



Apt 2-3, 10
Cambridge Gate
Existing
Structural
Configuration
and Feasibility
Study of Layout
Alterations

constructure

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1. INTRODUCTION

Constructure Ltd were appointed in March 2018 to provide structural engineering services to investigate the existing structural configuration, to support a study of the feasibility of altering the internal layouts, to reconfigure and modernise the property.

This report serves to document the findings of the review of historic record drawings and opening-up works investigations carried out in April 2018.

The study identifies apparent load-paths, with the intention to understanding what level of flexibility there is to alter or remove the existing internal walls.

2. HISTORIC DOCUMENTS

The property was originally constructed as part of the 1875-77 design by T Archer and A Green. The building was bomb damaged and record drawings indicate reconstruction work in the 1950s and alterations in the late 1980s.

The range of record drawings available:

Proposed alterations [David Stern] - **103/4** (Dated: 4/54)

Plans of building before war damage [David Stern] - **103/1** (Dated: 4/55)

Proposed Rebuilding and alterations [David Stern] - **103/5E** (Dated: 4/55)

Proposed Rebuilding and alterations [David Stern] - **103/39** (Dated: 1/56)

Floor Plans, Basement to Roof [Crown Estate Commissioners] - **CES 386** (Dated: 1/88)

3. OBSERVATIONS

3.1 BUILDING FORM

The existing property was constructed as a 6-storey (plus mezzanine) wing of apartments, adjoining the terrace of houses to the south.

The record drawings indicate an original layout and implies a basic structural form of steel framing on each floor level, supporting timber floors and masonry walls, with original external walls, stairwell and light well affording a stability system still in use today.

Apartment 2-3 occupies the first floor of the building and is split across two levels, forming a first floor and upper first floor.

3.2 INVESTIGATIONS

A series of 3 site inspections were carried out. We first attended to carry-out our initial visual inspection, then specified opening up works that were conducted by KFG on 9th April 2018. We visited site to observe findings on 10th April 2018, and recorded these on drawings 1683_E01, 1683_E02 and 1683_E03.

It is assumed for the purposes of this study that the loads arising from the 1st floor structure have reliable support beneath, onto sound foundations.

3.3 STRUCTURAL ARRANGEMENT

3.3.1 2ND FLOOR

The second floor comprises of a steel frame with timber infill; joists spanning within the depth of the beams. The beams are connected to steel columns to the north side of the building providing vertical support.

There is a full spanning steel beam running through the light well along Gridline C and a full spanning steel beam running along Gridline B, supported off the light well wall.

At the time of writing, access to the second floor apartment was restricted, and so load paths from above are yet to verified.

3.3.2 UPPER 1ST FLOOR

The existing Upper 1st floor is constructed of a steel frame with timber infill, much like the 2nd floor. There are two full spanning steel beams running through the light well along Gridline C and Gridline D.

3.3.3 LOWER 1ST FLOOR

As the Upper 1st floor and 2nd floor, the Lower 1st floor is constructed of steel framing with timber infill. There is a full spanning steel beam running through the light well along Gridline D and a full spanning beam running along Gridline B, supported off the light well wall.

At the time of writing, access to the ground floor apartment was restricted, and so load paths to below are yet to verified.

3.3.4 STABILITY SYSTEM

The stability appears to be provided by the external walls, and the lightwell and stair core walls.

4. CONCLUSION AND RECOMMENDATIONS

The steel framing has been identified and appears to match the record drawings by David Stern Architects ref: Drawing No. 103/39.

All internal walls were found to be constructed in masonry. These internal partitions, being of significant weight, are supported by steel beams, however the floors appear to be supported level by level. This indicates that the walls appear to be non load-bearing, therefore transferring no vertical load path through the apartment's interior.

The internal partitions can be judged to be affording some buttressing to external walls, however these are judged sufficient thickness and mass to enable vertical spanning from floor to floor.

It is therefore judged that the internal 100mm masonry partitions can be removed without detriment to the stability and vertical load paths of the structure. As such there would appear, on this basis, to be inherent flexibility to alter the layout of the existing internal partitions, in order to achieve the new layouts.

05/05

It will be necessary to review the existing structural arrangements during the strip-out works phase, in order to reliably verify the findings of this study, which has been based upon limited opening-up investigation works. Additionally, the conclusion and recommendations made herein are subject to the inspection of the apartments to the second and ground floor, in order to verify currently assumed layouts.

APPENDICES.

EXISTING STRUCTURAL LAYOUT DRAWINGS: 1683_E01, 1683_E02 & 1683_E03