1703/PWRB/KMS/22 17 September 2009

36 AND 37 CHESTER TERRACE, NW1

STRUCTURAL ENGINEER'S REPORT PREPARED TO ACCOMPANY AND SUPPORT

THE ARCHITECT'S APPLICATIONS FOR PLANNING PERMISSION

AND LISTED BUILDING CONSENT

INTRODUCTION

The proposal is to combine 36 and 37 Chester Terrace into one single house, as shown on the Architect's drawings. The purpose of this report is to demonstrate that this can be achieved without affecting the structural stability of the buildings. The houses were inspected by P W R Bell on 12 August 2009.

DESCRIPTION OF EXISTING STRUCTURE

The interior of these houses was rebuilt in 1961-62 when the lifts were installed. The staircases are timber not stone and the new internal brickwork is in Flettons. The structural arrangement of these houses resembles very closely that of 16 Chester Terrace, where we have been doing exploratory work recently and 26 Chester Terrace where we have worked previously.

The roofs have a complex system of "trusses" with a central lift motor room supported on a concrete slab above the Fletton brick shaft. The upper floors have substantial timber joists generally spanning front-to-back onto central beams supported by the lift-shaft. The wall between the stair and rear room is brick up to third floor level. The partitions are generally timber stud, walls in the basement are brick. The front walls and party walls are mostly original. The rear wall was rebuilt as part of the 1960`s work.

IMPACT OF PROPOSALS

37 CHESTER TERRACE

The proposals show the existing lift retained in 37. The existing stair in 37 and its adjacent wall are retained from lower ground to second floor and the stair is to be extended to third floor level. A new central roof terrace is to be construction hidden by the pitched roofs front and back.

The structural implications of the alterations to 37 are therefore comparatively minor. It should be possible to retain the existing timber floors. Some strengthening may be needed for heavier finishes and the altered partition arrangements. The new roof terrace will need restructuring of the roof with new steel beams and timber floor supported on the lift core and party walls.

36 CHESTER TERRACE

The alterations to 36 are more extensive since the lift and stairs are being removed. To replicate the central vertical loadbearing structure a steel frame will be needed for the full height of the building. This will have columns set against the party walls 35/36 and 36/37 and substantial beams at each floor level spanning across the building. The columns will be supported on a ground beam and balanced strip footing under the basement floor. The frame will contribute to lateral stability. The centre of the house will need to be propped vertically right through while the lift is demolished and the new frame inserted. Where the stair is removed a new section of timber floor will span front-to-back onto the new frame.

The openings in the party wall between 36 and 37 need to be adjusted so that the columns of the frame come up and down vertically from the position shown on the Architect's first floor plan. The openings in the 36/37 party wall will be constructed with beams above and below supported on sections of wall rebuilt locally in engineering brick. As in 37 some strengthening of the floors may be needed for heavier finishes and altered partitions arrangements. Some new floor joists will be needed e.g. where the lift is removed.

The roof terrace of 36 will be similar to that of 37 using the central steel frame as support for additional steel beams and timber joists.

GENERAL COMMENTS

Since it should be possible to retain the majority of the floors in both houses the temporary stability of the facade and party walls should not be a major problem. Some local horizontal bracing may be required particularly in 36. The construction of the roof terraces requires the removal of the existing roofs so that temporary roofs and some horizontal and diagonal propping of the masonry walls down onto the 37 lift core may be required.

New finishes, if brittle such as stone, will need special attention to their support on the timber floors, which will tend to move due to deflection and shrinkage.

CONCLUSION

These buildings can be combined as shown on the Architect's plans without endangering their temporary or permanent stability.

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