PRELIMINARY STRUCTURAL APPRAISAL REPORT

Existing building upgrade including roof replacement

31 Highgate High Street,
London,
N6 5JT

February 2023
Revision A: 21/02/23

morph
design creatives

1. INSTRUCTION

1.1. At the request of Formed Architects, we attended the property at 31 Highgate High Street, London, N6 5JT on 17th January 2023 to inspect the rear outrigger building, in order to review the proposed scheme drawings and provide a structural report suitable for Planning matters, including outline of findings and high-level strategy for proposed structural works.

2. FINDINGS

2.1. From the visual inspection of the property, we have reported on the structure and building fabric.

2.2. Originally constructed for housing, the shopfront was added at a later date. We speculate that the rear outrigger was added sometime after the original construction. The building was then used for residential accommodation, retail space and as an office.

2.3. The walls, floors and roof are all generally in reasonable condition. The rainwater disposal system appears to be the main source of water ingress.

2.4. The building is largely constructed in traditional materials. Whilst alterations are required to the structure in order to accommodate the proposals, these are considered to be straight-forward. The building is capable of withstanding these alterations to allow the proposed project to be realised.

3. BRIEF

3.1. At the request of Formed Architects, we attended site to inspect the outrigger, particularly the wall highlighted in the marked up Formed Architects drawings found in Appendix 1.

3.2. Our inspections were to be visual and not to include any trial holes, removal of masonry, or removal of other fabric to gain access to more hidden areas of the structure.

3.3. This preliminary structural report is intended to assist the Local Planning Authority (LPA) when considering a proposed planning application for alterations including replacement of the existing roof.

3.4. On the day of the survey the weather was sunny and cool, with ice still in the gutters.

4. PHOTOGRAPH REFERENCING

4.1. A Contact Sheet can be found in Appendix 2. The photographs themselves are referenced throughout this document using the last 3 digits of the filename, e.g. photograph “DSC_0493.jpg” will be referred to as “Photo 493”. Full sized individual photographs are available upon request.

5. LAYOUT

5.1. The site is located on the south-south-west side of Highgate High Street on a hill, with #33 uphill and #27 downhill. The building comprises 4-storeys (basement, ground, first and second) with pitched roof over the front of the property; the single-storey outrigger extends out to the rear of the property some 6-7m in length and between 4-5m in width, measured at its extremities. Vehicular access is afforded to the outrigger by way of an underpass, which passes under the 1st floor of the main building. The garden wall to #33 also acts as a retaining wall, with the ground level in #33 garden approx. 1.25m higher than the ground level behind the outrigger.

6. LISTING

6.1. It is Grade II listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architecture or historic interest, as one of "four terraced houses with later shops". The official list entry is found in Appendix 3, with some excerpts listed below:

6.1.1. Late 18th century;

6.1.2. Refronted mid 19th Century;

6.1.3. Multi-coloured stock brick;

6.1.4. 3 storeys, 3 windows;

7. CONSTRUCTION OVERVIEW – OUTRIGGER.

7.1. The site is located on a hill, with #33 uphill and #27 downhill. The garden wall to #33 also acts as a retaining wall, with the ground level in #33 garden approx. 1.25m higher than the ground level behind the outrigger.

7.2. Foundations were not examined.

7.3. The external walls are solid 9" thick London stock clay brick walls; the internal finish to these walls is mainly plasterboard, with some exposed painted brickwork.

7.4. Truss supporting combined glazed and metal roofing system spanning between ridge(s) and eaves on south slope. The north slope is a mix of natural slates, obscured rooflights and felted roof systems.

7.5. External gutters and down pipes are fitted to the outrigger building alongside the underpass. A concealed gutter existing alongside the garden wall to #33.

7.6. The ground floor was covered with a timber-effect laminate flooring.

8. SURVEY

8.1. The purpose of the survey was:

8.1.1. To examine and record the current condition of the wall due to support the proposed opening, sliding rooflight, including confirming the presence of damp and locations of water ingress.

8.1.2. To assist in reviewing the proposed scheme drawings.

8.2. This document forms part of the Planning application for the roof replacement and should be read in conjunction with the application particulars.

8.3. Due to the limited scope of such a visual survey any recommendations or comments made within the discussion section of the document should be considered as guidance for the LPA.

8.4. Moisture readings were taken during the survey. Any readings taken provide a snapshot of the actual level of moisture (% volume reading) rather than an analysis of the change in this moisture level over time. Moisture readings taken using Multifunction Moisture Meter & Pin-type Probe;

9. OUTRIGGER

9.1. This element of the building is single-storey, joined to the rear of the ground floor of the main building. It is bounded by the undercroft vehicular accessway, an area of car parking / bin store to the rear and the garden wall to #33.

9.2. The clay brickwork walls appear to be solid 9" London stock, with a stepped gable at the end farthest from the main building. There are areas of failed pointing and failed previous repairs, with suspected cementitious pointing instead of the original lime mortar. There is no evidence of a DPM.

9.3. The survey indicates the presence of a wall (including a number of buttresses – see photo 582 for external example) running along the inside of the garden retaining wall. The externally visible rafter to the rear of the outrigger appears to be notched onto and supported by a horizontal timber plate, running alongside the garden wall (see photo 590). The north edge of the roof is supported on the above structural elements, the garden wall or a combination of them.

9.4. The south slope of the duo-pitched roof is a glazed roofing system, with lead wrapped mullions between Georgian wired glass (GWG) glazed panels. Two-thirds of the north slope is covered with slates, with two glazed roofing panels which have been painted over and a raised section of timber boxing which has been felted over. Many temporary repairs have been carried out to the roof using flashband tape.

9.5. Internally, the sections of roofing which are not glazed are lined with plasterboard. An exposed crown post truss (90mm x 90mm horizontal tie & 70mm x 90mm post) supports the roof approximately midway along, facilitating a vaulted ceiling. The walls are mainly lined with plasterboard, with some exposed painted brickwork located at high level of the gable end and to the wall of the main building. The floor is finished with a wood-effect laminate floor.

9.6. External gutters and down pipes are fitted to the outrigger alongside the underpass. A concealed gutter runs alongside the garden wall to #33.

9.7. The laminate floor finish hides the underlying floor structure. Staining is visible at the perimeter of the flooring, particularly at the bottom of the wall to #33 (see photos 496, 508, 511, 514).

9.8. The side wall to the underpass side shows no significant sign of cracking or movement. There are areas of failed pointing or failed previous pointing repairs. Leaking gutters are suspected to be the cause of green staining to part of the brickwork.

9.9. The top 20No. courses of brickwork forming half of the gable end wall are leaning towards the inside of the outrigger and should be removed and rebuilt (see Defect 1 in Appendix 4).

9.10. The wall along the boundary to #33 shows signs of damp, with mould present on the plasterboard surface (see photo 499). This corresponds with an area of external guttering where there is vegetation growing from the gutter (see photo 582).

9.11. Moisture readings taken inside the Outrigger building indicate a high level of moisture in the plasterboard along the length of the wall adjacent to #33, along with the area of internal wall behind the leaking gutter (defect #2).

9.12. The garden wall, above #33 ground level, is leaning over towards #33 garden. It should be carefully dismantled (along with any leaning buttresses) down to #33 ground level and rebuilt vertically using existing bricks / bricks to match existing. Rainwater flow will need to be managed during any works to this wall as the gutter serving the north side of the outrigger roof is currently dressed up into the garden wall above #33 ground level.

9.13. Further assessment of the garden retaining wall may be required as the gutter is dismantled and more of the wall is revealed.

10. MAIN BUILDING

10.1. Our visual inspection of the main house was limited to the rear room at ground floor and basement levels. The floor of the basement was painted floorboards. Both the walls and the ceilings were lined with plasterboard. The floor of the ground floor area was wood-effect laminate flooring, painted brickwork to the north, west and south walls, with plasterboard lining to the east wall and ceiling. Originally formed part of a dwelling house (see Appendix 3).

10.2. Moisture readings taken in the basement of the main building indicate a high level of moisture in the plasterboard to the wall adjacent to #33, as well as the chimney breast. Some vents were present in the walls and chimney breast

11. DISCUSSIONS AND RECOMMENDATIONS

11.1. The building in in reasonably sound condition. It has recently been used as an office.

11.2. The foundations should be checked prior to commencement of works to confirm their exact nature. The proposed loading is expected to be within the capacity of the walls and their foundations.

11.3. The highest moisture readings in the Outrigger were taken in locations where there is evidence of leaks in the rainwater goods. Repairs or replacement of the rainwater goods should address these points of water ingress. The plasterboard finish to the walls creates a microclimate between the plasterboard and the external walls. At present, this is sealed. The removal of the existing dry-lining and construction of a timber sub-frame on DPM strips in front of the masonry wall, vented at top and bottom along its length would remove the opportunity for moisture to build up in this area.

11.4. The defects schedule listed in Appendix 4 should be addressed. The gable wall leaning in towards the outrigger building should be partially removed and rebuilt. Areas of masonry with failed pointing should be repointed in lime mortar to match the original.

11.5. Most brickwork up to the 1930s used a lime mortar. A flush joint was cut off as work proceeded, leaving a rough texture which has since weathered back. Modern bricklaying often involves pointing up afterwards and smoothing the mortar with a steel trowel. This produces a markedly different appearance and is generally not acceptable. A soft brushed joint is preferable in new work.

11.6. The top of the garden wall (above #33 ground level) is leaning over towards #33 garden. It should be carefully dismantled down to #33 ground level and rebuilt vertically. Rainwater flow from the north slope of the outrigger roof will need to be managed during any works to this wall.

11.7. The plasterboard finish to the basement walls creates a microclimate between the plasterboard and the external walls. At present, this is sealed. The removal of the existing dry-lining and construction of a timber sub-frame on DPM strips in front of the masonry wall, vented at top and bottom along its length would remove the opportunity for moisture to build up in this area. The basement space should be ventilated in line with recommendations for all habitable spaces.

11.8. The proposed scheme includes the removal and replacement of the existing roof over the outrigger and incorporates the installation of a retractable rooflight (BESPOKE Double glazed Sliding Over Fixed Ridge Rooflight) which extends down both roof slopes with no ridge beam. This rooflight and its opening would be supported on a pair of trusses situated either side of the opening, and the trusses themselves would sit on new supports at eaves level either side (see marked up drawing 3296-PROP SCHEME-STRUCT). The eaves' supports would span between existing masonry piers / wall elements.

11.9. Within the main building, the proposed scheme requires the removal of the existing staircase and installation of new, with existing ground floor structure to be adapted to suit. This would involve the creation of the new staircase void, with appropriate trimming and infilling timberwork to suit.

12. CONCLUSION

12.1. Overall, the standard of original construction was good, the building has not been best maintained so, on the whole, remains in adequate condition.

12.2. Only limited parts of the building's original construction would be removed to facilitate the proposed works, mainly the roof. This element of the proposed works will address a number of the cosmetic actions required to return the building into an acceptable state, including the rainwater system. The outstanding concerns would then be repointing and the rebuilding of the gable wall and the garden retaining wall above ground level.

12.3. Ventilation along the boundary with #33 should be introduced and maintained, along with maintenance of existing basement ventilation.

12.4. Although the foundations have not been investigated, it is quite likely that they are shallow. The lack of vertical movement in the walls indicates that the ground bearing capacity is adequate.

12.5. Any existing, remaining timbers and all new timbers will require the full treatment for insect attack and rot.

Gareth Morse BEng Hons

Structural Engineer

APPENDIX 1 – DRAWINGS

- Formed Architects drawings:
  - 21-009_ST2_BP_03
    - Demolition plans;
    - Proposed plans;
    - Proposed Elevations;
  - Img056 & img057 – marked up plans showing wall to be evaluated;
- Morph Design Creatives drawing:
  - 3296-PROP SCHEME-STRUCT

APPENDIX 2 – PHOTOGRAPHS

- 3296-PHOTO SCHEDULE
- 20230117.Contact Sheet (35)

APPENDIX 3 – LISTED BUILDING ENTRY

- 20230206.Listed Building Entry_Official Print

APPENDIX 4 – DEFECTS SCHEDULE

- 3296-DEFECTS SCHEDULE
- 3296-EXTERNAL DEFECTS (Drawing)