AOL CONSULT LTD

PRELIMINARY STRUCTURAL ENGINEER'S REPORT

For

96 LADYBARN LANE - FALLOWFIELD MANCHESTER M14 6YH

On Behalf Of: **Airshack Properties Ltd**

Job No: **25/0481**

Date: **June 2025**

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Table of Contents

1. Introduction 3
2. Limitations..... 3
3. Brief Description 3
4. Visual Inspection 3
5. Conclusions & Recommendations 5

Appendix A - Photographs

1. Introduction

We were instructed to carry out a visual inspection of the above property and to report on any significant structural defects.

We visited the property on Friday 23rd May and Wednesday 4th June 2025. The weather conditions at the time were dry and sunny.

2. Limitations

A visual inspection only of the property was undertaken.

No intrusive investigations (e.g. excavating trial pits to expose the foundations and removing areas of internal wall and ceiling finishes) were undertaken, consequently we were unable to report on the condition of those structural elements, which were hidden, unexposed or inaccessible at the time of our inspection.

Some areas of the existing wall and ceiling finishes had been removed, prior to our visit.

We did not undertake a timber and damp survey of the property.

3. Brief Description

The property consisted of a two-storey, high, semi-detached, dwelling with basement cellars. The original building probably dates from the early part of the nineteenth century but the building had subsequently been altered and extended.

The construction was typical for the age and location of the property, consisting of a timber rafter and purlin, pitched roof and suspended timber upper floors, supported on masonry walls. The internal walls appeared to be in a mixture of solid masonry and timber stud partitions.

There were a number of single-storey extensions at the rear of the property, which had timber pitched roofs, covered in either asbestos cement sheeting or felt.

4. Visual Inspection

See also the photographs in Appendix A at the end of this report.

EXTERNAL

The main pitched roof, on the front elevation, was uneven (see Photo 1), probably due to vertical deflection of the roof purlins. The roof had been overhauled in the past, including the addition of additional roof purlins and the construction of a dormer (see Photo 2), on the rear roof slope and the original roof coverings had been replaced with modern roof tiles.

The external walls had a painted render finish, externally. The external gable wall had suffered very significant lateral movement in the past (see Photos 3 & 4). The wall had bowed outwards, above first-floor level, well beyond acceptable limits. The horizontal deflection of the wall was in both the vertical and horizontal planes.
It was difficult to accurately measure the deflections due to the extent of plaster and internal finishes etc. and lack of access externally. Where it was possible to set up a plumb line in one vertical plane, the following outward deflections were measured, relative to a fixed point approximately 250mm above Ground Floor level:
- 50mm at 200mm below Ground Floor ceiling level
- 90mm at 250mm above First Floor level
- 110mm at 150 below First Floor ceiling level.
Other sections of the gable wall had suffered greater deflections, which could not be measured at the time, due to the reasons highlighted above.

Numerous cracks were visible in the external render finishes.

The main chimney stack, which extended above the party wall with No. 98 Ladybarn Lane, was leaning badly at the top (see Photo 5) and the exposed brickwork had an aged and weathered appearance.

The more recent, pitched roofs, over the single-storey extensions at the rear of the property were in a dilapidated condition (Photo 6).

The rear garden/yard areas were overgrown and drainage gullies were blocked.

INTERNAL

The internal areas of the building were in a dilapidated condition.

Where the plaster finishes had been removed, the exposed brickwork was in a very poor and perished condition. The brickwork had suffered a major loss of strength with age.

Numerous cracks were visible in the brickwork, as follows;
- mainly vertical, separation cracks at the junction of the internal walls and the main gable wall (see Photos 7 & 8) - (the internal walls did not appear to be tied in to the gable wall)
- mainly diagonal cracks over defective timber lintels, above openings in the masonry walls

- localised cracks and displacement of the brickwork at timber, lintel beam, bearings (Photo 9).

The suspended timber floors were all 'springy' (i.e. deflected badly under applied loading) and they were not level. The floors had suffered from rot and beetle infestation in the past (see Photo 10). The first floor in the rear, two-storey, outrigger was unsafe. Elsewhere, the timber floor beams had suffered significant vertical deflection. The timber floor joists and beams generally appeared undersized for the spans. An additional brickwork pier had been constructed and steel props had been installed in the Basement, to provide additional support to the ceiling beams, supporting the Ground Floor (see Photo 11). Although the props were probably originally intended to be a temporary measure, they appeared to have been in place for a considerable number of years.

The timber staircase up to the loft room, in the roof void, was loose and unsafe.

Timber lintel beams over openings in the masonry walls were no longer fit for purpose (see Photo 12). The timber lintel, over the opening in the wall between the front, Ground Floor, Reception Room and the Hallway, was unsupported at one end (see Photo 13).

Numerous internal alterations had been carried out in the past, including;
- the installation of additional timber roof purlins (see Photo 14)
- the removal of the internal between the front and rear Reception rooms at Ground Floor and the installation of a modern, galvanised steel, 'box' lintel, over
- the construction of a new 215mm brick inner skin in the Basement, along the gable wall (see Photo 15)
- the removal of the original, internal, Basement staircase from Ground Floor.

Some structural, remedial works had also been undertaken in the past, including the installation of steel, 'Heli bar', ties between the external gable wall and the internal floors (see Photo 16). The measures were probably intended to arrest the movement in the gable wall but they were not effective, in our opinion.

The roof had been overhauled in the past, including the replacement of some timber roof rafters and the installation of additional timber roof purlins.

5. Conclusions & Recommendations

The building had suffered from significant structural movement in the past and was generally in a dilapidated condition.

The structural elements had suffered from considerable loss of strength with age, exacerbated by a lack of regular repairs and maintenance.

The external gable wall was the area of greatest concern. The lateral movement/deflection was well beyond acceptable limits and previous attempts to arrest the movement were unsuccessful. The existing wall should be;
a) carefully taken down/dismantled to external ground level and rebuilt in 225mm solid brickwork in 'Flemish Bond' and appropriate lime mortar, built off a new reinforced concrete capping beam on top of the new and existing Basement walls, subject to further investigations into the structural adequacy of the Basement walls.

or

b) the existing wall should be provided with a suitable lateral restraint system, e.g. steel tie rods and end plates, fixed to new internal floor beams, at First and Second floor levels (subject to further investigations into the structural integrity of the existing gable wall) or fixed to the party wall with No. 98 Ladybarn Lane.

Bearing in mind the perished condition of the existing gable wall brickwork, we would anticipate that Option b) would still require some areas of the gable wall masonry to be rebuilt and would require the installation of additional steelwork beams and tie-rod arrangements, internally, which are likely to result in more extensive disturbance and intrusions into existing fabric of the building.

In addition, the existing wall should be tied/toothed-in to the existing internal walls and a strapping arrangement installed between the gable wall and the roof structure. Additional buttressing walls/piers should be constructed in the Basement, to provide additional lateral support and in the upper floors, where possible (e.g. be relocating doors from the side of the gable).

The most dilapidated sections of the existing internal masonry should be locally rebuilt, including;
- the internal corridor/landing walls at Ground and First Floor levels
- locally displaced section of masonry at lintel/beam bearings.

The retained sections of the existing brickwork should be repointed, throughout, and the leaning chimney stack should be taken down.

The rot infected/perished timber lintel beams should be replaced with suitable new lintels.

Areas of the existing suspended timber floors were no longer fit for purpose, in our opinion and should be replaced with new suspended timber joists, spanning between new steel beams, which can be used as part of the lateral restraint system for the gable wall. It may possible to retain

The defects noted elsewhere, e.g. defective roof coverings/flashings, blocked drainage etc. can be dealt with under a planned maintenance strategy.

We also recommend that a CCTV survey of the underground drainage pipework is undertaken.

Appendix A

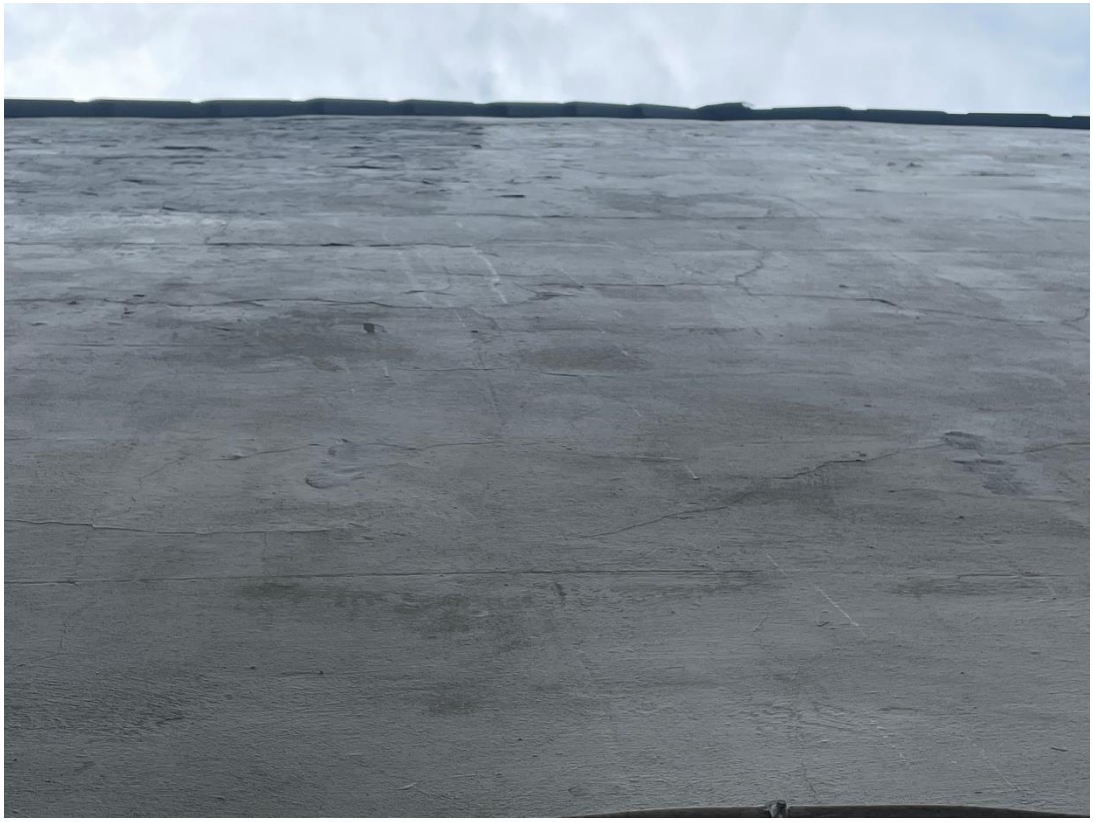
PHOTOS



PHOTO 1 – FRONT ELEVATION – UNEVEN ROOF STRUCTURE



PHOTO 2 – REAR ELEVATION OF MAIN BUILDING WITH MODERN TILED ROOF COVERINGS & DORMER





PHOTOS 3 & 4 – BADLY DEFLECTED GABLE WALL



PHOTO 5 – LEANING CHIMNEY STACK



PHOTO 6 – PERISHED ROOF COVERINGS OVER SINGLE STOREY REAR EXTENSIONS





PHOTOS 7 & 8 – VERTICAL SEPARATION CRACKS IN BRICKWORK



PHOTO 9 – LOCALLY CRACKED AND DISPLACED BRICKWORK AT LINTEL BEAM BEARING



PHOTO 10 – ROT INFECTED TIMBER FLOOR BEAM AND LINTEL



PHOTO 11 – STEEL PROPS AND MASONRY PIER SUPPORTING ORIGINAL TIMBER FLOOR BEAMS



PHOTO 12 – INADEQUATE TIMBER LINTEL BEAM



PHOTO 13 – UNSUPPORTED INTERNAL TIMBER LINTEL BEAM



PHOTO 14 – ADDITIONAL TIMBER ROOF PURLINS INSTALLED IN THE PAST



PHOTO 15 – NEW 215MM BRICKWORK SKIN CONSTRUCTED ADJACENT TO BASEMENT SIDE WALL



PHOTO 16 – STEEL HELI-BAR TIES INSTALLED THROUGH GABLE WALL IN THE PAST