HERITAGE STRUCTURAL ASSESSMENT

on

UCL INSTITUTE OF EDUCATION

PHASE 2

(PLANNING APPLICATION 2G)

TAK STRUCTURES

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1.0 INTRODUCTION

1.1 UCL intend to refurbish and upgrade the Institute of Education facilities. This will include rationalisation and upgrading of the services.

1.2 The Institute of Education is a Lasdun 1970's concrete building along Bedford Way which is Grade II* listed. The proposals require listed building consent for internal alterations. The application is supported by a heritage assessment which has been prepared by Alan Baxter Associates.

1.3 The redevelopment will require some structural interventions and adaptions, and those related to application 2G are presented in Appendix 1.

1.4 For the purposes of this report the orientation is taken with Bedford Way to the east and Tavistock and Russell Squares to the north and south respectively.

2.0 BRIEF DESCRIPTON OF INSTITUTE OF EDUCATION BLOCK

2.1 The block was built in the 1970's to a design by Denys Lasdun with Arup as the structural engineer. It is a massive block over 200m long with 3 basement and 6 upper storeys and 3 storey overruns to the 3 cores. Internally there are high quality exposed concrete finishes.

2.2 The building is piled and there are no signs of significant movement. The structural arrangement is sensible, and the detailing is of a high standard. Structurally it is a robust building with substantial concrete cores. In the teaching areas remote from the cores, the ribbed floors span east west across the width of the building.

2.3 Inevitably in the intervening 40 years there have been some structural alterations and adaptions; again, these are sensible. Infills and alterations in an occupied building have inevitably been framed in steel with appropriate fire protection. The maintenance has also been of a high standard.

3.0 PROPOSED SCHEME

3.1 The proposed alterations relate to cable route at high level 2 from core A plant rooms through to the service road at the rear of the core. These are outlined in the information from Architon LLP in the 3147-P7 series of drawings. The extent of the structural works is captured in demolition drawing 3147-P7-2205.

4.0 STRUCTURAL INTERVENTIONS

4.1 The structural interventions in this application relate to the accommodation of new services routes along corridors and into existing risers. They are generally penetrations at high level through the reinforced concrete walls.

4.2 With reference to drawing 3147-P7-2205:
Penetrations for cabling are the largest interventions in the walls and are either 600mm or 400mm high and 300mm wide. Existing openings will be re-used if feasible or new openings formed in relation to existing openings to maintain robust sections of wall.

4.3 The key structural interventions are expanded on in Appendix 1.

5.0 DISCUSSION

5.1 The Institute of Education was well built and has been adequately maintained. The structure has the necessary robustness to accommodate the proposed alterations which are both sensible and achievable and will not compromise the integrity of the building.

5.2 The existing walls provided both an element of stability to the building and support adjacent floor slabs and both purposes will be maintained. There are many walls within the core areas and the larger penetrations are in longer sections of wall. In comparison to this length, the opening size is such that there is little impact on the overall stability and the slabs will be able to arch over the width to retain support.

5.3 In all cases the start point will be to reuse existing openings as this will minimise demolition works and minimise any impact on the existing walls. The smaller penetrations will be clustered and located to avoid reinforcement bars which are generally at greater centres than the proposed diameters.

6.0 CONCLUSION

6.1 The proposed alterations do not compromise the integrity of the structure.

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Appendix 1: List of Structural Alterations

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01. Level 2

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Structural Alteration 01

Level 2
Revision 00 Oct 2023

1. Current Arrangement

1.1 The ceiling in circulation route A2.01.01 currently houses service runs and some continue to the external walls at the service road and over via the soffit of the building over.

2. Proposed Arrangement

2.1 The existing services runs will be validated and either removed or re-used. Where removed, the redundant openings will be used to accommodate the new proposals. Three new openings are likely required through existing reinforced concrete structure to achieve the cable route required. These are as proposed on drawing 3147-P7-2205.

3. Alterations and Challenges

3.1 Any new openings will need to be coordinated with existing openings and maintain sufficient spacing such that the integrity of the wall is maintained in terms of overall stability and local support.

4. Solution

4.1 The intended re-use of openings where possible means demolition will be limited. A careful approach to the formation of any new holes will be adopted where existing critical reinforcement bars will be scanned and marked to ensure they are avoided in the subsequent setting out of any new openings. Works will utilise diamond drilling.

4.2 The use of these established engineering solutions will maintain structural integrity.