

# **Fitzgerald House**

# Chrisp Street Market, London

# **Initial Structural Inspection Report**

# For United House

October 2012 (02)





## FITZGERALD HOUSE CHRISP STREET MARKET, LONDON INITIAL STRUCTURAL INSPECTION REPORT FOR UNITED HOUSE

#### **RPS PROJECT No: JKK7415**

ISSUE	DATE	REMARKS
01	3rd October 2012	Preliminary issue
02	19th October 2012	Final issue

Our Ref: JKK7415

RPS Planning & Development Noble House, Capital Drive, Linford Wood, Milton Keynes, MK14 6QP

 Tel:
 01908 669898

 Fax:
 01908 669899

 Email:
 rpsmks@rpsgroup.com



## QUALITY MANAGEMENT

Author

Qualifications

Nicholas Ball

Anthony Hayle

<u>Signature</u>

Klicholes Ball

**Checked/Authorised** Qualifications

B Eng C Eng MIStructE

BSc (Hons) CEng MICE MIStructE

<u>Signature</u> Authony Hayle

#### DISCLAIMER

The opinions and interpretations presented in this report represent our best technical interpretation of the data made available to us. However, due to the uncertainty inherent in the estimation of all parameters, we cannot, and do not guarantee the accuracy or correctness of any interpretation and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees.

Except for the provision of professional services on a fee basis, RPS does not have a commercial arrangement with any other person or company involved in the interests that are the subject of this report.

RPS cannot accept any liability for the correctness, applicability or validity for the information they have provided, or indeed for any consequential costs or losses in this regard. Our efforts have been made on a "best endeavours" basis and no responsibility or liability is warranted or accepted by RPS.

Services timber decay, damp penetration and contamination are specialist items and are not covered by this report. Should any of these items be mentioned in this report specialist advice should be sought.

We also confirm that any parts of the structure that were hidden or otherwise inaccessible have not been inspected and therefore cannot be guaranteed to be free from defect

#### **COPYRIGHT © RPS**

The material presented in this report is confidential. This report has been prepared for the exclusive use of the Client and shall not be distributed or made available to any other company or person without the knowledge and written consent of the Client or RPS.



# CONTENTS

PREF	ACE	1
EXEC	UTIVE SUMMARY	2
1	INTRODUCTION	3
2	FORM OF STRUCTURE	4
3	INSPECTION	5
4	DISCUSSION	7
5	RECOMMENDATIONS	8
6	PHOTOGRAPHS	9



# PREFACE

#### NON-DISCLOSURE

This document contains confidential information. In consideration of RPS disclosing such confidential information this document should be held and maintained in confidence and should only be disclosed to:

#### 1. United House

This document is issued only to the organisations stated above and on the understanding that this practice is not held responsible for the action of others who obtain any unauthorised disclosures of its contents or place any reliance on any part of its findings, fact or opinions, be they specifically stated or implied.

The confidential information in this document shall only be used for the intended purpose.

#### FREEDOM OF INFORMATION

Copies of this document may come into the possession of organisations designated under the Freedom of Information Act 2000. Organisations designated in the 'Act' are requested to respect the above statements relating to confidentiality and copyright.

#### LIMITATIONS

This report is limited to elements of structure only. Services timber decay, damp penetration and contamination are specialist items and are not covered by this report. Should any of these items be mentioned in this report specialist advice should be sought.

We also confirm that any parts of the structure that were hidden or otherwise inaccessible have not been inspected and therefore cannot be guaranteed to be free from defect

#### **ENQUIRIES**

Any enquiries regarding this document shall be directed to RPS, telephone 01908 669898, email <a href="mailto:rpsmks@rpsgroup.com">rpsmks@rpsgroup.com</a>



#### **EXECUTIVE SUMMARY**

This report outlines the findings of the initial inspection of the building carried out on the  $2^{nd}$  October and  $8^{th}$  October 2012.

The form of the structure is a combination of reinforced concrete frame clad with pre cast concrete wall panels. Construction was completed around 1971.

Key areas of the structural defects noted were....

Vertical cracking and rotation of reinforced concrete cantilever beams supporting external wall panels at second floor level.

Water penetration in end wall panels

Vertical cracking to pre cast concrete wall panels.

Spalled concrete previously repaired to wall panels to the plant room at roof level

Water staining of the external facades from overflow pipes

Further desk study and intrusive investigation works are identified to fully identify and define the structural form and defects in the structure and cladding.

2



## **1** INTRODUCTION

- **1.1** RPS has been commissioned by United House to carry out an inspection of Fitzgerald House, Chrisp Street Market, London and to visually inspect the general construction of the structure.
- **1.2** The purpose of the Survey will be to give a detailed understanding of the structure of the building to be retained and any associated maintenance issues, until refurbishment or demolition.
- **1.3** The inspection will consist of a ground level visual inspection (undertaken from ground level using binoculars or other visual aids as necessary) during a walk around of the external elevations.
- **1.4** A non intrusive visual inspection of the internal arrangements of the buildings and visual inspection of roof voids/spaces if safe to access.
- **1.5** The inspection would include a visual inspection of the external roof areas, assuming safe access can be gained via existing fixed access ladders / staircases and safe balustraded walkways exist across the roof areas, or the roof can be viewed from an overlooking accessible building.
- **1.6** The report will not cover the condition of finishes, fixtures and fittings.
- **1.7** Although we may draw attention to visually obvious deterioration of weatherproofing, where this may be affecting the underlying structure, it will be necessary for the client to seek specialist advice on these aspects.
- **1.8** The structural report will not cover building services, drainage or parts of the building structure which are inaccessible, hidden or areas where access was not available for whatever reason. It will not therefore be possible for us to confirm that such areas are free from defects.
- **1.9** Although we may draw attention to visually obvious areas of asbestos, timber decay or damp penetration these are specialist items and it will be necessary for the client to seek specialist advice on these aspects.
- **1.10** In addition we were to provide recommendations for further investigations based on our observations.
- **1.11** An initial inspection of the exterior of the building and internal communal areas was undertaken on the 2nd October 2012 in the presence of Paul Rainbow of Poplar HARCA to assess the form of structure and further access requirements.
- **1.12** An initial inspection of the interior of the building was undertaken on the 8th October 2012 in the presence of Charles Collins and Paul Ward of United House. Access was limited to the interior of Flats 1, 3 and 65 which were un occupied at the time of visit.



# 2 FORM OF STRUCTURE

- **2.1** For the purposes of this survey the building is assumed to be orientated North to South along its long axis, with East India Dock Road to the South. The flats face East and West.
- **2.2** The exterior of the structure was inspected from ground level and from the adjacent podium structures at first floor level.
- **2.3** The building is twenty stories high to the level of the flat roof area over the flats
- **2.4** Above this over the central core are two levels of plant room enclosing water tanks, plant and at the higher level the lift plant. The roof over the plant room is pitched.
- **2.5** The lower two storeys of the building are formed in insitu reinforced concrete with a variety of formed finishes
- **2.6** Above this the building is clad in pre cast reinforced concrete panels forming the external façade and the openings for the inset windows. At second floor level cast insitu reinforced concrete cantilever beams project out to support the ends of the pre cast panels over.
- **2.7** The plant room is also formed in pre cast reinforced concrete panels with cast insitu floors and roof structures
- **2.8** The internal inspection was limited to the communal areas, stair cores, lift lobby areas and Flats 1, 3 and 65.
- **2.9** This inspection revealed the internal load bearing structure to be formed in reinforced concrete with down stand beams projecting below the ceiling line.
- **2.10** In communal areas and within the flats, the openings in these structural walls varied in width and provided 2m of clear head room. Load bearing walls formed the party walls between flats and the communal areas and formed internal walls between rooms within in the flats.
- 2.11 Other non-load bearing walls internal walls within the flats were formed in blockwork
- **2.12** On this basis the structure is presumed to be a cast insitu reinforced concrete frame with internal load bearing walls or isolated columns supporting cast insitu reinforced concrete floors.
- **2.13** The frame structure supports the precast concrete wall and window panels forming the external façade. It is anticipated that these pre cast concrete panels are supported at each floor level by the insitu concrete floor structures.
- **2.14** The Fitzgerald House tower structure is separated from the surrounding low level buildings and structures by movement joints.



### 3 INSPECTION

#### **EXTERNAL INSPECTION**

- **3.1.** The external pre cast concrete wall panels to the main structure are generally in good condition.
- **3.2.** The panels appear structurally sound with localised areas of cracking within a small number of the vertical elements.
- **3.3.** To the East and West elevations the panel joints are mastic sealed. This is generally in good condition.
- **3.4.** To the South and North Elevations, the panel joints are not sealed.
- **3.5.** Staining of the concrete faces by reinforcement corrosion is minimal and only occurs in small areas where reinforcement is close to the surface of the panel.
- **3.6.** On the Southern and Northern elevations a number of penetrations have been formed through the gable wall panels. These have been formed for outlets / overflows from the kitchen area. On the South side one of these overflows has stained the concrete panelling.
- **3.7.** The wall panels forming the plant room, show areas of remedial repair and making good
- **3.8.** The cast insitu cantilever beams forming the support to the pre cast concrete panels at second floor level show signs of rotation, together with vertical cracking to the upper half of the beam and spalling of the top surface.
- **3.9.** At roof level the pre cast concrete panels around the plant room area showed signs of repair and indications of historic spalling of the edges of the concrete panels.
- **3.10.** The access door from the plant room onto the Southern section of the flat roof area had been reduced in width by infilling the opening with light weight blockwork. This infill was cracked at the junction with the concrete panels.
- **3.11.** Above the door wall panel reinforcement was exposed and corroding.
- **3.12.** On the Northern flat roof area, vent dusts were formed in brickwork. The capping of these was distorted and loose due to weathering and deterioration of the mortar.

#### INTERNAL INSPECTION

#### **Communal Areas**

- **3.13.** The internal inspection of the communal areas revealed minor structural movement and distortion of the structure.
- **3.14.** These issues do not affect the overall structural stability of the structure.
- **3.15.** Horizontal cracking was noted in the lift shaft wall at level 1. This would appear to be around blockwork infill.



#### Flat 1

- **3.16.** Flat 1 is currently being used as a storage facility for Poplar HARCA. Its layout formed one large flat.
- **3.17.** This flat is at first floor level and is contained within the reinforced concrete podium structure on the North side.
- **3.18.** Areas of plaster wall finish had been removed to a number of walls. This revealed a mix of blockwork and concrete walls within the flat.
- **3.19.** Concrete walls were found to existing on the main lines of structure, blockwork walls formed non-load bearing partitions.
- 3.20. The concrete walls contained buried services.
- **3.21.** The screed floor finish was exposed at the junction of a number of internal walls. The screed was found to be approximately 60mm deep and contained buried services.
- **3.22.** The ceiling to the flat was formed in reinforced concrete.
- **3.23.** There were no indications of structural defect or movement visible.

#### Flat 3

- **3.24.** At the time of inspection Flat 3 was in the final process of being re decorated. All doors, walls and ceiling surfaces had been re painted.
- **3.25.** This flat is at second floor level on the North East Corner and is contained within the pre cast concrete panel elements of the structure.
- **3.26.** There were no indications of structural defect or movement visible.

#### Flat 65

- **3.27.** This flat is on the 17<sup>th</sup> floor on the South West Corner and is contained within the pre cast concrete panel elements of the structure.
- **3.28.** There were no indications of structural defect or movement visible.
- **3.29.** In the living room there was water ingress into the flat. This appeared to originate at ceiling level, extending down to the level of the window cill. The plaster work, wall and finishes were damp and blistered by the water ingress. This wall forms the South Elevation to the building. The corner window is boarded up at this location.



### 4 DISCUSSION

- **4.1** The initial inspection has defined the form of the structure as far as possible with limited internal access to the flats.
- **4.2** The form of the structure is a combination of reinforced concrete frame clad with pre cast concrete wall panels.
- **4.3** The structure has been found to be generally in good condition with localised areas of structural movement, cracking and small areas of corrosion.
- **4.3** The pre cast concrete wall panels are generally in good condition with localised areas of vertical cracking. This could be due to localised overstressing of the unit or the early signs of reinforcement corrosion and spalling of the concrete finish. The extent of this should be investigated further with a detailed inspection of the whole building.
- **4.4** At second floor level the in situ cantilever projecting beams support the pre cast concrete wall panels at the floor over. The majority of these show indications of the cantilever beam rotating downwards, together with vertical cracking and spalling of the upper surface. The movement and cracking occurs directly under the point where the pre cast concrete wall panel meets the insitu floor slab. This should be investigated further with a detailed inspection.
- **4.5** Water ingress was noted to the end wall of Flat 65. This could be a localised failure of the wall panel jointing system. The extent of the water ingress is unknown. This should be investigated further with a detailed inspection. The extent of this problem should be established and whether it affects other flats.
- **4.6** With these types of concrete panel structures, the long term durability of the structure and façade is dependant on the condition of the joints between the pre cast panels and the structural frame.
- **4.7** The internal inspection of three flats did not reveal any structural movement between the external pre cast panels and the structural frame.
- **4.8** To determine the form of jointing, an intrusive investigation would be required with the localised breaking out and exposure of the joint.



# 5 **RECOMMENDATIONS**

- **5.1** The initial inspection has defined the form of the structure as far as possible without further intrusive investigation.
- **5.2** The building structure is generally in good condition with localised areas of structural defect noted.
- 5.3 The following areas should be investigated further:-

Corrosion and localised cracking to pre cast concrete wall panels

Cracking and distortion of cantilever beams at second floor level

Water ingress to Flat 65

Fixing detail at junction of external pre cast concrete wall panels and frame

Durability of pre cast concrete wall panels to the plant room

- **5.4** Details of the existing structure have been requested from Tower Hamlets Building Control. The building was constructed around 1968 – 1971 and it is not yet known what information is available. At the time of writing this report a response from Tower Hamlets was awaited.
- **5.5** If available these details would advise in more detail on the building structure and provide clarity to the issues to be investigated further.



# 6 PHOTOGRAPHS

A selection of photographs is included in the report to provide an over view of the building and to highlight key issues found during the structural inspection.

Further photographs are available for review on request





North and East Elevations





South and East Elevation

Staining to South Elevation from overflow





South and East Elevation

Vertical cracking to pre cast wall panels





Cracked section to cantilever beam at South East corner at second floor level



Cracked section to cantilever beam at North West corner at second floor





Plant room wall panels to North Elevation showing previous repairs to panel corners and edges and at junction with roof finishes



Repaired wall panels at roof level





Cracked / weathered capping to brick vent duct at roof level



Plant room wall panels to South Elevation showing previous repairs. Panels over painted at lower level, reinforcement exposed over access doors to right hand side.

15





Roof access door to South Elevation from plant room. Original door reduced in width and filled in with blockwork, reinforcement exposed to wall panel over





Roof level view of wall panels to East Elevation





Horizontal cracking to lift wall in lobby area level 1



Internal view Flat 1 – Downstand beam in internal load bearing wall





Internal view Flat 1 - Exposed non loading blockwork internal partition



Internal view Flat 1 – Screed floor finish and buried services





Internal view Flat 1 - Concrete wall and buried services



Internal view Flat 65 - Water ingress to end wall in living room to South Elevation



