



CONSULTING STRUCTURAL ENGINEERS

31 OVAL ROAD
LONDON
NW1 7AE

020 7267 7540

post@ingealtoir.com

www.ingealtoir.com

TEL

EMAIL

WEB

REPORT CONCERNING STRUCTURAL OF:
NO 2 KILBURN VALE, LONDON NW6

Job No: 11074

<u>Version</u>	<u>Date</u>	<u>Comments</u>	<u>Completed by</u>
1	11-09-15		David Warren

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- 1 INGealtoir, Consulting Structural Engineers, were instructed by Num Stibbe to inspect Ebenezer Chapel, 17 Kilburn Vale, London NW6 4QL and comment on the structural condition of the existing building.
- 1 The purpose of the report is to aid the validation process requested by The London Borough of Camden for rateable valuation purposes.
- 1 The property was visited on the 2nd. September 2010. No opening up works or exposure of existing foundations or subsoil conditions were carried out and no responsibility can be taken for the condition of concealed elements. The property was in the process of refurbishment at the time of inspection and elements of the existing fabric were partially exposed.
- 1 This report is for the benefit of the instructing clients and cannot be used by unauthorised third parties of any purpose other than casual inspection.

TERMS OF APPOINTMENT:

- 1 Kilburn Vale is a small cul-de-sac, which runs in a notionally north direction, and is approximately 100m from Kilburn High Road (A5). The property is a period detached building, built originally for religious worship.
- 1 The building on the plot was most probably built in the latter part of the 19th century in the restrained chapel style, with little in the way of ennobling decoration, typical of the 'high church' style of the time. The overall impression of the building is one of austerity, possibly a reflection of the lack of funds available for building work and the posture of the community involved.
- 1 The building is currently bounded by warehousing type period building to the south, across an alley, and by a post war social housing development to the north. The building has most recently been used for storage purposes
- 1 The level of the footpath access to the housing estate running along the north façade slopes up from the Kilburn Vale Street level by approx. 600-700mm to the rear of no. 17 KV.
- 1 An open space, currently derelict and belonging to the ware house building to the south of no. 17, extends across the western, rear elevation of no. 17.
- 1 The only noticeable vegetation was noted growing on the northern flank of no. 17. This comprises two semi-mature deciduous trees, approx. 6-7.0m high. The trees are growing approximately 1.0m from the north façade.
- 1 The geological surface drift map for the area indicates that the site is underlain by a London Clay deposit, cropping at the surface. This type of deposit is prone to cyclical movement in line with seasonal changes in moisture content. This behaviour can be exacerbated by the presence of nearby trees extracting moisture from the foundation subsoil, causing the body of the soil to shrink. In some cases this can lead to subsidence damage to building founded on the shrinking clay.
- 1 The map of underground rivers for London indicates that there are no significant underground watercourses in the immediate vicinity.
- .1 The existing building is divided into two parts; the front 'chapel' part and the rear clerical/accommodation
- .1 The 'chapel' part is an open vaulted space, enclosed by solid bonded, pilastered, stock brick walls and a pitched roof. The roof is slate covered and has a close boarded sarking internal finished surface.
- .1 The front elevation is formed in 13½" Flemish bonded stock brickwork, originally laid in lime mortar. The window and door openings are recessed by 4½". The façade rises to a pediment shaped verge. The verge eaves are picked out in stone blocks. In general the pointing is currently adequate, although, repointing may be required in the near future.
- .1 The niches and window openings are spanned externally by semi-circular arches. The arches are in structurally sound condition without sign of horizontal movement at the skewbacks or over the span of the arches.
- .1 No signs of significant differential vertical movement were noted along the run of the elevation.

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- 1 The most significant area of distress in the 'chapel' section is the cracking noted at the junction of the front wall and the north and south flank walls. The cracking appears to from a yield arch pattern around the corner of the junction with notionally diagonal cracking converging on the top corners. Additional cracking was noted on the apron panel below the window opening adjoining the front wall, on the south elevation. This cracking has been repaired in the past and has reopened. It is currently approximately 5-6mm in width. The weathered condition of the arising of the cracking suggests that the re-opened cracking is not recent. This cracking should be sealed in order to prevent progressive dilapidation resulting from the ingress of the elements.
- 1 The crack pattern is consistent with settlement of the front corners of the flank walls. It is somewhat unusual that there does not appear, on superficial inspection of the external condition of the front wall that there is no significant evidence of differential settlement of the front wall. A possible explanation for this condition is that the front and flank walls were constructed on differing foundations possibly at different times.
- 1 A possible contributory factor to instability in the south flank wall is the possibility of a leaking drain; there is a drain run parallel to the flank wall in the side alley. Leaking from the drain could possibly lead to softening the clay beneath shallowly founded period, rudimentary footings. The drain should be checked for leaking/perished joints and replaced if necessary.
- 1 On the north flank, the presence of the trees growing close to the wall may have resulted in desiccation of the shallowly founded footings and characteristic differential settlement due to tree root activity may have ensued. It is recommended that the trees are removed.
- 1 Clearly the cause of the cracking has been on-going for some time and has resulted in a significant crack width at the current time. It would be prudent to carry out repairs when the building is in the process of repair/upgrade refurbishment which would arrest the movement causing the cracking and ensure the structural integrity of the building over its future life. Given the degree and on-going nature of the movement, the only way of minimising the risk of future damage is to carry out foundation upgrading. The most probably take the form of underpinning.
- 1 In order to ensure an appropriate regime of remedial foundation works, some further sub-soil investigations will be required. This would involve some trial pits and laboratory testing of retrieved samples of the clay subsoil.
- 1 Cracking and moisture ingress were noted on the main rear wall of the 'chapel', at the junction of the rear, three storey, section. The cracking is substantially vertical. It would appear that the flashing above a single storey flat roof had been leaking over a prolonged period and saturated the rear wall brickwork. The cracking should be stitched and 'Helibar' bed joint reinforcing installed in alternate courses.
- 1 The rear wall of the accommodation, rear section of the building is currently exhibiting considerable out of plane distorted into the building. A rudimentary plumb survey indicated that at worst in the

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- 1 In general the building appears to be currently stable and no areas of immediate structural perilousness were noted. However, the rear wall of the rear accommodation section and the junction of both the flank walls and the front wall should be the subject of structural repairs/rebuilding in the near future.
- 1 It is difficult to put a precise time on the implementation of repairs. Given the fact that the building is currently undergoing refurbishment which will affect a change of use from general storage to habitable and live/work levels of internal decoration, small movement would possibly be reflected in damaged finishes within a year or two.
- 1 It is recommended that further investigation be carried into the sub-soil conditions at the junction off the front and flank walls. This would provide appropriate information which would allow an appropriate regime of underpinning remedial works to front wall. It is anticipated at this stage that the extent of the underpinning would be over the width of the front elevation, returning approximately 2-3m along the flank walls. The depth of the underpinning, pending testing of retrieved samples, would be of the order of 1.00m – 1.50m below ground level.
- 1 The superstructure brickwork should be stitch repaired and made good internally and externally.
- 1 The rear wall of the rear addition should be re-built from first floor level and tied into the floor and roof structure.
- 1 The cracking in the main rear wall of the 'chapel' section of the building should be brick stitched and made good. The wall should be allowed to dry out sufficiently to accept internal decorative surface finishes.
- 1 The front elevation and the roof structure should be tied together using remedial proprietary steel straps.
- 1 The brickwork pointing is generally adequate, however extensive remedial pointing will be required in the 4-5 year period.
- 1 The guttering and down pipes on both flanks of the building should be replaced.
- 1 A cctv survey of the drain run in the alley to the south of the building should be carried out and remedial works put in place as necessary.
- 1 Drawn specifications are outside the scope of this report.

GENERAL DESCRIPTION OF SITE:SUBSOIL CONDITIONS:SUMMARY OF BUILDING FORM:DESCRIPTION OF DEFECTS:CONCLUSIONS:RECOMMENDATIONS:

1.0 APPENDIX 1: PHOTOGRAPHIC RECORD OF INSPECTION:



Photo No. 1 Front Elevation.



Photo No. 2



Photo No. 3



Photo No. 4



Photo No. 5 Front Elevation Detail.



Photo No. 6 Internal detail of South facing flank wall, at junction with front wall. Note crack in flank.



Photo No. 7 View of existing entrance to cellar.



Photo No. 8 View of rear elevation showing distortion inwards above first floor level.



Photo No. 9 View of mono-pitch roof facing the 'chapel' section.



Photo No. 10 Cracking at front south wall junction.



Photo No. 11 Repaired crack in flank wall apron adjacent to front wall.



Photo No. 12 Movement of the internal face of the end gable wall and the final timber stun in the spine wall.