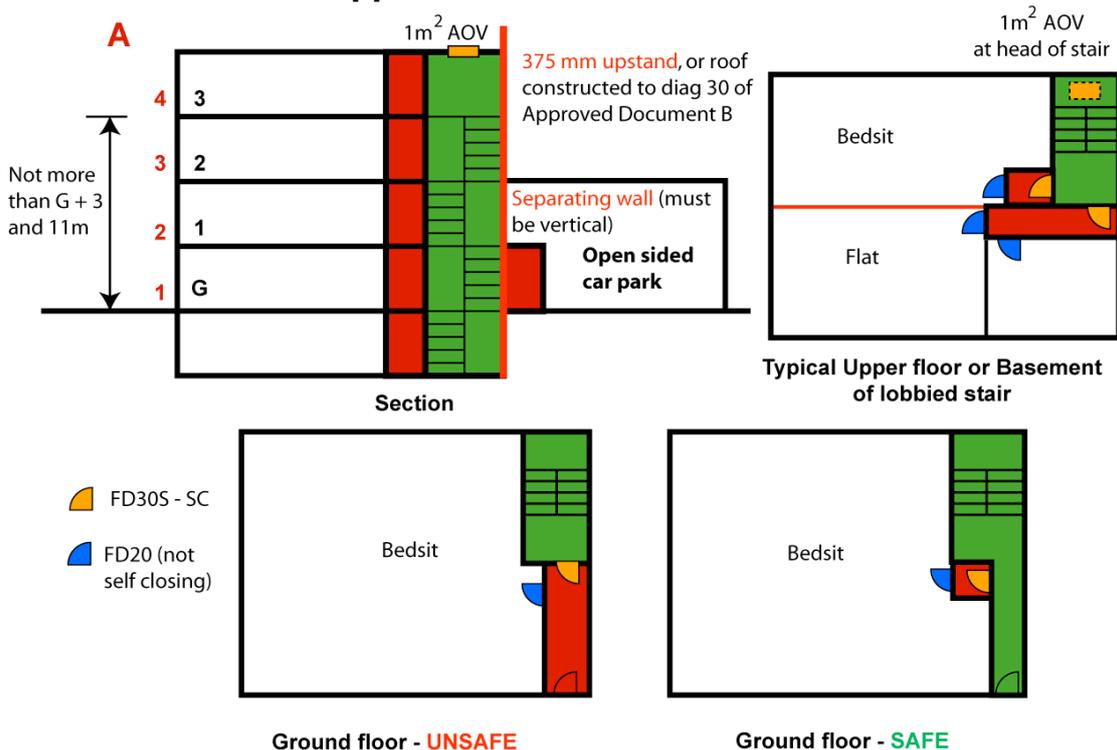
- Diag 9 note 3 states that lobbies can be in the flat as mentined above if; an Automatically Opening Ventilator (AOV) of 1m² is provided at the head of the stairway activated by smoke detection in the stair.

- The doors forming the lobby are FD20 doors which are not self closing. The doors to the stairway are FD30S doors which do need to be self closing (see the figures).

Ancillary accommodation needs to be separated from the stairway by a 0.4m² ventilated lobby and any connected car park must be 'open sided'. The usual reaction to the need for an open sided car park is – “Open sided - so that just means having no walls to the car park.” Well actually it means almost the opposite.

The term 'open sided' is not very descriptive of the actual requirements for an open sided car park as defined in para 11.3. What it actually means is that a car park needs to be a 'separated part' from the single stair building, meaning that a vertical wall needs to be provided between the building and the car park (to create a separated part). This is one of these cases where you need to read all the words of both the definition of 'open sided' (in para 11.3) and 'separated part' (in Appendix E). This means the car park cannot be under the building. The question, which follows the realisation that the separation needs to be a wall, is; 'why can't it be a floor?'

The case normally put forward to support the view that a floor has the same degree of separation as a wall is that standard fire resistance tests can be used to compare the performance of a floor to a wall - which is not correct! (This is a common misconception). If a wall is properly restrained it will last infinitely longer than a floor of the same fire resistance in a real fire situation - hence the reason why the Approved Document specifies a 'wall' and not merely a fire time. There is a very good article, which explains the role of fire resistance tests and also comments upon the ability of a wall to withstand fire resistance, which I would refer the reader to. See reference [1] at the end.



'Small single stair building' Storeys restricted to G + 3 (a 4 storey building). And top floor not more than 11m. Basement connection permitted

Automatic Openable vent (AOV) 1m² at head of stair.

Restricted to two dwellings per storey.

The stairway lobbies can double up as inner hall protection inside flats/maisonettes. (Note in ADB Diag 9b).

ADB 2.21 and 2.44 Lobbies req'd by 2.20.

Ancillary accomodation – accessed only through 0.4m² permanently vented lobby or lobby with mechanical smoke control system (no standard specified). And no dwellings on the same storey.

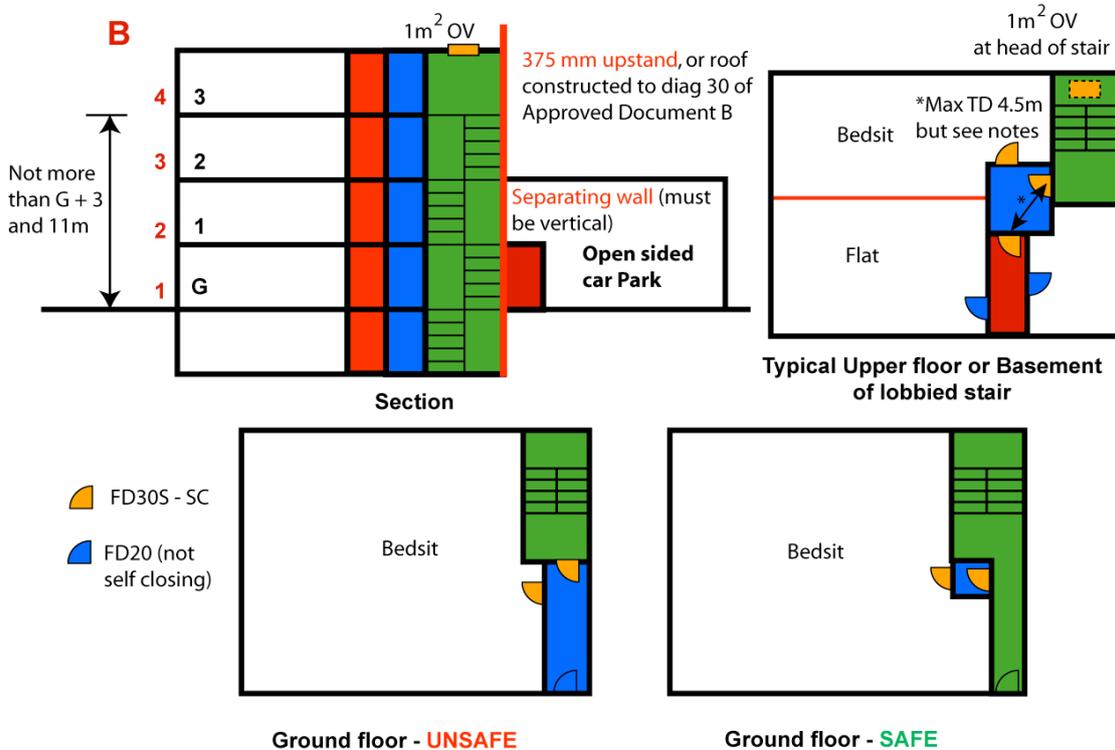
If connected with a car park

No connection with covered car park unless 'open sided' to comply with ADB 11.3 – this means:-

- a. No car park under any part of the building (it must be a separated part i.e. a wall).
- b. Car park has permanent openings at each storey level 1/20th of the floor area. Half on opposing walls.
- c. Car park must have no basement storeys.

Single stair B Flats, multi storey flats (maisonettes) and houses in multiple occupation

This category is similar to A except that the number of dwellings per storey is not restricted. In this case the stairway lobby should not be located inside the flat. And the travel distance in the common lobby should not exceed 4.5m. This can however be extended to 7.5m if a naturally ventilated lobby is provided having 1.5m² of vent.



'Small single stair building' Storeys restricted to G + 3 (a 4 storey building). And top floor not more than 11m. Basement connection permitted

Openable vent (OV) 1m² at each landing level or at head of stair.

Number of dwellings per storey unrestricted.

The stairway lobbies CAN NOT double up as inner hall protection inside flats/maisonettes. (ADB Diag 9).

*Travel distance in common lobby can be increased to 7.5 if 1.5m² of Automatically Opening Ventilation (AOV) is provided to the lobby.

ADB 2.21 and 2.44 Lobbies req'd by 2.21.

Ancillary accomodation – accessed only through 0.4m² permanently vented lobby or lobby with mechanical smoke control system (no standard specified).

If connected with a car park

No connection with covered car park unless 'open sided' to comply with ADB 11.3 – this means:-

- d. No car park under any part of the building (it must be a separated part i.e. a wall).
- e. Car park has permanent openings at each storey level 1/20th of the floor area. Half on opposing walls.
- f. Car park must have no basement storeys.

Lobby arrangement at Ground level

The layout of the lobby at Ground floor level is different from the upper floors. The important point is that the whole of the escape route to the street from the stairway is protected by the lobby, as shown in the illustrations above. This is probably one of the most common errors made by applicants. This is emphasised in the new Approved Document 2006 by specifically referring to the need to lobby final exits from stairs.

Generally

In categories A – B the usual requirements apply in respect of the following:-

1. Self contained early warning smoke detection provided in each dwelling to BS 5839-6:2004 at least Grade D LD3 standard, with a standby power supply. A higher standard of system and a backup power supply is now a requirement of Approved Document B 2006 (ADB 2006 Vol. 2 - 1.4 and 1.5).
2. Travel distances are complied with (9m in entrance hall and bedsits. No restriction for travel distance in any rooms in flats and maisonettes unless bedsits) (ADB 2006 Vol. 2 - 2.13, 2.14 and 2.16).
3. Ancillary accommodation is separated by 0.4m² ventilated lobby. Note there is control for gas services under the Gas Regs (not enforced by Building Control) and the applicant should be referred to their gas service supplier to ensure this aspect is not by-passed. (The 'Approved Guidance' for the Gas Regs suggests gas meters are not accessed from common routes).

2.40 of Approved Document B 2006 Vol. 2 permits electricity meters in single stairways provided they are enclosed with fire resisting construction within a secure cupboard (Un-lobbied). This is new to ADB 2006 and comes from BS 5588-1. Paragraph 24 of BS 5588: Part 1 covers gas.

The buildings we are considering in this part do not exceed four storeys; the Approved Document to H 6 (item 1.6) of the Building Regulations does not therefore suggest that a common refuse chute is needed as a means of refuse disposal. Usually some form of management system is employed. This system should avoid the depositing of the rubbish sacks in common corridors of stairways for collection, due to the fire risk. It is worth asking the applicant about their refuse disposal regime at an early stage.

References

[1] Structural fire design - Core or specialist subject? By Colin Bailey, form The Structural Engineer 4 May 2004. Available from the following [link:-](http://www.umist.ac.uk/departments/civil/research/structures/strucfire/DataBase/References/StructuralFireDesignBailey.pdf)
<http://www.umist.ac.uk/departments/civil/research/structures/strucfire/DataBase/References/StructuralFireDesignBailey.pdf>