



IKT CONSULTING
STRUCTURAL ENGINEERS LIMITED

Client: Mr A. Client
Site Address: 00 Calverton Road, Nottingham
Report: Structural Inspection
Job No.: IKT0000
Date: 1 April 2024



1 INTRODUCTION

Mr A. Client appointed IKT Consulting, Structural Engineers to carry out the structural inspection of the property and produce a written report. The scope of the inspection is to comment on the structural condition of the property.

Our report has been prepared specifically in connection with structural damage and major building issues present at the property. It does not deal with the general condition of the building, decorations, services, damp, timber, rot or infestation etc, except where these matters are considered to be relevant to any structural damage.

Inspection of the building has been carried out from ground level by visual and optical sighting, and without special access arrangements, it cannot be confirmed that obscured parts are free from damage. The inspection has been made within the limits of ready accessibility, and it does not deal with the general condition of the building. Whilst we have used all reasonable skill and care in preparing this report, it should be appreciated that we cannot offer any guarantee that the condition of the defects will not worsen prior to any remedial works having been carried out.

The property is located at 00 Calverton Road, Nottingham, NG0 0RA. A general structural inspection of the property was carried out on the morning of 14 March 2024 and the weather at the time was dry and sunny.

All directions are given as if facing the building from the front elevation.

1.1 DESCRIPTION OF PROPERTY

The property is a two storey semi-detached house built circa 1930. The house comprises traditional construction with solid brick and hipped roof covered in slates. The property has three bedrooms and a prefabricated garage with flat roof to the front garden.

1.2 SITE TOPOGRAPHY

The site, upon which the property was built, slopes severely to the front of the plot. There are retaining walls within influencing distance of the property. Front retaining wall at 2.4m height and 2m from the front wall.

1.3 SERVICES

The Boiler within the kitchen is dated.

The drainage system is vis the left hand elevation.



FIGURE 1
Photograph of the front elevation



FIGURE 2
Photograph of the rear elevation.

2 OBSERVATIONS/ DESCRIPTION OF THE DAMAGE

The following is an abbreviated description of the condition of the property as we found it at the time of inspection. The photographs included in this section of the report illustrate the extent of the damage.

2.1 EXTERNAL

2.1.1 Front Elevation:

- The roof ridge bedding is poor in places.
- There is a chimney flaunching appeared poor and vegetated with moss in places.
- The left hand corner is fairly vertical.
- The central section is fairly vertical.
- The right hand party wall area is fairly vertical.
- The front windowsill is fairly level.
- There is a diagonal crack approximately 1.2 mm in width located above the lounge window. Repointed and reopened. See Figure 4, together with comments and recommendations.
- There is a diagonal crack approximately 1 mm in width located below the lounge window.
- The concrete patio has settled slightly away from the front wall.
- The garage flat roof is vegetated with moss.
- The garage front right hand panel is distorted.

2.1.2 Left-Hand Elevation:

- The roof hip ridge bedding is poor in places.
- The front corner is fairly vertical.
- The central section is fairly vertical.
- The rear corner is fairly vertical.
- The rear windowsill is fairly level.
- There is no lintel above the toilet and bathroom windows. See Figure 5, together with comments and recommendations.
- There is a short crack 1mm in width below the first floor landing window. See comments and recommendations.

2.1.3 Rear Elevation:

- The roof is vegetated with moss.
- The roof hip ridge bedding is poor and distorted in places.
- There is a rear chimney stack vegetated, and mortar joints are poor in places.
- The rear corner is at a vertical by 1%.
- The central section is fairly vertical.
- The right hand corner is fairly vertical.
- There is a minor crack above the rear door lintel, and perished mortar joints.
- The blockwork wall to the right hand of stairs leading to the upper rear garden is distorted significantly in places. See Figure 6, together with comments and recommendations.
- The rear retaining wall is at a vertical by 4.5 %. See comments and recommendations.
- There is a crack 3mm in width to the left-hand section of the rear retaining wall. See comments and recommendations.

2.2 INTERNAL

Job No. IKT 0000
Structural Report

2.2.1 GROUND FLOOR

2.2.1.1 Hallway:

- The solid floor is fairly level.
- The right-hand wall is at a vertical by 1%.
- The left-hand wall is fairly vertical.

2.2.1.2 Lounge:

- The solid floor is fairly level.
- The front wall is fairly vertical.
- The right-hand wall is at a vertical by 1%.
- The left-hand partition is at a vertical by 2%.
- The rear wall is fairly vertical.
- Left-hand wall in the under-stair cupboard is vertical.

2.2.1.3 Kitchen:

- The solid floor drops towards the rear by some 30mm.
- The right-hand wall is fairly vertical.
- The left-hand partition is fairly vertical.
- Chimney breast appeared to have been removed within the kitchen. See Figure 7, together with comments and recommendations.
- There is no extractor fan within the kitchen.

2.2.1.4 Bathroom:

- The solid floor is fairly level.
- The front wall is fairly vertical.
- The right-hand wall is fairly vertical.
- The left-hand wall is fairly vertical.
- The rear wall is fairly vertical.

2.2.2 FIRST FLOOR

2.2.2.1 Stairs and Landing:

- The suspended floor is drops towards front partition by some 15mm.
- The right-hand wall is fairly vertical.
- The left-hand wall is fairly vertical.
- The rear wall is fairly vertical.

2.2.2.2 Front Bedroom:

- The suspended floor is drops towards rear partition by 50mm.
- The front wall is fairly vertical.
- The right-hand wall is fairly vertical.
- The left-hand wall is fairly vertical.
- The rear stud wall is at a vertical by 1.2%.
- Door frame leading to the landing drops towards right hand wall by 25mm.

2.2.2.3 Rear Left-Hand Bedroom:

- The suspended floor is drops towards rear by some 25mm.
- The right-hand partition is fairly vertical is studded.
- The left-hand wall is fairly vertical.



Job No. IKT 0000
Structural Report

- The rear wall is fairly vertical.

2.2.2.4 Rear Right-Hand Bedroom:

- The suspended floor drops towards rear by some 15mm.
- The right-hand wall is at a vertical by 1%.
- The rear wall is fairly vertical.
- Door frame slopes towards front wall.

2.2.2.5 Loft Space (accessed via landing):

- The purlins are poorly supported within the rear left hand corner. See Figure 8, together with comments and recommendations.
- There are signs of leaks and water stains on purlins. See Figure 8, together with comments and recommendations.
- There are signs of water ingress to front chimney breast.
- There is a crack within the left hand purlin.
- the central section of the loft is boarded.

SAMPLE





FIGURE 3
Dated boiler.



FIGURE 4
Cracking above the lounge window.



FIGURE 5
Lack of lintols above windows.



FIGURE 6
Distorted blockwork wall to the garden stairs.



FIGURE 7
Chimney breast missing within the kitchen.



FIGURE 8
Poorly supported purlins with stains and cracking.

2.3 DRAINS

There are no signs that the drainage system of this property is defective or affecting any of the damage listed within our report.

2.4 CATEGORY

It is common practice to categorise the structural significance of the damage in accordance with the classification given in Table 1 of Digest 251 produced by the Building Research Establishment. In this instance, the damage falls into Category 1 and 2.

Category 0	"aesthetic damage"	< 0.1mm
Category 1	"aesthetic damage"	0.1 - 1mm
Category 2	"aesthetic damage"	>1 but < 5mm
Category 3	"serviceability damage"	>5 but < 15mm
Category 4	"serviceability damage"	>15 but < 25mm
Category 5	"stability damage"	>25 mm

Extract from Table 1, B.R.E. Digest 251
Classification of damage based on crack widths.
Note: Actual categorisation can vary due to 'local' effects

SAMPLE



3 DISCUSSIONS/ CAUSE OF DAMAGE

Our observations and the results of the level survey carried out on the walls and floors of the property confirmed the evidence of a moderate structural movement within the central section of the property. The movement has been reflected internally in particular in the first floor landing area and front bedroom where the floor slopes towards the central partition wall. Also, the suspended floor on the front bedroom slope towards the rear partition. The loft space appeared to be boarded and insulated, which suggested that the loft was used as a storage. The distortions in the central area and partition are indicative of vertical movement, which appeared to be in connection with excessive loading within the loft space. We consider that movement to be longstanding and possibly non-progressive. We recommend strengthening work be carried out to the within the first floor.

It is evident from our aforementioned observations that the solid ground floor construction within the kitchen has settled appreciably. This type of movement often occurs in houses where the floors have been poorly constructed or laid over a poor quality bearing material. Sometimes the naturally occurring ground underneath the floors is of poor loadbearing quality and has been unable to provide adequate support for the floors. In addition to this in many cases a poor quality uncompacted fill material has been placed over the natural ground and the floor has then been constructed on top of this material. When either or both the naturally occurring material and the infill material are incapable of providing adequate support for the floor the material compacts or consolidates over a period of many years, although usually the majority of such movement occurs in the first few years after construction. Also, the floor construction itself is often of poor construction. Consequently as the underlying ground has compacted or consolidated the floor construction has moved downwards and become 'dished'. The 'dished' effect often occurs in cases such as this due to the outer edges of the floors gaining some degree of support from the wall foundations.

The purlins are poorly supported within the loft space. We would recommend that roof strengthening works be carried out within the loft space. Chimney breast appeared to have been removed from the kitchen. The clients' solicitor needs to check that Building Regulation Consent was obtained for the removal.

3.1 INSURANCE

None of the items mentioned within my report will be covered by the Buildings Insurance Policy.

3.2 RECOMMENDATIONS

An Electrical Report is required. A Gas Safe report is needed on the condition of the boiler. We suspect that a new boiler will be needed. Asbestos survey should be carried out within this property. The kitchen and bathroom extractor fan should be installed as necessary. A Roofer needs to be appointed to check the condition of lead flashings to the chimney stack. The possible leaks and discolouration in the loft need to be investigated and reinstated as necessary. The mortar bedding to the front and rear hip tiles needs to be repointed in places. Moss should be cleared from the roof. Within the loft space, two vertical supports should be added to the rear and left-hand roof purlins. The clients' solicitor needs to check that Building Regulation Consent was obtained for the removal of the chimney breast within the kitchen area. A CCTV drainage survey is desirable due to the age of this property.

Cracking within the external wall can allow moisture to penetrate the building. All cracks wider than 1mm should be repaired using Helifix or similar twisted reinforcement bars and installed in accordance with the manufacturer's details and specifications. The crack above the windows is a characteristic of lintel failure. Further investigation should be carried out to establish the lintels above all openings within the elevations. Proprietary lintels should be installed above any wall opening found without an adequate lintel. Any necessary repairs to the masonry should be done so that the re-pointing matches the existing elevations. The rear chimney stack needs to be repointed in places. Although no serious disrepair could be seen from ground level,

Job No. IKT 0000
Structural Report

the mortar base (flaunching) to the chimney pots is very exposed and subject to driving rain and frost and may well be cracked and loose in places. The flaunching should be checked when repair work is undertaken or when annual maintenance is next carried out. It should be kept in good condition at all times. The flashing against the chimney breasts should be inspected.

The suspended timber joists within the front bedroom and landing area need to be reinforced and the beam supporting the partition wall should be strengthened to support additional loads from the loft. It is not possible to accurately predict whether or not the floor slab within the kitchen will continue to settle and if so by how much. In cases where some degree of further movement is likely any future settlement will probably be minor relative to the settlement which has occurred to date and the most economic remedial action would be to re-level the floors and then monitor the situation.

The right hand wall of the staircase leading to the upper garden should be rebuilt as necessary. The crack within the rear retaining wall needs repaired with Helibars or similar. There are no weep holes noted within the rear garden retaining walls. Poor or inadequate or lack of drainage within a garden retaining wall can cause water to accumulate behind the wall and increase the lateral forces acting on the wall. This can also cause the subsoil which provides support to the base of the wall to soften and lose strength. We recommend that weep holes be drilled through the walls to allow water to escape from behind the walls. There was no access to the prefabricated garage during our inspection, however the front panel appeared distorted and should be reinstated. Further inspection is desirable to check the condition of the garage.

This report describes the property as we found it at the time of inspection. Contractor's estimates must be obtained for all above-mentioned work preferably well before and certainly not after any contract has been exchanged with the vendor/s of the property.

3.3 CONCLUSION

In conclusion, moderate distortions have been caused to this property due to a localised deflection of the first floor and within the central section of the property. That damage is deemed to be longstanding. Helibars need to be installed to repair the cracking within the external walls. Any necessary repairs to the masonry are to be undertaken so that the re-pointing is undertaken sympathetically and to match the existing brickwork using a lime-based mortar. A Gas Safe Report is needed to assess the condition of the boiler. An Electrical Report is needed at this property. Within the loft space, additional vertical supports are needed for the roof purlins. You should therefore obtain repair estimates prior to exchanging contracts to ensure your budget meets the cost of the repairs. Within our report, we made a number of recommendations which are of lesser structural significance.

Report prepared by

Mr S. Engineer

Chartered Structural Engineer
BEng (Hons), MSc, CEng, MIStructE

For and on behalf of IKT Consulting Ltd

