

BUILDING ACT 1984 - SECTION 50(2)

DETERMINATION OF COMPLIANCE WITH REQUIREMENT B1 (MEANS OF ESCAPE) IN PART B (FIRE SAFETY) OF SCHEDULE 1 TO THE BUILDING REGULATIONS 2010 (AS AMENDED) IN RESPECT OF BUILDING EXTENSION AND ADDITION OF A NEW MEZZANINE FLOOR

I am directed by the Secretary of State for Communities and Local Government to refer to your application, on behalf of your client, for a determination of the above question arising pursuant to section 50(2) of the Building Act 1984 as to whether the plans of the proposed building work are in conformity with the Building Regulations.

Details of your application are set out in your letter and application form of 13 November 2014 (with enclosures). The enclosures you have submitted include copies of plans/drawings of the proposed work. Your application was accompanied by a determination fee.

The Building Control Body, (hereafter referred to as "the Approved Inspector"), provided representations in its letter to your organisation on 12 September 2014.

The following determination is limited solely to the question put to the Secretary of State in respect of building regulations. It does not consider whether your plans/proposals conform to any other statutory requirements which may be applicable.

The proposed work and question arising

The papers submitted indicate that the building / building work to which this determination relates is a Grade II listed redundant medieval church on a level town centre site. The building is not in use. Proposals are to extend the building and add a new mezzanine floor to the south aisle and across to the west of the nave and to create two office spaces served via the mezzanine. The matter in dispute is the safe travel distance from the furthestmost point of the mezzanine office to the final exit (44 metres).

The mezzanine would fill the whole length of the south aisle and contain a 'boardroom' style office. The mezzanine would be accessed from a stair tucked behind a redundant slot to the side of the north aisle draught lobby. The mezzanine gallery would reach from the north side of the building to the south giving access to the bell ringing platform in the tower (which would also be used as an office). The new 'boardroom' style meeting area is located at the end of the space created - hence the long travel distance. The mezzanine itself would be constructed from steel, concrete and glass.

The main space (the nave) is to be used mainly for exhibitions but also for occasional lectures, seminars, wedding receptions, evening functions and fairs.

The above proposed work is the subject of an initial notice. However, the Approved Inspector refused to give a Plans Certificate on 12 September 2014, on the grounds that safe travel distance of 44 metres from the mezzanine to the exit is an inadequate means of escape. It is in this respect that the applicant has applied for a determination by the Secretary of State.

The applicant's case

The applicant's submission states that the project, if completed, would bring into use a building which has been redundant since the outbreak of the Second World War. It is of medieval origins: construction began in approximately 1450 and was completed 100 years later. The building is grade II listed.

The applicant considers that the proposals as they stand comply with requirement B1 and that a shortening of the travel distance through the introduction of a second spiral stair in the south aisle at the west end is wanted neither by the client nor English Heritage. The basis of the argument is that a comparative study has been undertaken by a fire safety specialist using BS 7974 to assess whether a single travel distance of 44 metres is safe.

The available safe egress time was calculated for both the guidance compliant solution and the design proposals. This was done using a smoke fill calculation for both cases to determine the smoke layer height from an axi-symmetric plume as a function of time for a growing fire. The key difference between the two cases is the ceiling height. This was assumed to be 3.25 metres. for the compliant solution and 11.25 metres. for the design proposals.

Equations were selected in accordance with BS 7974 to establish the time taken for the smoke layer to drop to 3 metres. above the escape route. The calculations showed the available safe egress time as 57 seconds for the guidance compliant case and 112 seconds for the design proposals.

An estimate of the additional travel distance was then calculated. Based on an unimpeded movement speed of 1.3m/s from BS 7974 the additional 55 seconds would allow the distance to increase by 72 metres. The recommended travel distance given in Approved Document B is 18 metres.

The conclusions are that the proposals would achieve equivalent or better level of safety to a guidance compliant case with a significant margin for the design proposal.

The Approved Inspector's case

The Approved Inspector gave its views in a letter dated 12 September 2014 on why it was unable to give a plans certificate.

Regarding the travel distance on the new mezzanine floor its consultation concluded with the Fire and Rescue Authority expressing its extreme reservation that your proposals complied with the requirements of the Regulations and that it would carry out an immediate fire safety audit on occupation.

Although the approved inspector was originally prepared to give a plans certificate, it changed its opinion in the light of the strong formal objections received. Therefore it concluded that the fire strategy has not been shown to meet building regulations requirements.

The Secretary of State's consideration

The Secretary of State has given careful consideration to the particular circumstances of this case and the arguments presented by both parties. What needs to be considered in this case is whether the proposed escape route from the mezzanine meeting room is an adequate means of escape for people.

Approved Document B (Fire safety), volume 2 – Buildings other than dwellinghouses gives statutory guidance on the provision of an adequate means of escape. The phrase “guidance compliant case” in this decision letter means the adoption of a solution set out in the Approved Document as an adequate means of escape. It is acceptable to adopt a solution not given in the Approved Document but such a solution must be shown to be no less adequate than those in the Approved Document.

An overarching principle for designing means of escape in case of fire is that a person should be able to turn away from a fire to make their escape. However, there are situations where this is impracticable or unreasonable, so escape routes in only one direction, known as “dead end” escape routes, are considered acceptable subject to adequate safeguards.

In the case of a dead end escape route, there is a potential that people will need to travel towards a developing fire in order to make their escape. By limiting the length of dead end escape routes the risk of a person becoming trapped by a developing fire is minimised. The shorter the distance is, the more likely it is that people will become aware of the developing fire and be able to pass it whilst it is still safe to do so.

The fire safety specialist has prepared a set of “smoke fill” calculations to demonstrate that the proposed travel distance from the mezzanine meeting room is adequate. These calculations show that the high ceiling in the building provides more time for escape before smoke fills down to a level that could prevent escape.

This is a commonly used technique for assessing the safety of escape routes in large buildings with high ceilings. However, it does not provide a means for assessing the impact of a fire occurring on or adjacent to a dead end escape route.

The Secretary of State takes the view that a fire could occur either on or adjacent to the escape route from the mezzanine meeting room and that this could result in the occupants of that room becoming trapped. Neither your submission, nor your fire safety specialists analysis, considers the potential for persons to become trapped by a fire on their escape route nor have you proposed any measures to prevent such a fire occurring. As such, the plans do not show compliance with requirement B1.

The determination

As indicated above, the Secretary of State considers that the proposals, as submitted, do not make adequate provision for means of escape in case of fire. He has therefore concluded and hereby determines that the plans of your proposed building work do not comply with requirement B1 (Means of warning and escape) in Part B (Fire safety) of Schedule 1 to the Building Regulations 2010 (as amended) in relation to the work in question.

The applicant should note that the Secretary of State has no further jurisdiction in this case and that any matters that follow relating to the building work should be taken up with the building control body. A copy of this letter is being sent for information to the Approved Inspector.