

STRUCTURAL ENGINEERS REPORT

EASTFIELDS ESTATE

MERTON

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1.0 BRIEF

Ellis and Moore Consulting Engineers Ltd. were instructed by Levitt Bernstein Associates to undertake a visual inspection of the external elevations of the buildings on the Estate by means of walk round survey. In addition access was made available to inspect a selective number of properties internally. The purpose of the report is to provide information on the current condition of the structure and its projected life in future. Comments have not been included on the roads or underground drainage.

The brief at this time did not include any intrusive investigative works, but merely a desk study covering the history of these properties.

All directions are given assuming an observer is standing in the street facing the buildings.

2.0 VISUAL INSPECTION

2.1 General Description.

The buildings consist of two types, three storey townhouses and three storey blocks of flats. They were constructed using the Wimpey No Fines method in the late 1960's.

No Fines concrete is a non-proprietary material used extensively in England and Scotland for the construction of walls to dwellings. It was developed by George Wimpey and Co. Ltd. as a system of building houses. The No Fines concrete replaced traditional brick or block walls. The concrete consists of cement mixed with coarse aggregate. The No Fines description is used because the concrete does not contain sand.

As a result the flats and houses consist of load bearing walls constructed in No Fines concrete with a mixture of concrete floors and timber floors depending on the specific location in the buildings.

In all cases the No Fines concrete was covered by some form of cladding as on this Estate by pebble dash render.

The purpose of the No Fines concrete was to produce a honeycomb structure which gave a higher thermal insulation value than dense concrete. From test information it appears that 20mm aggregate was commonly used as the sole aggregate constituent.

A detailed report was prepared in 1989 by the BRE where they inspected concrete on a number of estates. They found that the properties were generally in good structural condition.

2.2 Walkround Survey - Houses

A walkround survey was undertaken on 8th September 2014 to investigate the condition of the external walls of the property to look for possible defects as a result of structural movement or possibly a foundation defect.

On the Estate the properties fall into two categories, namely three storey townhouses and three storey blocks of flats.

The townhouses are all similar and are of cross wall construction with the structure spanning between the party walls. They all have garages at the front which take up some space in the ground floor. Refer to the typical layouts in Appendix 2 and the photographs in Appendix 1.

On the front and rear elevations below the window cills there are enamelled steel panels which are not original. The windows have been replaced in recent years with new upvc.

The flanks walls consist of the No Fines concrete. The concrete was only exposed in one or two locations on the estate. It has generally been rendered to give a pebble dash finish. Generally the pebble dash has been painted. There is some wear and tear and some fine cracks throughout the Estate but nothing of structural significance.

On the front and rear elevations there were signs of corrosion on the steel panels, particularly at the corners and also signs of failure of the mastic joints between the panels and the existing concrete. At this stage the jointing is satisfactory, but it is likely to have limited life.

It was noted that there were no clearly denoted expansion joints on the front elevation apart from the junction between the steel panels and the concrete.

The roof coverings were not inspected as there was no access to the roof.

None of the properties inspected appears to be suffering from foundation defects.

2.3 Walkround survey – Flats

Similar comments apply to the flats as to the houses. There are more steel panels on these buildings than on the houses as they have been used at ground floor level below all the window cills.

The same comment applies on the mastic jointing which has limited life, as have the windows.

The roof coverings were not inspected because access was not available to the roof without a ladder.

Generally as viewed from the ground the properties are in good structural condition externally, apart from the points which have been noted above.

2.4 Internal surveys

33 Clay Avenue

This is a first floor flat in one of the corner blocks.

As noted in the walkround survey the windows have been replaced, with upvc and steel panels below the windows.

Internally the walls are a mixture of concrete, blockwork and some timber forming cupboards.

Generally the structure is in good condition with no new structural defects.

There are signs of mould in the bathroom ceiling and in the bedroom at skirting level.

Both the floor and the ceiling are reinforced concrete which is to be expected in this type of construction.

The flat is in good decorative condition having been well maintained over the years.

30 Moore Close

This is a two bedroom flat on the first floor of one of the corner blocks.

In this property the floor and the ceiling are both concrete as expected.

There are signs of condensation in the bathroom nearest to the front door to the flat.

The internal walls are either block or concrete depending on whether they are structural or not.

As with the other flats there are steel panels below the windows and the windows have been replaced with upvc.

Generally this property is in good decorative condition having been well maintained over the years.

Flat 105 Clay Avenue

This is a ground floor one bedroom flat in one of the corner blocks.

Again the floor and ceiling is concrete.

The flank wall has been drylined at some time in the past to improve the insulation. The windows and external doors have been replaced with new upvc. There are no structural defects evident in this flat.

The flat is generally in good decorative condition having been well maintained over the years.

18 Paines Close

This property consists of an end of terrace house of three storeys. There is a garage at the ground floor and the entrance to the property is at the right hand side.

Generally the pebble dash finish on the external walls is in good condition and there are no signs of any movement or cracking. The No Fines flank wall is supported on a brick plinth at ground level.

Internally the walls are a mixture of concrete, timber and blockwork. They are all in good condition as the property has been newly decorated.

On the front and rear elevation the windows have been replaced plus there are enamelled steel panels below the window.. There is some rust staining on the tops of the panels at first floor level and some deterioration of the mastic between the panels. – Refer to the photographs.

The ground floor and first floor are concrete and the staircase is timber as is the second floor and the roof.

There are no signs of any defects in this property as a result of structural movement.

The roof covering was not inspected as no access was available.

3.0 Discussions and Conclusions

From the walkround survey and the survey of individual properties it is confirmed that these buildings are in good structural condition for their age. This was as anticipated from the findings in the BRE report on these properties.

It is likely that the structure of the buildings will remain in satisfactory condition for at least another 30 years. This would be subject to final confirmation following the testing outlined below.

The areas of concern in that time would be the longevity of the windows and the cladding. The steel cladding is already corroding and the mastic joints between the cladding units are showing signs of deterioration.

It is recommended that the roof coverings, windows and the cladding are investigated further and a report prepared by a building surveyor to estimate how long these elements will last in serviceable condition. The report should be read in conjunction with structural report.

It is considered essential for the protection of the concrete structure that these items are a maintained in good condition.

It was also noted that the level of insulation is unlikely to be in accordance with current standards and would need upgrading.

In order to check the existing structure and using advice prepared by the BRE we recommend that the following testing is carried out for both the flats and houses.

The list of tests is summarised as follows.

1. Carbonation testing should be undertaken at ground floor on selected number of the external walls to both the flats and houses.
2. Samples should be taken and tested for chloride content to see if they are above the acceptable levels. Testing in the past has indicated that this can vary considerably.
3. Undertake a limited cover meter survey of the external walls to check that the cover of the reinforcement is satisfactory.
4. Samples of the render need to be checked for chemical composition and its bond with the No Fines walls.
5. Hammer test selected areas to check the bond of the external pebble dash render.

It would be necessary to undertake the above testing externally without undertaking any intrusive investigations in the properties.

The above work should confirm the conclusion that the buildings are in good structural condition in terms of the concrete walls and floors.

4.0 Summary

It is concluded that the existing flats and houses are in good structural condition.

Investigations need to be undertaken on the roof coverings, windows and cladding to estimate their likely remaining life in service.

Investigative work on the concrete is required which will back up the visual inspection.

The existing structures are likely to remain in serviceable condition for the next 30 years at least.

L.A. McDonald
For Ellis and Moore Consulting Engineers.

DISCLAIMERS

1. This report does not constitute a full survey of the premises.
2. Except where specifically indicated in the report, woodwork, brickwork or other parts of the property or its services, which are covered, unexposed, or inaccessible, have not been inspected and this report does not constitute any warranty that any such parts of the property are free from defects.
3. This report is prepared for the use of the person, firm or company to whom it is addressed (and that of any other person, firm or company whose interest was disclosed to us prior to its preparation) and no responsibility is accepted by us to any other party whatsoever for the whole or any part of its contents.
4. We cannot report definitively that subsidence has occurred from a visual inspection alone. Investigations are required to establish the cause of the movement.
5. It is necessary as a result of specific changes in professional indemnity insurance to clarify the scope of our services in respect of asbestos, fungus and mould. For the avoidance of doubt this practice does not accept any liability or responsibility for or in connection with the detection, monitoring, treatment, eradication or removal of these substances either implied or otherwise within the scope of our services. Notwithstanding your legal obligations it is strongly recommended independent professional surveys be carried out on any existing building that is to be the subject of development, refurbishment or alteration works to identify the presence of such substances and give recommendations for treatment and or removal.

APPENDIX 1
PHOTOGRAPHS



Photograph 1 – Town houses – front elevation



Photograph 2 – Town houses – front elevation



Photograph 3 –Typical cladding to flats



Photograph 4- Base of flank wall



Photograph 5 – Typical block of flats



Photograph 6 – Town Houses



Photograph 7 – Flank wall render removed



Photograph 8 – Flank wall render removed



Photograph 9 – Flank wall rendered



Photograph 10 – Typical internal view in flats



Photograph 11 – Typical panel below windows in flats



Photograph 12 – Front elevation 18 Paines Close



Photograph 13 – Paines Close – Rear elevation



Photograph 14 – 18 Paines Close – Cladding and windows at rear

APPENDIX 2
KEY PLANS