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BUILDING ACT 1984 - SECTION 16(10)(a)

DETERMINATION OF COMPLIANCE WITH REQUIREMENT B1 (MEANS OF WARNING AND ESCAPE) OF THE BUILDING REGULATIONS 2000 (AS AMENDED) IN RESPECT OF BUILDING WORK COMPRISING THE REMOVAL OF A PARTITION AND THE INSTALLATION OF A SPRINKLER SYSTEM, LINKED TO A FIRE DETECTION SYSTEM, AT GROUND FLOOR LEVEL OF A THREE STOREY HOUSE

The proposed work and question arising

4. The documentation submitted indicates that the building to which this determination relates is a three storey, three bedroom, terraced house. The three floors are linked by a single enclosed stairway and comprise:

- ground floor - a single open plan space consisting of living, dining and kitchen areas;
- first floor - two bedrooms and a bathroom; and
- second floor - a converted roof space consisting of a third bedroom and shower room.

The plan dimensions at ground floor level are approximately 14m by 4.5m. The first and second floors step back at the rear of the house.

5. The roof space of the property was converted into habitable accommodation in 2005, (ie a loft conversion). The primary means of escape from the loft accommodation is via an enclosed stairway and a partition at ground floor level, forming a hall leading from the foot of the stair to the front doorway.

6. However, you now propose to remove the ground floor partition resulting in an entirely open plan ground floor and alternatively install a sprinkler system, linked to a fire detection system. You have submitted 'Design and Hydraulic Calculations' which give details of the proposed layout of the sprinkler system. A total of five concealed residential type sprinkler heads are proposed to cover the accommodation at ground floor level only.

7. The above proposed building work was the subject of a full plans application which was rejected by the Borough Council on 2 April 2005 on the grounds that your proposals do not comply with Requirement B1 (Means of warning and escape) of the Building Regulations. It is in respect of this question that you have applied to the Secretary of State for a determination.

The applicant's case

8. To support your case for compliance, you refer to the wording of Requirement B1 and to *Approved Document B (Fire safety)* which specifies the provision of a protected route from the upper floors of a building to a final exit, using fire resisting partitions to separate the protected route from habitable accommodation.

9. You explain that you propose an alternative fire engineering solution using a sprinkler system linked to a fire detection system, rather than a fire resisting partition, which will cover all areas of the ground floor and protect the route of travel to alternative final exits at the front and rear of the house. You draw attention to the details of the proposed sprinkler system, which you state will be designed and installed in accordance with *British Standards BS DD 251:2000 and BS DD 252*. You add that the property will also be fitted with a mains powered fire security system which will provide heat detection in the kitchen and smoke detection elsewhere, linked to an alarm.

10. With reference to your *plan no 36L.11E*, you indicate that the travel distances from the bedrooms are short and that there are alternative means of escape available from the first floor bedrooms and bathroom windows and the second floor bedroom window. There are final exits at ground floor level at the front and back of the house which both lead to a public highway.

The Borough Council's case

11. The Borough Council refers to the earlier loft conversion work carried out, which provided for a stair enclosure and alternative means of escape to the front of the property in accordance with the provisions of paragraphs 2.18-2.25 of *Approved Document B*. The Council advises that this included the fitting of self-closing devices to the doors off the stairway and the provision of an emergency egress window at the front of the property. The Council notes that your current proposal to remove the partition providing the stair enclosure at ground floor level will provide an open plan arrangement at that level in what was a two storey terrace house, which has been subject to a loft conversion.

12. In the Borough Council's view, the proposed removal of the partition will adversely affect the means of escape from the three storey building, as altered. The Council considers that the principal means of escape from a three storey building should be via an internal stairway protected in a manner defined in *Approved Document B*. The Council is not aware of any previous determinations from the Secretary of State that would contradict this position and comments that it is Council policy to refer such questions to this Office for guidance.

13. The Borough Council has therefore rejected your alternative proposal to install a sprinkler system as, in the Council's view, this does not adequately compensate for a protected stairway.

The Secretary of State's consideration

14. The Secretary of State takes the view that the main consideration in this case is the effect of your proposal to remove the partition at ground floor level of the property on the safety of the occupants of the upper floors if a fire occurs on the ground floor.

15. In the case of a loft conversion to an existing two storey dwelling-house it is considered reasonable to demonstrate that adequate means of escape would be achieved by the provision of an enclosed primary escape route supplemented by an assisted escape route from the rooms at second floor level. It would appear that it was upon this basis that the roof space in the house in question was previously converted.

16. Your proposal to demolish the partition at ground floor level will remove the protection of the primary escape route, but you consider that your alternative proposal for a domestic sprinkler system at this level is an adequate alternative to the physical enclosure of the stairway. However, the Borough Council has taken the view that your proposals are not adequate.

17. In the Secretary of State's view, sprinkler protection cannot be generally regarded as an alternative to a physical separation between a potential fire and an escape route. Whilst sprinklers can significantly reduce the hazards presented by a fire they are unlikely to be able to prevent an escape route being obstructed by smoke. However, no safety system is entirely infallible and there will always be scenarios where either active or passive systems will not perform as intended. It is, therefore, necessary to make a subjective assessment of the overall level of safety offered by an alternative approach in a particular case in comparison to the conventional solutions offered in *Approved Document B*.

18. Removal of the partition at ground floor level in this case could increase the potential for the occupants of the upper floors to become trapped by a fire on the ground floor. In so far as the occupants of the first floor are concerned you have stated that the existing windows are suitable for use as an alternative escape route, but it is not possible to determine from the plan submitted the suitability of these windows or the roof structure beneath them. If they were found to be suitable then escape from the first floor could be regarded as adequate with or without the provision of either a ground floor enclosure or sprinkler protection.

19. As with the first floor, the risk of the occupants of the second floor accommodation becoming trapped by a fire at ground floor level is increased by the removal of the partition. If the occupants did find their primary escape route blocked then provision should be available for assisted escape via an appropriate window in the bedroom. Sprinkler protection on the ground floor would tend to extend the period for which the occupants of the second floor could wait in safety to be assisted in their escape. The Secretary of State considers that may be a reasonable approach but escape without assistance should be the preferred outcome.

20. Steps would need to be taken therefore to reduce, as far as is possible, the potential need for assisted escape. As such the sprinkler and fire detection systems should be adequately designed and installed to an appropriate specification and any areas of higher risk, such as kitchens, should be separated from the open plan space. In this case, although you state that the sprinkler system will be designed and installed to appropriate British Standards, you have not provided sufficient details of the proposed specification or location of the fire detection devices. Moreover, the proposed layout would result in the stair delivering at ground floor level into the middle of the open plan space immediately adjacent to the cooking area.

21. It is also noted that the Borough Council has indicated that the loft conversion design included provision for an egress window at the front of the property. However, the submitted plan and photographs show only one dormer window at second floor level which faces the back of the house. There is also some discrepancy between the plan and the photographs. The plan show a flat roof adjacent to the dormer which would allow a person to step down from the window and where a ladder could be pitched. However, the photograph of the back of the property shows a primarily sloping roof which would prevent a ladder being pitched to the dormer and which could not be walked on safely.

22. In the light of the above considerations, the Secretary of State concludes that your proposals as submitted do not demonstrate compliance with Requirement B1.

The determination

23. The Secretary of State has given careful consideration to the particular circumstances of this case and the arguments presented by both parties.

24. As indicated above, the Secretary of State considers that your proposals, as submitted, do not make appropriate provision for means of escape in case of fire. He has therefore concluded and hereby determines that your proposals do not comply with Requirement B1 (Means of warning and escape) of Schedule 1 to the Building Regulations 2000 (as amended).