# **No.70 Great Russell Street** Results of Stair Opening Up Works

Date of Si

Arriva

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Purpose

Present

e of Site Visit:	22 January 2025
Arrival Time:	9:30
parture Time:	11:30
Weather:	Dry and cold.
pose of Visit:	To view the results of the structural engineering opening up works to the stair between ground and first floor.
esent at Visit:	Dohne Arnold – Fifield Glyn Robert Walton – Structural Assembly
Issue Date:	P01 – 14 February 2024
Distribution:	Dohne Arnold – Fifield Glyn

Refer to Structural Assembly's, Structural Engineering Report on Stairs for No.67 to 70 Great Russell Street, dated November 2024, for the location of the opening-up works and a summary of the structural form of the stair. The part plan shows the location of details which follow to summarise to summarise the results of the investigations, and location of photos included in the site visit report.

O1 Photo Locations and Orientations Indicated Thus.



Part Plan of No.70 Great Russell St Ground Floor Level

Figure 01 - Summary of Structural Opening Up Results - Plan



General Stair Section

Timber spindles forming balustrade.

The timber boards forming the treads and risers are housed into the wreathing piece as indicated in Detail 02-02.

Timber batten fixed to wreathing portion. The laths forming the ceiling are fixed to the batten.

## Introduction

This report summarises the results of the opening up works to the existing staircase between ground and first floor level within No.70 Great Russell Street.

The report should be read in conjunction with Structural Assembly's earlier report on the existing staircases within No.67 to 70 Great Russell Street, dated November 2024, for a summary of the existing structure and the scope of the investigations undertaken. OU05 and OU06 were not completed. The part plan on the next page summarises the investigation results.

The investigations confirm the assumptions made within our earlier report. Key connections between the primary elements of the stair have opened due to movement of the stair caused by shrinkage of the timber elements forming the stair. The opening of the joints reduces the ability of the stair to work as intended. This has led to overstressing of some elements of the stair, causing secondary damage (e.g. splitting of the wreathing piece). The results of the investigation have confirmed the assumption that targeted strengthening works are required to repair and improve the overall robustness of the existing stair.

In the photo section of the report, we comment on the expected type and form of the structure repairs required. The strengthening works will comprise the installation of proprietary steel angle brackets, well-seasoned hardwood packers and wedges, and reinforcement to the existing outer stringer and wreathing piece with plywood pattresses. The proposed structural repairs will need to be developed further at the next stage. The existing ceiling to the stair will need to be removed to install the proposed repair works.

We know from your conversations with the Camden Council's Conservation Officer that strengthening works will require listed building consent. We suggest that a architect with experience on similar conservation projects is appointed to review the proposed approach to the structural strengthening, specify the works to replace the existing ceiling, and prepare the application for the proposed repair works.

As noted previously, heavy loading of the stairs, e.g. furniture, appliances, etc, should be avoided until the strengthening works are undertaken. If it is not feasible or practical to restrict the access to the stair, localised temporary works should be installed until the strengthening works are complete.

The photos included within this report highlight key observations made during our visit.

Structural Assembly

## **Observations**

Photo 01

Opening Up Location OU02



## Photo 02

Opening Up Location OU02



## Photo 03

Opening Up Location OU02

Summary:	Com

General photo showing the extent of opening up undertaken. N/A

## Summary:

The photo shows the connection of the timber boards forming the treads and risers to the outer stringer. The connection is secured with cut nails. The connection between these elements appears to have opened. This will reduce the load capacity of the connection and the robustness of the stair.

## **Recommendation:**

### nments:

The connection between the riser board and stringer is to be improved by installing a proprietary steel angle bracket over the connection. The connection between the tread board and the stringer is to be improved by installing a new timber blocking piece to the side of the stringer, below the tread. The blocking piece is to be fixed to both the stringer and tread board.

## **Recommendation:**



The photo is taken looking back up the stair and shows that a non-original cut stringer has been installed adjacent to the outer stringer. The detailing of the non-original stringer is poor, with gaps between the nonoriginal stringer and the original stair structure.

#### Photo 04 Opening Up Location OU02



## Summary:

The photo is taken looking up the stair and shows the interface between N/A the stair structure and the load bearing masonry Party Wall. The tread and riser boards are supported on timber packers that bear onto a ledge formed in the masonry wall.

Photo 05

Opening Up Location OU03

Summary:

Hardwood folding wedges are to be installed between non-original stringer and original stair structure and secured in place with screws.

**Recommendation:** 

**Recommendation:** 



Photo 06

Opening Up Location OU04



The photo is taken looking down the stairs towards the wreathing portion of the outer stringer. We observed that the stringer has split in this location. The split is likely to be due to localised overstressing of the stringer caused by the movement of the stair as described in our earlier report. The split will be significantly reducing the robustness of the stair. We did not see any obvious signs of the crack on the external decorated face of the stringer. This indicates that the split is either localised or it has been redecorated in the past.

## Summary:

The photo shows the connection of the stair to the curved timber studwork wall. The connection details are ad-hoc and lack robustness with limited bearing to the tread and riser boards.

--- End of Report ---

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The stringer should be reinforced to add back the lost robustness caused by the split. Strengthening works are likely to comprise carefully installing thin layers of plywood over the crack to help transfer loads past the defect. The plywood would be glued and screwed to the outer stringer. The repair would be hidden by the ceiling once reinstated.

## **Recommendation:**

The connection between stair and the stud wall is to be improved by installing proprietary steel angle brackets and timber packers between the key structural elements.