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Mark Allison,
29 Great James Street,
London,
WC1N 3EY

29 Great James Street, WC1N 3EY – Proposed Extension and Refurbishment Works

Introduction

Structural Design Studio Limited were appointed by the Client and owner of the property, Mark Allison, to advise on the current structural condition of 29 Great James Street, WC1N 3EY and advise on the structural implications of the proposed alterations.

This report has been compiled by Sarah Wadley MEng CEng MIStructE, a member of the Institute of Structural Engineers and Director of Structural Design Studio Limited (SDS Ltd). This report is for the sole use of the client and the Local Authority Planning department and should not be relied upon by any third parties.

The purpose of this report is to comment on the proposed structural strengthening works required and also the structural impact of the new extension to the rear over the existing vaults. This report is required by the local authority for Listed Building Consent.

Sarah Wadley of SDS visited the buildings on Tuesday 2nd February 2021. Access was gained to all parts of the property, except where noted on the drawings. No access was available onto the roof or neighbouring properties or gardens.

No opening up works or intrusive site investigation works were completed during our initial visit.

Sarah Wadley at SDS has previously worked on the renovation works at no. 36 Great James Street and therefore this report is based on the fact that this building is likely to have a similar structure to no. 36. The issues with the floors at no. 29 Great James Street are very similar to that seen at no. 36.

General Description of Existing Building and Site

The existing building is a Grade II* Listed five storey terraced property on the West side of Great James Street, Camden. We understand that the building was constructed between 1720-1724 for J. Metcalfe. The buildings are of brown brick construction with timber floors throughout. The existing roof is a double pitched roof with a central valley gutter down the centre. There is an existing basement under the property with brick vaults to the front and rear at lower ground floor level. Internally, a lot of the original timber panelling is still present and the original internal walls are all of timber stud construction.

The layout of the building is typical of the period with the upper levels having a principal room to the front with smaller rooms to the rear adjacent to the existing staircase. A closet wing extends up to the third floor which is accessed through the rear rooms at each level. Within the rear garden there is a singe storey lightweight timber building and shed which have been built on top of the original courtyard. These are accessed via a link from the rear of the main house at ground floor level.

Based on our knowledge of the existing structure at no. 36 Great James Street, we understand that these buildings have existing timber joists which span from side to side from party wall to a central timber bressummer beam. The timber bressummer spans from the front to the rear of the property and is supported on a secondary timber beam spanning between party walls in the central spine wall location. The joists at no. 36 were typically 200mm deep x 60mm wide at 400mm centres and the existing bressummer beams were found to be 300mm wide x 200mm deep. No opening up works were completed as part of our visit to confirm the size of the joists and beams at no. 29 although we would expect them to be similar. Originally we understand that there was a single timber post in the location between the central spine wall and the stair wall. There appear to have been additional timber posts added at a later date up through the building in the stair wall. Presumably these were installed to strengthen the bressummer beam next to the stair.

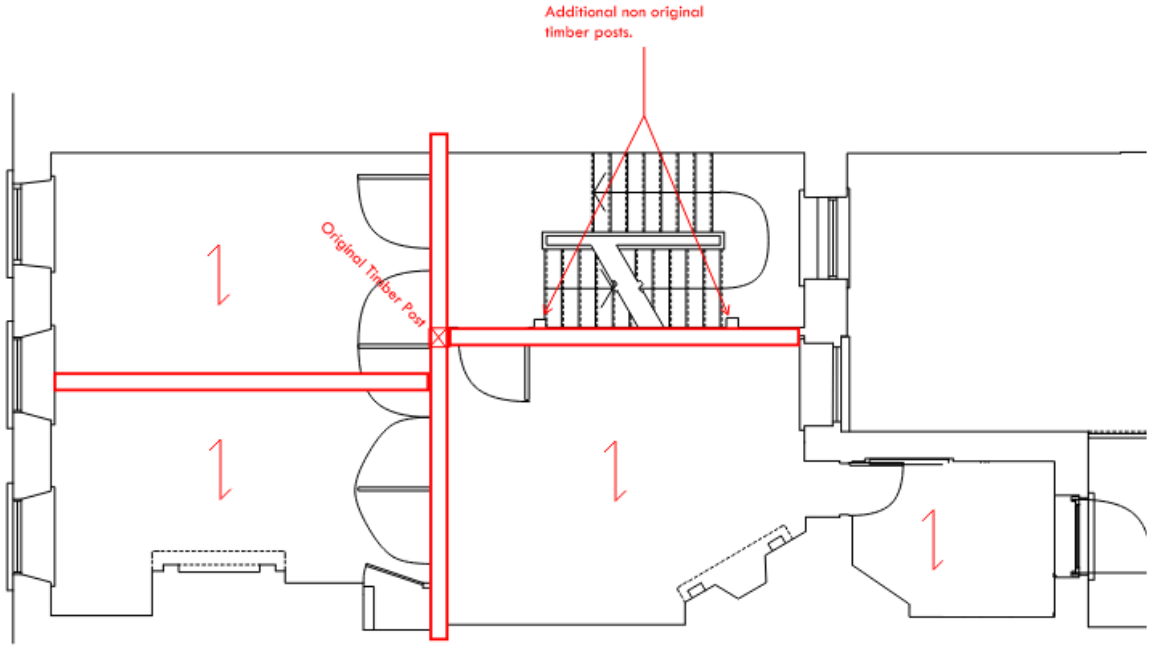

Image 1 – Typical Floor Construction

Observations of Condition and Recommendations of Repair – Upper Levels

In general the building is in a fair condition for it's age and type. Generally the perimeter brick walls seem to be of sound construction and there is very little cracking evident to the external masonry walls. The floors however, have deflected significantly over time. This is likely due to creep of the existing timbers and also the timbers being insufficiently sized originally to support the loads. This is fairly typical of buildings of this era and the movement in the floor is consistent with that seen at other houses on the street. We would therefore propose that strengthening and levelling works are completed to the floors and ceilings at all levels to improve the overall robustness of the building. The main stair will also need to be strengthened and relevelled.

Method Statement for Floor Strengthening Works

1. Existing floorboards should be numbered and then carefully lifted and set aside
2. The existing timber bressumer beams should be strengthened with a new steel plate bolted to the side.
3. The existing joists should be doubled up with new timber joists to match existing bolted to the side with M12s at 400mm centres. Alternatively, install wedges to the top of the joists to level out the floors.
4. Angle brackets should be installed at joist ends to strengthen the mortice and tenon connection between the beam and the joists.
5. The existing floorboards should be re-laid in their original positions and nailed down to the joists under.

Observations of Condition and Recommendations of Repair – Basement Level

The lower ground floor runs under the full extent of the property with two brick arch vaults under the front pavement and two further brick arches to the rear under the courtyard.

The lower ground floor under the main house seemed to be in fair condition and there was no obvious signs of any foundation movements. We wouldn't therefore expect a need for any structural repairs to this area.
The brick arches to the front and rear vaults are also in a fair condition for their age and type. However, the mortar has become loose in some areas and there are signs of some brick erosion in areas with some bricks missing entirely. We would suggest the vaults be repointed with mortar to match existing and any damaged or missing brickwork be replaced.

Images showing brick erosion

Proposed Alterations – Rear Extension

The current proposals involve the internal refurbishment of the entire property. The existing modern single storey timber extensions to the rear garden are to be demolished and replaced with a new single storey extension at ground floor level across the back of the site. The extension will have a new roof terrace at first floor level which will link to the main house and a small first floor study over part of the extension.

The single storey extension is proposed to be of fairly lightweight construction and will infill between the existing party walls and neighbouring extensions. The new roof terrace will be of lightweight construction with steel beams spanning between party walls supporting timber joists. The beams will span across the site and be supported on the perimeter walls of the vaults under to ensure that no additional load is placed on the existing brick arches.

The Architect is proposing a lightweight glazed façade to the house facing elevation of the new extension. Steel beams will be installed at ground floor level on compressible material so that they span over the vault and avoid loading the brick arches. The existing ground floor structure over the arches will be kept similar to the existing arrangement and therefore there will be no increase in loading on the top of the arches from the proposals.

Based on the scheme that we have produced and assuming that the works are completed by a competent contractor then the proposed works should not have a detrimental structural impact on the existing vaults and therefore it is our view that this scheme can be built without damaging this existing structure.

Method Statement for Rear Extension

1. Demolish existing modern timber frame extension
2. Existing brick arch vaults to be made good – missing brickwork to be carefully replaced with new bricks to match existing, loose mortar to be raked out and repointed with new lime mortar to match existing.
3. Temporarily prop and protect the vaults
4. Install new spreader beam at ground floor level under proposed new elevation on top of compressible material to avoid loading the vaults
5. Install the new strip footing where the extension is outside of the footprint of the vaults.
6. Construct a new ground bearing slab where the extension is outside of the footprint of the vaults
7. Construct new extension perimeter walls
8. Install new steelwork for the roof terrace and timber roof joists

9. Construct new second floor study pod
10. Complete internal fit out and installation of finishes.

Conclusion

Based on our visual inspection of the existing building we would suggest that strengthening works are completed to ensure the long term robustness of this Listed Building. The architect's proposals for the new rear extension can be structured so that it does not add any additional load to the brick arches and therefore assuming the works are completed by a competent Contractor then these works should not have a detrimental structural impact on the existing vaults.

Should you have any questions regarding our assessment please don't hesitate to contact us.

Yours faithfully,

Sarah Wadley
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Director I **Structural Design Studio**