

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

### **DETERMINATION OF COMPLIANCE WITH REQUIREMENT A3 ("DISPROPORTIONATE COLLAPSE") OF THE BUILDING REGULATIONS 2000 (AS AMENDED) IN RESPECT OF BUILDING WORK TO ADD A STOREY AND LIFT SHAFT TO AN EXISTING FOUR STOREY BLOCK OF FLATS**

#### **The proposed work and question arising**

4. The building to which this determination relates is a purpose built 1970's four storey block of flats. The ground floor comprises eight garages with three identical floors above providing four, one/two bedroom flats on each floor. The building has a plan area of approximately 257m<sup>2</sup>. You advise that mass concrete strip foundations support load bearing masonry walls. Externally these comprise cavity walls, using face brickwork and an internal skin of block, with various windows and balconies. The internal walls are either brickwork or blockwork. The upper floors are of cast in-situ reinforced concrete, beam and hollow pot construction. The flat roof of the building has been constructed using timber roof joists as the main load bearing component.

5. The proposed building work comprises the erection of an additional storey (ie. fourth floor) on top of the existing four storey block of flats with an extension of the existing stairway and the provision of a new lift shaft serving all floors. The extension will provide an additional two, two bedroom flats. You advise that in order to keep the additional loads to a minimum the entire new storey will be of timber frame construction. The new construction will be erected off timber sole plates to lift the new floor panels clear of the existing flat roof. All the new floor loads will therefore be transmitted to the foundations via the existing load bearing walls. The new roof will span onto the outer leaf of the external cavity walls which at present only carry their self weight.

6. The above proposed work was the subject of a full plans application which was originally rejected by the Council on the grounds of non-compliance with Requirement A1 ("Loading") of the Building Regulations, as further structural calculations were required to determine the application. This information was submitted with two further full plans applications but these were also rejected on the grounds of non-compliance with Requirement A3 ("Disproportionate collapse") of the regulations. The Council considered that insufficient information had been provided to demonstrate that the extended building would be sufficiently robust to sustain an accidental event without disproportionate collapse. It is in respect of this question that you have applied for a determination.

#### **The applicant's case**

7. You refer to the amended guidance in section 5 of Approved Document A ("Structure" – 2004 edition) relating to disproportionate collapse and consider that there is no formal guidance on the application of Requirement A3 to existing

buildings. You also refer to regulations 4, 5 and 6 of the Building Regulations and take the view that a 'material change of use' is proposed in your case. You comment in detail on the meaning of a material change of use and take the view that the proposed building work does not need to comply with Requirement A3 and the guidance in section 5 of Approved Document A.

8. However, you accept that the addition of an extra storey could be considered as increasing the risks associated with disproportionate collapse and you believe that it would be prudent to design the new work to comply with the relevant Approved Document guidance for a "Class 2B" structure. You have also designed the new fourth floor following both the 'tying' approach and the notional removal of vertical supporting members philosophy, so as to limit the extent of collapse resulting from an accidental event.

9. You refer to a letter you have submitted from the Project Architect and add that, in your view, if the Council's interpretation of the Building Regulations is correct, then to extend and refurbish a considerable proportion of the country's housing stock would not be economically viable.

10. In response to the Council's representations to the Secretary of State (see below), you enclosed an extract from "The Structural Engineer" dated 18 April 2006 and commented that the structural engineering profession is struggling with the various interpretations that local authorities are taking on this matter. You seek clarity as to whether existing buildings that are extended vertically need to be entirely upgraded.

### **The Council's case**

11. Contrary to your view, the Council maintains that Requirement A3 applies to the whole extended building and refers to its letter of 17 November 2005 to you. This explained the Council's view that the proposed building work is an 'erection and extension of a building' and is also a 'material alteration', as defined under regulation 3 of the Building Regulations.

12. The Council states that the proposed addition of another storey to the building will move the building from a Class 2A to 2B risk category as defined in table 11, section 5 of Approved Document A. However, the Council accepted that you could adopt the alternative approach given in the "NHBC Technical Guidance Note" on disproportionate collapse. This requires the ground storey used for private car parking to be checked to ensure that its components can survive an accidental event as they are considered as 'key elements'. This approach, if viable, would negate any need to upgrade the upper storeys to Class 2B. But the Council considers that you have not provided any justification for your proposals in relation to the whole building, and refers to its "Structural Status Report" to support its case - a copy of which you were sent on 24 January 2006.

### **The Secretary of State's consideration**

13. The Secretary of State agrees with the Council that your proposal to add an additional storey to the roof of the existing building in this case would constitute both an 'extension' and, in view of its reliance for support from the existing

structure, a 'material alteration', under regulation 3 of the Building Regulations. She does not consider that a 'material change of use' as defined in regulation 5 is involved, as the whole of the building will continue to be used for residential use.

14. The Secretary of State takes the view that the risk of the extended building to disproportionate collapse may well be increased owing to both the greater occupancy and the increased height of the building. In such instances a risk assessment in each case would usefully identify the strengths and weaknesses of the proposals in question and any appropriate measures needed. Regulation 8 of the Building Regulations requires building work, subject to Part A "Structure" (and other Parts), to be carried out to secure reasonable standards of health and safety, but there is no obligation to adopt the prescriptive guidance in Approved Document A to achieve compliance, which allows for an alternative approach to meeting Requirement A3.

15. The Council has indicated that it accepted you could adopt the approach given in the NHBC guidance on the application of Requirement A3 which is endorsed by this Department. The latter guidance would allow the upper storeys of an extended building to remain unstrengthened provided the components comprising the ground floor storey are strengthened to be capable of surviving an accidental event as 'key elements' of the structure (e.g. to survive vehicle impact). The Secretary of State considers that this alternative approach may provide a viable solution to such a proposed development, although for the building in question, this may also require certain strengthening work to the first floor slab above the garages. However, you have not demonstrated that the proposed extended building has the necessary strength at these lower levels, for the purpose of compliance with Requirement A3.

16. Finally, the Secretary of State does not accept your assertion that the guidance on meeting Requirement A3 in the 2004 edition of Approved Document A for such a building is more onerous than that published in the former Approved Document guidance. The extension of a four storey residential building to five storeys prior to the 2004 amendment would have necessitated similar scrutiny.

### **The determination**

17. In coming to her decision, the Secretary of State has given careful consideration to the particular circumstances of this case and the arguments presented by both parties.

18. As indicated above, the Secretary of State considers that your proposals, as submitted, constitute both an 'extension' and a 'material alteration' of an existing building and that they do not demonstrate compliance of the extended structure with Requirement A3 on disproportionate collapse. She has therefore concluded and hereby determines that the plans of your proposed work do not comply with Requirement A3 ("Disproportionate collapse") of Schedule 1 to the Building Regulations 2000 (as amended).