

# Guide to means of escape from existing dwellings with four or more storeys

Technical guidance for building control surveyors, designers and architects



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## Introduction

The guidance considers the standards and solutions in the design of means of escape from existing houses which, once converted, will be four or more storeys high. The documents primarily used in this guidance are Building Regulations Approved Document B Volume 1 –‘Dwelling Houses’, and BS9991:2011 ‘Fire safety in the design, management and use of residential buildings’.

New storeys for the purpose of this guide do not include rooms that are wholly contained within the roof space. You

are advised to look at the specific provisions contained in both documents for loft conversions.

The guidance can only offer solutions in typical situations; specific projects will require assessment on a case-by-case basis where variations to this guidance may be considered adequate.

For means of escape from two-storey dwelling houses that only have one additional storey added by the construction of a loft conversion, please refer to [LABC Guidance on loft conversions in two-storey houses](#).

## Design approaches

This guidance applies to single family houses only, however it should be noted BS9991 does take account of both the safety of building occupants and fire fighters, the latter not being a material consideration when taking into account compliance with the Building Regulations.

A determination by the Department of Communities and Local Government in June 2011 influenced the drafting of this guidance and is referred to later in this document.

The key requirements of the Approved Document and BS 9991 are very similar and have been re-produced below to enable a direct comparison to be made between the requirements of each document. It should be noted it is not permissible to mix the requirements from the two documents when determining compliance with the Building Regulations.

### (A) Dwellings with only one floor over 4.5m (typically 3 storeys)

#### (A1) Approved Document B Vol. 1

- The dwelling has more than one internal stairway separated from each other, this may be by having fire-resisting construction between them or intervening rooms between each stair. (para. 2.5)

OR

- The upper storeys should be provided with a protected stair leading to a final exit, or the stair gives access to two separate routes that each lead to a separate exit (para. 2.6a)

OR

- The top storey should be separated from the lower storeys by fire resisting construction and have its own alternative escape route leading to a final exit (para. 2.6b).

#### (A2) BS9991: 2011

This document defines an alternative escape route from a house as a route from any point within a room of a house that gives easy access to a second stair, a balcony or a flat roof by means of which a person can reach a place of ultimate safety (Section 1 (3.3)).

The dwelling should conform to one of the following (Section 2 (6.3)):

- The top storey or level of the house should be separated from the lower storeys by fire-resisting construction and should be provided with an alternative escape route leading to its own final exit;

OR

- the internal stairway should be constructed as a protected stairway, connecting the ground and all upper storeys; and either deliver directly to a final exit or allow access to at least two independent escape routes leading to alternative final exits;

OR

- Where an open-plan arrangement exists at ground level, in order to separate the ground floor from the upper storeys, either:
  1. a protected stairway should be provided; or
  2. the house should be fitted throughout with a sprinkler system designed and installed in accordance with BS 9251 in conjunction with a fire-resisting partition and door, in order to separate the ground floor from the upper storeys. The fire-resisting door should be arranged such that occupants on the upper floors can access an escape window at first floor level in the event of a fire in the open-plan area.

## (B) Dwellings with more than one floor over 4.5m

### Approved Document B Vol. 1

Additional precautions needed over and above the requirements outlined in (A1) above:

- An alternative escape route for each storey at or above 7.5m. Where the access to this route is via
  - the protected stairway to an upper storey; or
  - a landing within the protected stairway to an alternative escape that is on the same storey; then
  - the part of the stairway that is 7.5m or more above ground level should be separated from the lower storeys by fire-resisting construction

OR

- The dwelling should be fitted throughout with a sprinkler system designed and installed to BS 9251:2005

### BS9991: 2011

Additional precautions needed over and above the requirements outlined in (A2) above (Section 2 (6.4)):

Each storey or level situated 7.5 m or more above ground level should have either:

- an alternative escape route or
- a protected stairway and a sprinkler system, designed and installed in accordance with BS 9251:2005, fitted throughout the house.

### Loft conversions

Both Approved Document B Volume 1 and BS 9991:2011 (clause 6.5) provide specific guidance on this type of work.



Both documents permit the use of sprinklers in open plan arrangements for two-storey conversions; this approach is recognised in the current [LABC guidance note on two-storey dwelling conversions](#) Ref. MG0030911.

### DCLG Determination

Ref: SB/007/001/005 Dated: 3 June 2011

This determination concerned the alteration of an existing three-storey town house which contained two bedrooms (one en-suite) and a bathroom on the second floor; a lounge, study and toilet on the first floor; and a kitchen/diner, hallway, toilet and garage on the ground floor. The proposed building work comprised the conversion of the existing roof/loft space to create a new third floor (fourth storey) containing an en-suite bedroom. The proposed four-storey house would have a single staircase with two floors more than 4.5m above ground level and a top storey more than 7.5m above ground level.

The Secretary of State considered the safety of the occupants of the converted roof/loft space (i.e. a new third floor) if a fire occurred at a lower level as being paramount. He further considered the means of escape for a traditional three-storey house was relatively straightforward. He was of the opinion that higher buildings demanded more comprehensive approaches to means of escape.

As external rescue was not considered a robust and safe way to address means of escape, he was of the view additional measures should be provided. This could take the form of an alternative escape route or fire suppression by sprinkler protection throughout the building.

It was recognised the proposals put forward by the applicant did go some way in attempting to mitigate the omission of an alternative escape route. This included the inclusion of a fully protected stairway extending from the proposed third floor to the final exit and enhanced mains operated automatic fire detection and alarm system. These measures were not considered to meet the requirements of building regulation B1.

He so determined the proposal did not satisfy the requirements of the regulations. For a full transcript see <http://www.communities.gov.uk/publications/planningandbuilding/determination007001005>

### Discussion

The approach adopted by both the Approved Document and BS 9991 is fundamentally the same and there is very little



Satisfactory means of escape required for loft conversions

difference in options/design solutions for either the three or four+ storey conversion.

Loft conversions in both documents offer similar approaches, however the BS is a little more explicit in how a loft conversion to a building with floors more than 4.5 m above ground level should be dealt with where the AD tends to be silent.

It is clear the strongly favoured approach to the provision of satisfactory means of escape is via more than one staircase, which in general should be separated and protected. It is important that floors above 7.5m do have access to an alternative stair that is protected and isolated from any other stair in the dwelling. This stair should discharge at different exit points from the dwelling.

BS 9991:2011 in Section 23 'Sprinkler and watermist systems' recognises that where a house has four or more storeys, full house sprinkler systems do have a place when considering single staircases, providing a protected stairway is provided.

The DCLG determination set out the essential criteria to be considered and provides a clear steer as to what are deemed to be minimum standards of means of escape in dwellings with floors above 4.5m from ground level.

### Recommendation

All conversions to dwellings that result in the building having four or more floors above ground level should be provided with an escape route that incorporates alternative stairs and exits. The stairs should be separated/protected as outlined in either Approved Document B or BS9991:2011. Where any new floor is 7.5m above ground level then there must be two protected alternative escape stairs or a full house sprinkler solution that meets BS9251:2005.

It is not considered acceptable to have a single stair in any situation where a floor is at or more than 7.5m above ground level and the installation of additional automatic fire detection is the proposed solution to mitigate deficiencies in means of escape requirements.

### Key points to consider

- This guidance is restricted to use in single-family houses
- Key requirements of the Building Regulations Approved Document B Volume 1 and BS 9991:2011 are very similar
- Either approach can be adopted, but not used together to mix and match requirements
- Any work that results in the building having four or more floors above ground level should be provided with an

escape route that incorporates alternative stairs and exits or a full sprinkler system should be installed

- Means of escape from two-storey dwelling houses that have one additional storey added by the construction of a loft conversions are dealt with in [LABC guidance note on two-storey dwelling conversions Ref. MG0030911](#).

### Further Guidance

- LABC Best Practice guidance note on 2 storey dwelling conversions Ref. MG0030911.
- DCLG <http://www.communities.gov.uk/publications/planningandbuilding/determination007001005>
- Building Regulations Approved Document B Volume 1 –'Dwelling Houses' [http://www.planningportal.gov.uk/uploads/br/BR\\_PDF\\_ADB1\\_2006.pdf](http://www.planningportal.gov.uk/uploads/br/BR_PDF_ADB1_2006.pdf)
- BS9991:2011 'Fire safety in the design, management and use of residential buildings'
- BS9251:2005.

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