BCA Technical Guidance Note 24	Issue 0 Dec2014

Means of Escape from Dwelling Houses with Four or More Storeys

Building Control Alliance

Purpose

BCA technical guidance notes are for the benefit of its members and the construction industry, to provide information, promote good practice and encourage consistency of interpretation for the benefit of our clients. They are advisory in nature, and in all cases the responsibility for determining compliance with the Building Regulations remains with the building control body concerned.

This guidance note is based upon information available at the time of issue and may be subject to change. The Approved Documents should be consulted for full details in any particular case.

Introduction

This advice note is for single family dwelling houses only— it should be noted that both Approved Document B1and BS9991 take account of both the safety of building occupants and fire fighters,

Reference is also made in this advice note to a recent determination by DCLG that has a direct bearing on this guidance note.

The key requirements of the Approved Document and BS 9991 are very similar but have been presented to enable a direct comparison to be made between the various requirements.

Key Issues

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

A(i) - Approved Document B Vol. 1

- The dwelling has more than one internal stairway which should be separated; this may be by fire resisting construction or having a number of intervening rooms between each stair. (para. 2.5)

OR

- A protected stair from the top storey leading to a final exit or the stair gives access to two separate routes that each lead to a separate exit that is separated from the other. (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).

A(ii) - BS9991: 2011

Section 3.3 defines an alternative escape route from a house is 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.

The dwelling should conform to one of the following (clause 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

OR

- Where an open-plan arrangement exists at ground level, in order to separate the ground floor from the upper storeys, either:

1. 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

B(i) - Approved Document B Vol. 1

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

- An alternative escape route for each storey at or above 7.5m and if 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 level 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 to BS 9251:2005

B(ii) - BS9991: 2011

Houses with more than one floor over 4.5 m above ground level should conform to A(ii) above in addition to the following (clause 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 the Approved Document and BS 9991 (clause 6.5) provide specific guidance on this type of work.

Both documents permit the use of sprinklers in open plan arrangements for 2 storey conversions.

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 occurs at a lower level as being paramount. He further considered the means of escape for a traditional three storey house was relatively straightforward, but was of the opinion that higher buildings demanded more comprehensive approaches to means of escape. External rescue was not considered a robust and safe way to address this issue, and he was of the view additional measures should be provided – such as 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, in particular by the inclusion of a fully protected stairway extending from the proposed third floor to the final exit and an enhanced mains operated automatic fire detection and alarm system, but the measures proposed did not represent compliance with Requirement 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

Guidance

The approach adopted by both the Approved Document and BS 9991 is fundamentally the same and there is very little difference in options/design solutions for either the 3 or 4+ 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 separated and protected. It is of particular importance for those floors above 7.5m that they do have access to an alternative stair that is protected and isolated from any other stair in the dwelling and also discharges at a different exit point from the dwelling.

Where a house has four or more storeys the BS recognises full house sprinkler systems do have a place when considering single staircase, providing a protected stairway is provided (section 23).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.

Watermist systems may be considered as an alternative to sprinkler systems where agreed with the Building Control Body. Watermist systems should be designed and installed in accordance with DD 8458-1 or DD 8489-1.

Recommendation

All new build constructions and conversions to dwellings that result in the building having four or more floors exceeding 7.5m above GL then there must be 2 protected alternative escape stairs or a suitable full house sprinkler / watermist solution that meets BS9251:2005, DD 8458-1 or DD 8489-1 as outlined in either Approved Document B or BS9991:2011.

Key Notes

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