

HERITAGE STRUCTURAL ASSESSMENT

on

UCL INSTITUTE OF EDUCATION

PHASE 2

(PLANNING APPLICATION 2c)

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Document Control

Revision	Detail	Date
00	Initial issue	18.02.21
01	Updated issue	16.12.21

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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 planning and listed building consent for internal and external 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 adaptations, and those related to application 2C 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 DESCRIPTION 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 adaptations; 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 Phase 2C proposed structural alterations relate to the entrance areas at levels 3 and 4 - these are outlined in information from Architon LLP in the 3147-P3-2000 series of drawings. This includes a minor extension to the main entrance of the IoE on Bedford Way, the installation of security gates, a reconfigured entrance at Thornhaugh Mews, the insertion of a new platform lift at Level 3 and a platform lift serving Level 3 and 4, and refurbishment of the foyers at Levels 1, 3 and 4 including the installation of fixed furniture.
- 3.2 The proposals are to improve the quality of access into the building at both levels 3 and 4.

4.0 STRUCTURAL INTERVENTIONS

- 4.1 The structural interventions in this application relate to removal and replacement of older entranceways, glazing and the installation of a new entrance pavilion. There is also the provision of a new platform lift at level 3.
- 4.2 The required structural interventions are at specific locations indicated on the accompanying drawing 20094/GA/001 and the structural works have been developed to ensure that the stability and well-being of the structure is maintained.
- 4.3 The key structural interventions are expanded on in Appendix 1. The installation of a new entrance pavilion and the provision of a new platform lift at level 3 both use established engineering and building techniques which take account of the Grade II* listed nature of the structure and limit any impact.

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 entrance bridge is understood to be independent of the primary structure of the building and its demolition and removal does not affect the adjacent structure being retained.
- 5.3 The curtain wall glazing to the level three is original and the doors and short sections being removed will be replaced by a glazing specialist. This replacement section will also consider the support requirements of those areas being retained to ensure their integrity is maintained both during the works and long term.
- 5.4 The platform lift requires the removal of a small section of reinforced concrete (RC) stair that forms part of the level 3 slab where it steps down a level. The location of this lift has been carefully reviewed and adjusted to ensure there is no negative impact on the surrounding existing reinforced concrete structure.

6.0 CONCLUSIONS

- 6.1 The proposed alterations do not compromise the integrity of the structure.
- 6.2 The alterations are not extensive in magnitude or density. Where framing is required, established engineering techniques are adopted and this will ensure that the integrity of the structure is maintained.

UCL INSTITUTE OF EDUCATION

Appendix 1: List of Structural Alterations

Revision 01

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- 01. New Entrance Pavilion
- 02. New Platform Lift

Structural Alteration 01

New Entrance Pavilion
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1. Current Arrangement
 - 1.1 The existing entrance consists of doors at level 3 that are part of the existing curtain wall glazing. There are also existing entrance steps that span up and over to level 4 from street level. This is all supported by the level 3 concrete slab which is supported by concrete columns and walls beneath.
2. Proposed Arrangement
 - 2.1 The level 3 doors are to be removed and replaced with the new entrance pavilion featuring a new set of revolving doors set out towards the road, a new reception, and security gates housed within the pavilion. The existing entrance steps over to level 4 will be removed and replaced with full height curtain wall glazing from level 3 to soffit of level 5.
3. Alterations and Challenges
 - 3.1 The glazing will only need to be replaced over limited areas and a junction detail developed between new and existing glazing. The new glazing will require support over the new security gates. The challenge will be to integrate this into the pavilion structure and to ensure the integrity of this façade is maintained.
 - 3.2 The existing slab will be required to support the new entrance pavilion structure however there are no alterations planned to the existing concrete structure in this area.
4. Solution
 - 4.1 The demolition of the existing steps will be carefully carried out with temporary support and saw cutting to isolate those areas being removed and avoid any damage to that being retained. A glazing specialist will provide the necessary mullions and glazing structure to the areas being replaced or infilled. This installation will be sequenced to avoid any negative impact on the retained glazed façade.
 - 4.2 The use of established engineering solutions will establish safe re-use of the existing slab with the pavilion structure kept lightweight using a steel frame to support a timber roof. Spreader beams at the base of any pavilion posts will be used to reinforce the existing slab where this proves necessary. A goal-post type frame taking restraint from the surrounding structure will be used to support glazing over the reception and security gates. The installation of this pavilion will be justified using analysis of the available information on the existing structure and load comparisons to ensure the integrity of the existing concrete slab and support columns is maintained.

Structural Alteration 02

New Platform Lift

Revision 01

Dec 21

1. Current Arrangement
 - 1.1 Access to the central staircase and core A is via steps down from the level 3 entrance. The steps form part of the concrete slab where it is continuous and cranks down to the lower level. This slab is supported by the primary reinforced concrete columns and a reinforced concrete wall beneath.
2. Proposed Arrangement
 - 2.1 To make the whole entrance area fully accessible a new platform lift will be installed at the change in level. This platform lift will be located at the end of the steps opposite the new security gates.
3. Alterations and Challenges
 - 3.1 An opening will need to be formed in the steps/slab to remove a portion of the concrete allowing direct access to the differing levels on each side of the platform lift. The challenge is to limit the impact on the surrounding existing concrete slab as well as supporting the lift structure itself.
 - 3.2 Demolition works to the slab are straightforward with any existing concrete removal needing to be controlled and limited to just that area needed to accommodate the lift structure.
4. Solution
 - 4.1 The location of the lift has been carefully selected with the limits of the existing slab dictating the most appropriate location. Saw cutting will provide accuracy in demolition of the slab steps with straightforward temporary works provided to support existing slab edges. This will maintain the integrity of the existing concrete structure.
 - 4.2 For the new lift arrangement, support to the concrete slab edge will be provided from below via posts and steelwork framing with an infill floor extension providing a simple solution to support the lift itself.