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FOR ACTION

Structural Inspection

Condition Survey

Unit 51, Hilton Street, Manchester

Job No. 11163

January 2008



Booth King Partnership

2nd Floor
1 Grange Street
Rawtenstall
BB4 7RT
Tel: 01706 211184
Fax 01706 830849

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Structural Inspection

Unit 51, Hilton Street, Manchester

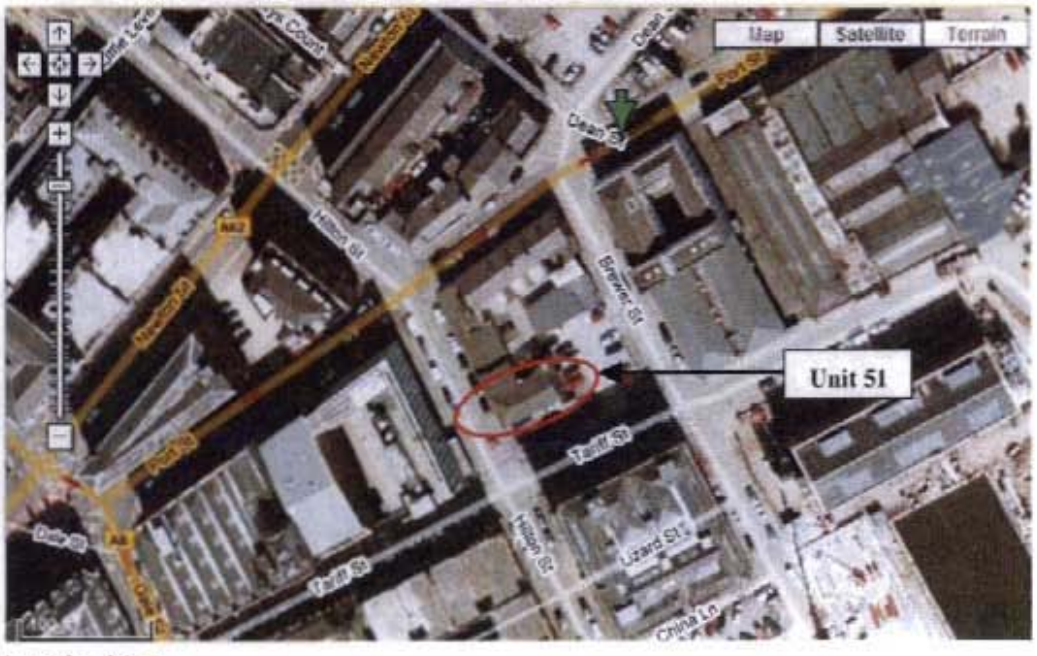
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1. INTRODUCTION

Booth King Partnership have been asked by Mr Iftikhar Gillan to carry out a visual inspection of Unit 51, Hilton Street, Manchester.

This inspection is intended to assist Mr Gillan in determining the costs of developing the site, and reports on the following:

- The current condition of the structure
- The extent of any works necessary to repair damage to the structure



Location Map

2. SCOPE

As agreed with Mr Gillan the inspection was limited specifically to a non-intrusive, visual inspection of relevant exposed and readily accessible, structural, load-bearing elements particularly to the walls surrounding the cellar area directly below the kitchen.

External works, perimeter walls and or fences were not inspected. In addition, the inspection did not cover drainage items, rain water systems, finishes, electrical or plumbing installations

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or any other aspect which is not part of the load-bearing structure. However some obvious, non-structural items are recorded for completeness.

3 INFORMATION AVAILABLE

No previous drawings were available.

A summary report on the historical use of the site has been provided by Q2 Architects.

4. THE INSPECTION

The survey work was carried out during a two hour visit to the property on the afternoon of 17 January 2008. The weather at the time of inspection was heavy rain, following a prolonged period of persistent rainfall.

Opening-up or digging of trial holes was not carried out during the inspection, however a previously excavated trial pit was still accessible inside Unit 51, adjacent to the dividing wall.

The inspection was limited in the following areas:

- There was no electrical lighting in the first floor ceiling void, therefore the inspection of this area was carried out by torchlight.
- There was no access onto the roof and so an external inspection of the roof was not carried out.

A number of photographs, in digital format, were taken. A limited number have been included in the Appendix, however they are all available for inspection at the Rawtenstall office of Booth King Partnership.

5. FINDINGS

5.1 Building form, structure and usage

The site, in general, is located in the Northern Quarter of Manchester and has a mixed history of industrial use including a machine "manufactory", a cap factory and a glass warehouse. The original buildings on the site were the houses (now commercial units) on Port street and Hilton street, built in the late 18th Century. Later followed the industrial units on Tariff Street and Brewer Street.

Unit 51 is a two-storey, load bearing masonry structure used as a commercial unit. The building is an end unit which fronts onto Hilton Street, on the corner with Tariff Street. It was last occupied by INOX, but is currently not in use.

3No timber queen post trusses and timber purlins support rafters and a traditional slate roof. The rafters are under-drawn with timber boards, and the first floor ceiling is supported by a timber framework spanning between the bottom chords of the trusses.

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The timber trusses span north-south onto the side walls of the building. The south wall is an external wall running parallel to Tariff Street. The north wall is a dividing wall with the adjacent Kebbabish restaurant, Unit 49.

The roof is hipped onto the front, Hilton Street, elevation, but has a gable wall to the rear, east elevation.

The first floor is formed from timber floor boards spanning between supporting beams, which in turn span north-south onto the side walls of the building, as the roof trusses above. The supporting beams are a mixture of rolled steel joists with tapered flanges, timber beams, and a universal beam.

All external walls are solid brickwork. There is a brick chimney in the north east corner of the building which has been partly demolished down to roof level at some time.

Stability of the building is provided by diaphragm action of the first floor and roof transferring lateral loads out to the solid brickwork perimeter walls.

5.2 Observations

Roof

The following observations were made from the access hatch into the first floor ceiling void:

- The boards within reach of the access hatch, in the hipped end of the roof, were damp to the touch.
- All the boards visible showed signs of significant water damage. All were stained; most appeared to be sagging away from the rafters; and some had fallen from the rafters completely. (Photo 1)
- In one or two places roof repairs have previously been carried out. New sections of timber have been spliced onto the original rafters, and the original felt has been patch repaired with visqueen.
- The hip beams were damp to touch, and the truss members visible showed signs of water staining.

First Floor

- There are two locations of significant water ingress indicated by extensive water staining and flaking of masonry paint on the dividing wall.
    - The first location is approx. half way along the dividing wall, and coincides with the position of the rear wall of Unit 49. Again, the source of the water ingress is probably a leaking gutter. Water was dripping into the unit at this position throughout the inspection. (Photo 2)
    - The second location is at the junction with the chimney in the north-east corner. The external face of the wall at this position was heavily water stained, probably caused

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by a leaking gutter (Photo 3 & 4)

- The dividing wall bulges into Unit 51 by around 75mm under the central roof truss. Several cracks have appeared in the mortar joints running generally vertically at this position.

- A visual inspection of the wall at this position from within Unit 49 revealed no such bulge on the other side of the wall. In fact the wall in Unit 49 has a painted plaster finish and shows no signs of distress.

- A 215mm thick brick pier extends from the dividing wall under the roof truss closest to Hilton Street. The rough finish to the end of this pier indicates that it has been broken back to its current size at some time previously.

- The dividing wall panel between the brick pier and the Hilton Street elevation is recessed by approx 100mm.

- The walls are dry lined to the Tariff Street and Hilton Street elevations and so the masonry was not visible from inside the building.

Ground Floor

- The bulge in the dividing wall at first floor is repeated in the same position at ground floor level. A brick has been removed at high level, and a gap of approx. 75mm was measured to the face of the second skin of brickwork. (Photo 5)

- The 215m thick brick pier under the roof truss closest to Hilton Street at first floor is also repeated at ground floor level.

- At ground floor however, the pier supports an unpainted universal beam which is propped by a 450mm square blockwork pier a third of the way along its span.

- The dividing wall panel between the brick pier and the Hilton Street elevation is recessed by approx 100mm

- The first floor supporting beams are a mixture of rolled steel joists with tapered flanges, timber beams, and a universal beam at centres varying from 1.8m to 2.7m.

- The walls are dry lined to the Tariff Street and Hilton Street elevations and so the masonry was not visible from inside the building.

- The trial pit against the dividing wall revealed:
    - The ground floor is a 100m thick unreinforced concrete ground bearing slab
    - The foundation for the dividing wall is a two-brick corbel, with formation at approx. 825mm below slab level.

- There was no evidence of access to a basement or part basement

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External Elevations

Hilton Street

- There is a vertical joint between Units 49 & 51, (Photo 8). The brickwork used to construct Unit 51 is clearly different to the brown brick used for the other units on Hilton Street.

Tariff Street

- The window openings in the Tariff Street elevation have all been boarded or bricked up. A number of the original window openings appear to have been extended or modified during the life of the building.

- At the right hand end of the Tariff Street elevation (Brewer Street end), some re-building or repair work appears to have been carried out to the brickwork, full height. This could have been done during one of the historic extension or demolition phases of the building's life.

Brewer Street

- The demolition work carried out to the rear gable end of the unit has left a number of part demolished brick piers and steelwork items built into brickwork, exposed on this elevation. (Photo 7)

- A timber wall plate has also been left exposed at first floor level on the rear elevation. (Photo 7)

- There is some significant vegetation growth at the top of the brick chimney.

Dividing Wall Elevation, Parallel to Port Street

- At the junction of the chimney and north wall of Unit 51, a 1m wide strip of wall appears to be saturated. Water ingress at first floor level in this location has been noted previously. (Photo 4)

- The top 9No courses of brickwork appear to have been re-built or added to the original, since they are of different bricks to the rest of the wall.

- Some horizontal movement has occurred at the top of this wall, pushing out the top 2No courses. At worst this is over 100mm immediately adjacent to the chimney, tapering down to around 15mm approx. 2.5m away from the chimney. The most likely cause of the movement is swelling of the wall plate as a result of water ingress.

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6. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions can be drawn:

- Unit 51 was built at some time after the adjacent Unit 49. The dividing wall is therefore likely to be formed in two leaves with a nominal mortar filled gap between, (no wall ties).

- The buildings were originally structurally independent, except at foundation level where the Unit 51 wall appears to have been built off an extension of the original foundation.

- Much of the roof timber has been affected by water ingress, and this has led to damage of the perimeter brickwork walls at eaves level.

- A specialist timber inspection would be required to determine the extent of rot in the roof timbers, but at this stage it would be reasonable to assume a significant proportion of the battens, rafters and wall plates would need to be replaced, and that localised repairs would be required to the purlins and trusses, particularly at eaves level.

- The Unit 51 wall has failed under the central roof truss, and similarly under the beam at first floor level in the same position. This wall would need to be taken down and re-built in a safe manner. (Note that this is a load bearing wall and therefore temporary props will be needed to support the first floor and roof structures.)

- The 215mm thick brick pier under the first roof truss may previously have been a load bearing internal or external wall. This would explain the introduction of a universal beam to support the first floor.

- The rolled steel joists with tapered flanges supporting the first floor are likely to be original, dating the building back to the early 20th century.

- Some demolition of the various buildings on the site has taken place previously. There is likely to be a number of buried structures underneath the car park to the rear of the building, but there is no evidence of a basement underneath Unit 51.

- The exposed timber and steelwork elements built into the rear elevation should be removed and replaced with infill masonry if this is to remain an external wall.

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8. DISCLAIMER

This report is prepared for the use of Mr Iftikhar Gillan in connection with this appointment. It is not intended for and should not be relied upon by any third party.

The opinions expressed are based purely on the conditions as readily seen and our interpretation of the evidence does not benefit from long-term observation. Our inspection has only covered the major aspects of the structure that it was possible to inspect.

We have not 'broken out' to determine the condition of those parts of the structure which are covered, unexposed or inaccessible and are therefore unable to report that any such part is free from defect.

A detailed inspection of the structure has not been carried out for dampness, rot, asbestos or infestation. This is specialist work and is not within the scope of this investigation and report.

Richard Carroll Meng(Hons) CEng MIStructE

Date 24 January 2008

Booth King Partnership
2nd Floor
1 Grange Street
Rawtenstall
BB4 7RT

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Appendix – Photographs



Photo 1: Timber roof trusses & boarding



Photo 2: Water ingress at first floor and bulging, cracked wall under roof truss



Photo 3: Water ingress at first floor adjacent to chimney

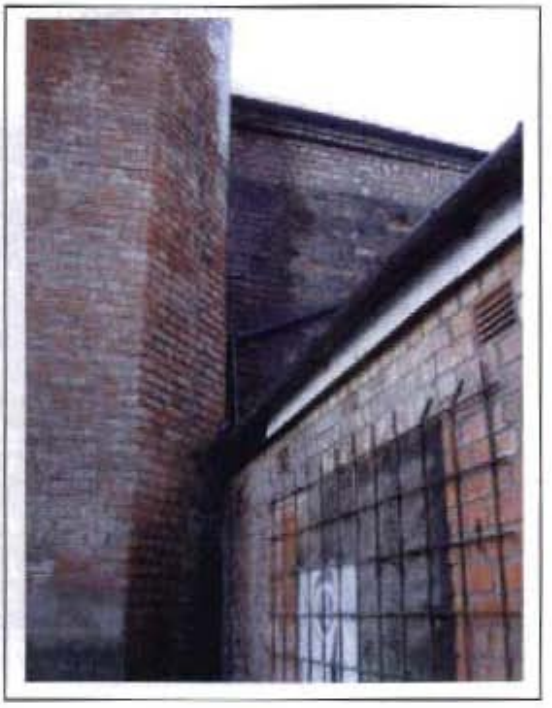


Photo 4: External view of water ingress adjacent to chimney

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Photo 5: Bulging, cracked wall under timber floor beam



Photo 6: Rear elevation of Units 49 & 51, Hilton Street

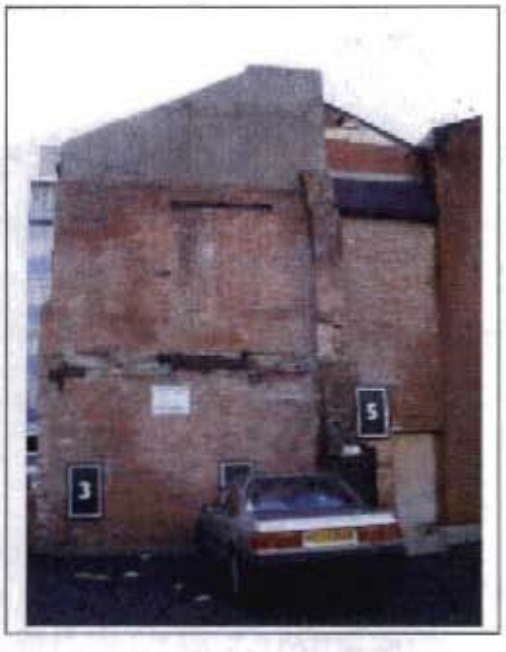


Photo 7: Rear elevation of Unit 51



Photo 8: Front elevation of Units 49 & 51

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