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Note: The following letter was issued by our former department, the Office of the Deputy Prime Minister (ODPM). ODPM became Communities and Local Government on 5 May 2006 - all references in the text to ODPM now refer to Communities and Local Government.

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 an external 'ladder bracket', forming part of building work comprising a roof space conversion

The proposed work

4. The building work to which this determination relates comprises the conversion of the roof space of a two storey, three bedroom, semi-detached house to form a bedroom and en-suite bathroom at a new second floor level (ie a loft conversion). The approximate plan area of the house is 6m x 7.5m in depth, with a passage of approximately 1m in width running down the detached side.

5. The existing roof is of tiled construction with a single ridge running from the attached side of the house to the gable end of the detached side. The new accommodation at second floor level will be created by retaining the front elevation pitch of the roof, whilst removing the rear pitch and installing a dormer construction comprising a window and wall of a total length of 5.3m. The approximate plan area of the proposed second floor, including the access stair, will be 6m x 4.5m.

6. Access from first to the new second floor will be by a timber stair to be constructed over the existing stairwell. The new stair will comprise a short straight flight down from the second floor with a 90 degrees turn at the bottom achieved by four winders. The new roof space room is to be separated from the new stair by an FD20 fire door opening off the top landing of the new stair.

7. At the rear of the house there is a full width single storey extension which the location plan indicates to be approximately 3m in depth. You indicate that the roof is not constructed to provide 30 minutes fire resistance. The existence of the extension therefore means that neither ladder assisted escape nor escape across the roof is deemed feasible.

8. Provision for escape is therefore proposed via a window from the en suite bathroom at the side of the dormer construction. This window is adjacent to the gable end and above the side passage. Because of the restricted width of

this passage - approximately 1.10m at this point - the rake of a ladder raised against the gable wall would be too steep to be used safely. An external 'ladder bracket' is therefore proposed at right angles to the gable wall designed to support the head of a ladder when raised through a vertical plain at right angles to the wall. Your submissions incorporate a diagram and specification for the proposed external ladder bracket.

9. The plans indicate provision of three smoke detectors: one at ground and one at first floor level within the existing stairwell, and a third above the landing of the new stair at second floor level.

10. These proposals formed the basis of a full plans application which was rejected by the Borough Council on the grounds that the external ladder bracket was not an appropriate means of providing ladder access to an escape window and that the proposals did not therefore achieve compliance with Requirement B1. However, you contend that the ladder bracket will overcome the problem of needing support for an escape ladder in the restricted passage width and will achieve compliance. It is therefore in respect of this question that you have applied to the Secretary of State for a determination.

The applicant's case

11. You draw attention to Requirement B1 which requires the provision of an "appropriate means of escape in case of fire from the building to a place of safety outside the building capable of being safely and effectively used at all material times". You state that you have provided an escape window of an appropriate size and sill height - as suggested by *Approved Document B (Fire safety)* - and that pedestrian access is available down the side entry of the house to set the foot of an escape ladder in the appropriate place. The head of the ladder could be positioned to facilitate the transfer of a person or persons within the building to the ladder and thereby accomplish an escape at all times.

12. You add that the proposed external ladder bracket is structurally capable of sustaining the necessary loading. The 'ladder keep' - comprising of a flat plate welded to the end of the bracket and designed to bear against the outer side of the ladder - would provide security in terms of slippage of the ladder sideways.

13. You consider that the access for the ladder and the escape window are in accord with the recommendations in *Approved Document B*, although you accept that it is the functional requirements of the Building Regulations that are relevant and not the detailed recommendations of the Approved Documents. You comment that *Approved Document B* provides guidance in general terms, which indicates the position of escape windows and their associated sill heights in relation to the roof edge (eaves position), but does not record all means of providing an acceptable means of escape. In particular there is no guidance as to whether a ladder should face an escape window or can be at 90 degrees to it. You conclude that the fact that a bracket

for supporting the head of the escape ladder at right angles to a side hung casement window is not illustrated in the Approved Document does not imply that the use of a ladder bracket is not acceptable.

14. In response to the Borough Council's representations to the Secretary of State (see below), you questioned the Council's comments and those provided by the Fire Authority. You concluded by reiterating your view that the use of the external ladder bracket to support the head of the escape ladder is acceptable and complies with Requirement B1 on the following grounds:

(i) the ladder bracket would perform structurally when installed and over time if maintained.

(ii) it would securely hold the ladder in position while people transferred from the escape window.

(iii) its function would be recognised.

(iv) the ladder could be raised to satisfactorily rest on the bracket.

15. You also recognise that maintenance of the external ladder bracket will be important, but you believe that maintenance is not an issue which the Building Regulations can take into account because - if this 'logic' was extended - most of the elements of a building might not be acceptable. You contend that in every case maintenance is necessary to ensure satisfactory performance and that the assumption must be that an owner will maintain the property to a good standard; and "that compliance with the Building Regulations is a matter for today and cannot reflect circumstances that may arise at some time in the future". You also submitted some photographs of a "bracket (and supported ladder)" which you say has been approved by the Borough Council in the past in relation to another building in the same area.

The Borough Council's case

16. The Borough Council has consulted the Fire Authority in forming its opinion that the external ladder bracket is not an appropriate means of providing ladder access to an escape window. The Fire Authority stated that fire officers would not trust their lives, and the lives of the people they are attempting to rescue, to a bracket fixed to a gable wall. The following reasons were given, which the Council and the Fire Authority consider would apply as equally to Fire Service Personnel as to members of the public trying to make a rescue:

(i) the condition of the ladder bracket would be unknown when viewed from ground level.

(ii) the condition of the fixings into the wall would be unknown.

(iii) it would not be apparent to anyone trying to effect a rescue what the bracket was for.

(iv) it would be difficult to fully extend a ladder in order to rest it against the bracket.

The Borough Council therefore concluded that in its view your proposals did not provide an "appropriate means of escape in the case of fire".

17. The Borough Council also informed the Secretary of State in its submission that following the disagreement over the acceptability of your original proposals, you submitted a revised full plans application incorporating a roof light escape window in the front elevation roof slope. The Council issued a notice of approval for these proposals.

The Secretary of State's consideration

18. In the Secretary of State's view, the main consideration in this case is the safety of the occupants of the new roof space room should they become trapped if a fire were to occur at a lower level and the safety of any person who may attempt to rescue them.

19. The Secretary of State considers that in general the use of external ladder brackets is not a very satisfactory means of achieving compliance with Requirement B1 in this type of case because there must always remain some doubt about safety in terms of securely holding the ladder in a fixed position, particularly when it is subjected to horizontal forces during the transfer of persons from window to ladder. In addition, the efficacy and safety of a bracket will depend upon the robustness of its design and fabrication, and the manner in which it is secured to the building. In his view, and as a matter of principle, such brackets should therefore only be used in cases where there is no alternative available to facilitate escape; and where the bracket is robustly designed and fabricated, and is securely fixed. In making this determination he has had regard to these issues.

20. Paragraph 2.23 of *Approved Document B* gives the context for ladder rescue from roof space conversions. The specific provisions set out for such conversions provide an alternative approach to the use of a protected stair which would normally be provided in a three storey house. Whilst it is expected that in most cases of escape from roof space rooms this will be achieved via the internal stair of the house, it has to be recognised that the stair may not be protected to the same standard as for a new house. As such a facility for external, ladder assisted, rescue is also considered necessary due to the higher risk that a person may become trapped in the roof space room because the internal stair is unavailable. Due to the difficulty associated with providing ladder access to the rear of this property you have proposed the use of an external fixed ladder bracket fixed to the side of the house which you believe would facilitate such a rescue.

21. The Borough Council has rejected your proposals primarily because it considers that the external ladder bracket could not be relied upon over the life of the building, and that as a consequence persons escaping via the window and their rescuers could be put at risk. You have acknowledged that

maintenance of the ladder bracket will be important, but you believe that it is not an issue that the Building Regulations can take into account. In your view compliance with the Building Regulations is a matter 'for today' and cannot reflect circumstances that may arise at some time in the future.

22. The longevity of materials and constructions, and the potential need for maintenance are material factors when considering compliance of building work with regulation 7 (Materials and workmanship) of the Building Regulations. The Secretary of State is therefore concerned that where provisions included in the design of a building are not utilised on a day to day basis or are difficult to reach, the likelihood of adequate and regular maintenance will be reduced - and this is particularly the case for domestic properties.

23. The annotated diagram which you submitted of the proposed external ladder bracket indicates that it will be fabricated from 25mm square mild steel hollow section welded at intersections, with fixing plates and ladder keep comprised of 3mm steel plate. The Borough Council is concerned that this design may not be sufficiently durable. Given its exposed and relatively inaccessible position this seems reasonable ground for concern. However, this could be addressed by ensuring that there is sufficient redundancy in the fixing design and by using materials, such as stainless steel, that are inherently resistant to corrosion.

24. However, notwithstanding any improvements which might be made to the design, fabrication and fixing of the external ladder bracket, the Secretary of State takes the view, as indicated in paragraph 19 above, that as a matter of principle it is always important to look for better solutions to achieving compliance with Requirement B1 than having to have recourse to the use of such a ladder bracket. These could include the provision of a suitable escape window to the front of the house, or omitting the escape window altogether and providing a fully protected stairway by replacing existing doors with fire resisting self-closing doors. In the context of this particular case it is known that you have subsequently received a full plans approval for the same building project but incorporating a roof light escape window in the front elevation instead, thus eliminating the necessity of having to rely upon an external ladder bracket to provide a means of escape.

The determination

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

26. Your proposals incorporate an external ladder bracket of a design and fabrication as described in paragraph 23 above. The Secretary of State considers these to be insufficiently robust and that the bracket would therefore lack sufficient reliability to achieve compliance with Requirement B1. The Secretary of State has therefore concluded and hereby determines that your proposals incorporating the external ladder bracket proposed do not comply with Requirement B1 (Means of warning and escape) of Schedule 1 to the Building Regulations 2000 (as amended).