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Gascoyne Estate Hackney

Structural Report

Baily Garner

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Issue Status

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INTRODUCTION

We confirm our brief, given in correspondence with Baily Garner to visually inspect a sample of flats internally and carry out external survey of the 4 tower blocks part of Gascoyne Estate in Hackney E9.

A visual inspection of a selection of flats was carried out on 8th and 9th January 2018 with James Suleman of Baily Garner.

1.0 General Observations

The four tower blocks are part of the Gascoyne Estate I Hackney and are located between Wick Road and Bentham Road.

The blocks are all 11 storeys in height and are all the same size and footprint and same architecture.

The blocks were constructed from concrete precast panels in the 1960's. They are typical Bison blocks constructed using the system of precast walls and slabs. The original concrete cladding has been over clad with rendered insulation with brick slips at ground floor level.

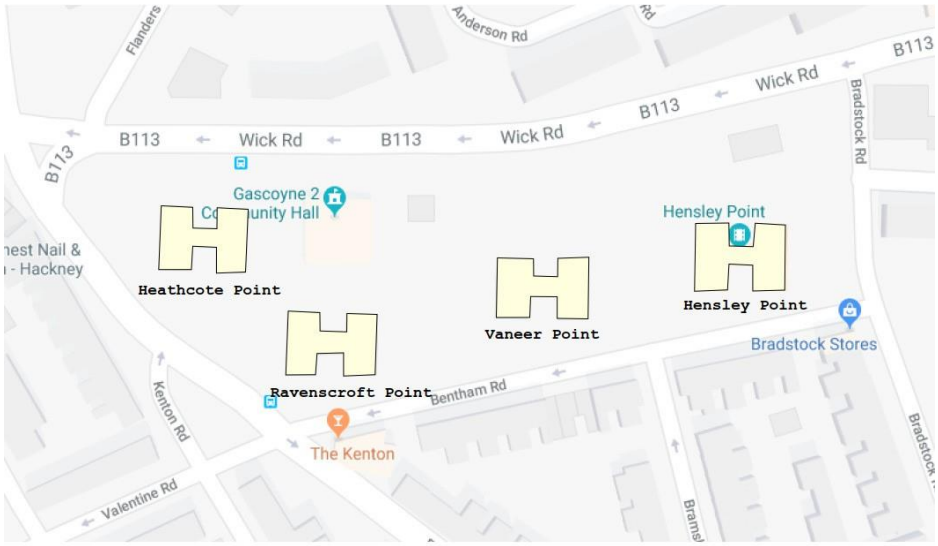
The buildings are constructed on a sloping site (south to north) and the have an entrance facing Bentham Road which is step free access and on the Wick Road site the entrance is via concrete steps. There are also garages on the lowest level facing Wick Road with external car parking for residents.

The blocks had major refurbishment in 2012 where the bathrooms and kitchens were replaced to all flats and externally the building was over clad with insulation and render with new uPVC windows.

2.0 Local Ground Conditions

The local geology map indicates the soil strata in the area is fill material over gravel and sand above London Clay. Below the London Clay it is Woolwich and Reading Beds.

Given the height of the buildings they are likely to be on piled foundations or possibly a deep concrete raft foundation.



Location and block name

3.0 Flats Internal Inspection

The table below shows all the blocks and flats we inspected

Block Name	Flat Number	Level	No. of rooms	Comments
Hensley	17	4	3	[redacted]
Hensley	18	4	1	
Hensley	16	3	2	
Hensley	28	6	2	
Vaneer	40	9	2	
Vaneer	21	5	3	
Vaneer	18	4	1	
Vaneer	27	6	2	
Heathcote	16	3	2	
Heathcote	23	5	2	
Heathcote	19	4	2	[redacted]
Heathcote	7	1	2	
Heathcote	24	5	2	
Heathcote	39			[redacted]
Heathcote	35	8	2	
Heathcote	29	7	?	
Heathcote	31	7	2	[redacted]
Heathcote	27	6	2	
Heathcote	13	3	3	

Heathcote	12	2	2	
Heathcote	29	7	3	
Ravenscroft	21	5	3	
Ravenscroft	31	7	2	

3.1 Comments

Please note that the most common defect was water leaks in the above table. These are usually from either leak in kitchen or bathroom. This is non-structural issue.

Only in one flat was there damp issues and this is likely to be due to build up of condensation. Again, this is not a structural issue.

None of the flats inspected had any signs of structural issues. The walls were generally plumb with no cracks visible.

We also inspected the communal staircase in all blocks and no structural issues were observed.

4.0 External Elevation

On the walk round the blocks in all accessible elevations the state of the blocks were good. There were no visible defects to the concrete retaining wall at the lowest level and the brickwork on the ground floor level was good with no visible signs of cracks. The render above first floor levels showed no sign of structural movement or damage and appears to be in good condition.

There were a few localised areas of algae growth at the junction of the render and brickwork, and pigeon droppings.

4.1 Comments

Clearly the main structure is hidden from view by the relatively recent over cladding system used. This appears to be rendered insulation. We therefore cannot comment on the condition of the original fabric of the building.

Looking at historic photographs we note that the originally the building was clad in reinforced concrete panels. These panels are likely to have been fabricated off site and delivered and fixed using the standard Bison details notably casting pockets with reinforcement. The panels would likely have suffered minor corrosion issues and we assume these panels would have been checked for durability and still remain behind the over cladding when the works were undertaken in 2012.

Currently the buildings do not appear to be suffering from any foundation defect.

4.1.1 Carbonation

Concrete buildings (especially exposed concrete) do commonly suffer from spalling concrete due to moisture ingress causing corrosion of the reinforcement leading to expansion and causing spalling concrete. During the over cladding in 2012 we assume this would have been checked as part of the design process.

Google map view 2008

Reinforcement can also corrode due to carbonation. This is a process where carbon dioxide in the environment reacts with the calcium hydroxide in the cement paste. This reaction produces calcium carbonate and lowers the pH. The protective oxide layer surrounding the reinforcement breaks down and corrosion becomes possible. The reaction of carbon dioxide and calcium hydroxide only occurs in solution and so in very dry concrete carbonation will be slow. In saturated concrete, the moisture presents a barrier to the penetration of carbon dioxide and again carbonation will be slow. The most favourable condition for the carbonation reaction is when there is sufficient moisture for the reaction but not enough to act as a barrier. In most structures made with good quality concrete, carbonation will take several (or many) years to reach the level of the reinforcement.

A simple test can be used to determine the depth of carbonation penetration. Carbonation depth is assessed using a solution of phenolphthalein indicator that appears pink in contact with alkaline concrete with pH values in excess of 9 and colourless at lower levels of pH. The test is most commonly carried out by spraying the indicator on freshly

exposed surfaces of concrete broken from the structure. Alternatively, the powder from drill holes can be sprayed or allowed to fall on indicator-impregnated paper. Once the depth of carbonation is known a decision can be made if any carbonation paint is required on the soffit to slow the process down.

If we are to comment on the concrete frame then the chemical consistency of the concrete will need to be tested to ensure there are no inherent issues that might result in damage at a later date. Again we would have assumed that these tests would have been carried out prior to the refurbishment works in 2012.

Given that there are no obvious signs of delamination of the render we assume that the original concrete cladding units were in good condition and structure was checked prior to the installation of the over cladding.

4.1.2 Cladding

We have not been given any information on the cladding used. We assume after the Grenfell incident that the cladding system would have been tested to check if the material used is non combustible.

From online research we understand that Wetherby Building Systems Ltd, manufactured and distribution the insulated render system used on these blocks. Renocon Ltd installed the product. We understand the system build-up chosen for the project, comprised of 100mm mineral wool insulation with a WBS Silicone 'K' finish, while brick slips were applied to the ground floor generating a design feature.

4.1.3 Disproportionate collapse

This building was constructed in the 1960's and appears to have been constructed using Bison precast unit system. This is similar construction method to Ronan Point which was a 22 storey precast panel building in Newham which collapsed in 1968 due to a gas explosion on the 18th floor causing disproportionate collapse to one corner of the building. As a result of this disaster a large number of similar tower blocks were demolished in the 70's and 80's and major changes were made to the building regulations.

Modern buildings over 5 storeys are now all designed for disproportionate collapse to meet regulation A3 of Buildings Regulations "the building shall be constructed so that in the event of an accident the building will not suffer collapse to an extent disproportionate to the cause".

The above issue is relevant if the buildings were constructed from precast units. The client may have reviewed this scenario in the past and in particular during the design of the 2012 refurbishment. We are only highlighting this issue for completeness.

4.1.4 Cladding fixings

The original cladding fixings would have limited life span for the product. As part of the over cladding in 2012 we assume that these fixings would have been checked for any

sign of structural damage. If the client required re-assurance then limited opening up works will be required to carry out any checks, although there is no structural issue at present that would warrant such investigation.

5.0 Summary

In summary no external or internal structural damage was apparent from a visual inspection.

The most common complaint reported was from water leaks. Water leaks obviously will cause some distress to the residents affected. It could also lead to more sever structural damage in the long term if left unchecked. As explained previously water is one of the main components to cause corrosion of the reinforcement and therefore any water leaks on concrete would need to be investigated and remedied as soon as possible to avoid long term structural issues.

We are not damp specialist but the damp observed with in flat 31 Heathcote Point is probably due to condensation but should be further investigated by a damp specialist.

With regards to issues related to fire i.e insulation, fire stops, fire doors etc this is a specialist item and you would need to seek advice from a fire engineer. The client should also check what guarantee was provided for the cladding system.

6.0 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. Not withstanding 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 A - Photographs

Plate 1: Google maps 3D view of blocks

Plate 2: Google maps 3D view of blocks

Plate 3: Estate Location Plan

[redacted]

[redacted]

Plate 9: Heathcote point

Plate 10: Hensley point

Plate 11: Hensley point

Plate 12: Hensley Point

Plate 13: Hensley Point

Plate 14: Vaneer Point

Plate 15: Vaneer Point

Plate 16: Vaneer Point

Plate 17: Vaneer Point

Plate 18: Heathcote Point

Plate 19: Heathcote Point

Plate 20: Heathcote Point

Plate 21: Ravenscroft Point

Plate 22: Ravenscroft Point