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# Structural Inspection Report

**Fire Fighters Cottages**
**325 West End Lane, West Hampstead. London NW6**
**Structural Inspection Report**

Version V.01 (24/10/2018)
Version V.02 (01/11/2018)
Version V.03 (18/12/2018)
Version V.03A (21/12/2018)

| Prepared by | Checked by | Verified by | Approved by |
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# 1.0 Introduction

## 1.1 Definition of Survey

A Visual Structural Survey comprises of a visual inspection, with the naked eye and binoculars where appropriate, of those parts of the structure that can be seen from safe, readily accessible vantage points. External façades were viewed from the ground and inward facing façades were also viewed from the upper building level. Some areas of the building were inaccessible for inspection and we therefore cannot confirm the structure in these areas, or that these parts are free from defects. We have not carried out any tests or made enquiries concerning particular materials or been able to re-appraise the original design, which has not been offered as available. This report is prepared from our inspection, some basic information offered by the client, and copies of the original construction drawings, dating from 1902.

The report is confined to an inspection of the visible load-bearing structural elements of the building only. The “Structure” of a building is defined as those parts of the fabric of the building which significantly contribute to its strength, stability and integrity such as roof carcassing, floors, walls, frameworks and foundations. This report will not address such items as finishes, coverings, fixtures and fittings, fenestration, doors and windows, water pipes / plumbing, gas pipes, electrical services, mechanical installations, decorations, plasterwork, non-structural timber, claddings, woodwork or any form of infestation, moisture penetration, damp, waterproofing, etc. or external works, boundary fences or compliance with local/national legislation.

# 2.0 Building Description

The building consists of four terraced cottages, built in 1902 as dwellings for firefighters, constructed in the rear yard behind the Edwardian Fire Station on West End Lane. Attached to the rear elevation are two small single storey later additions, shared between the cottages to provide further accommodation. The whole of the building is Grade II listed.

Traditionally constructed on two storeys in load-bearing masonry with a concrete ground bearing ground floor, timber joisted first floors and ceilings, timber staircases, and lathe and plaster ceilings. The main roof is slated and pitched, supported on boarded timber rafters, intermediate timber purlins and props taken back to the main structure. The rear additions are similarly constructed in brickwork and timber, but under a flat felted roof. The end walls of the main building have brick gables with chimney stacks enclosing the roof space, and there is a central brick cross wall running between the front and rear elevations, also with a central chimney stack. Foundations to all load-bearing walls are mass concrete strips.

The first floor joists all span between the front and rear elevation brickwork (1.5 brick thick) with an internal (1/2 brick thick) intermediate supporting wall. All other division walls at both ground and first floor are constructed from 75mm thick clinker concrete blocks. Lintels above openings all appear to be formed from in-situ clinker concrete encasing structural steel I beams, and/or reinforcement.

Externally, the building was originally rough cast pebbledash render above the first floor level, with fair-faced soft red brickwork below, although the exposed brickwork of the main building has since been covered with a finer pebbledash

render. All the render is painted white. Front entrances to the four cottages are paired either side of the party walls and internal staircases, each having an open canopy style porch formed in timber with a flat lead covered roof.

## 3.0 Defects Analysis

The following table describes the symptoms of structural distress, their probable cause(s) and the principles of repair. Where the cause(s) are uncertain, further investigations are recommended. The consequences of inaction are also given, so the gravity of the defects can be readily appreciated.

Outline plans at ground and first floors are appended to this report, showing locations of photographs referred to in the tables below, which are also appended to back of the report.

| Symptoms of Distress | Possible Cause(s) | Further Investigation | Principles of Repair | Likely Consequence of Inaction |
|---|---|---|---|---|
| **INTERNALS** | | | | |
| House 1 living room, severe dampness in low levels of external walls. **Photos 1&2** | Trapped moisture trying to escape the building fabric. Improper, impervious render Possible penetrating damp or interstitial condensation. Missing or too low level DPC | All areas of water ingress in this table shall be investigated to locate source(s) of damp. | To be agreed | Continued trapped dampness, further degradation of plaster, render and brickwork |
| House 1 kitchen, missing vent grills allowing rain and access into the property and general dampness. **Photo 3** | Vandalism or removal and not replaced | No | Replacement of grills and sealing against weather ingress | Continued weather ingress, and degradation of internal plasterwork and brickwork |
| House 1 bathroom, Severe wet rot in flat roof timber construction. **Photo 4** | Leaking felted roof | Fully expose timbers and wall plates to establish extent of repairs | Replacement of timber roof and wall plates and new waterproofing, reinstatement of internal finishes | Continued water ingress and eventual collapse of roof, and further damage to internal finishes |
| House 1 bedroom 2, General dampness in external walls and partial ceiling collapse. **Photo 5** | Missing render on external walls and damp affected plasterwork | Check external render for extent of defects, and similar with ceiling and wall plasterwork | Replacement of external render and internal debonded or missing ceiling and wall plaster | Continued dampness and further damage to render, brickwork and internal plasterwork |
| House 2 bathroom, Water ingress through flat roof, probable wet rot in timber roof construction and partial ceiling collapse. **Photo 6** | Leaking felted roof | Fully expose timbers and wall plates to establish extent of repairs | Replacement of timber roof and wall plates and new waterproofing, reinstatement of internal finishes | Continued water ingress and eventual collapse of roof and further damage to internal finishes |
| House 2, Severe dry rot in timber floor joists and boarding over kitchen, ceiling collapse. **Photos 7 & 8** | Plumbing or pitched roof leaks | Investigate wall plates over whole area and check for dry rot | Replacement of all affected timberwork, specialist treatment to brickwork and local retained timberwork, reinstatement of internal finishes | Collapse of timber floor and spread of dry rot to other unaffected areas |

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| House 2, Partial ceiling collapse in bedroom 1. **Photo 9** | Debonding of plaster from supporting timber lathes resulting from age and dampness | Check whole ceiling area for debonding and security of lathes | Replace missing plasterwork and secure retained areas | Complete collapse of ceiling |
| House 2, Partial ceiling collapse in bedroom 2. **Photo 10** | Debonding of plaster from supporting timber lathes resulting from age and dampness | Check whole ceiling area for debonding and security of lathes | Replace missing plasterwork and secure retained areas | Complete collapse of ceiling |
| House 4 kitchen, severe dry rot in timber floor joists, boarding and window timberwork, ceiling collapse. **Photos 11 & 12** | Plumbing or pitched roof leaks | Investigate wall plates over whole area and check for for dry rot | Replacement of all affected timberwork, specialist treatment to brickworks and local retained timberwork, reinstatement of internal finishes | Collapse of timber floor and spread of dry rot to other unaffected areas |
| House 4 bedroom 1, partial ceiling collapse, similar in living room. **Photo 13** | Debonding of plaster from supporting timber lathes, resulting from age and dampness | Check whole area for debonding and security of lathes | Replace missing plasterwork and secure retained areas | Complete collapse of ceiling |
| All houses, roof structure. | No access | Access to be provided to inspect the roof timberwork, in particular timber wall plates that may be affected by damp and rot | To be identified | Failures in roof structure |
| **EXTERNALS** | | | | |
| Front elevation, large patches of L/L render fallen away. **Photos 14 & 15** | Improper, impervious render and/or penetrating damp or interstitial condensation in brickwork causing delamination of the brickwork at low level | Arrange for a specialist to check all L/L render for soundness, the sources of damp and suitability of the brick base for re-rendering | To be agreed | Continued falling away of render, deterioration of exposed brickwork, and further internal damp problems |
| Houses 1 & 2, timber porch leaking with probable wet rot in structure. Houses 3 & 4 similar **Photo 16** | Leaking roof, wet rot in timber, and lack of maintenance | No | Replace timber structures and re-roof | Continued deterioration and eventual collapse |

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| Front elevation, large areas of L/L render fallen away, exposing dusting and unstable faces of soft red brickwork **Photos 17 & 18** | Improper, impervious render and/or penetrating damp or interstitial condensation. causing delamination of the brickwork at low level | Arrange for a specialist to check all L/L render for soundness, and suitability of the brick base for re-rendering | To be agreed | Continued falling away of render, deterioration of exposed brickwork, and further internal damp problems |
| House 4, Rear elevation with missing render at high and low levels, poor pointing on rear addition. **Photos 19 & 20** | Improper, impervious render and/or penetrating damp at low level causing delamination of the brickwork. General wear and tear of aged render and pointing | Arrange for a specialist to check all L/L render for soundness, and suitability of the brick base for re-rendering | Low level problem and repair to be agreed. High level render repairs. Pointing repairs to rear addition | Continued falling away of render and pointing, deterioration of exposed brickwork, and further internal damp problems |
| House 2, Rear elevation with missing render at high and low levels, poor pointing on rear addition. **Photos 21 & 22** | Improper, impervious render and/or penetrating damp or interstitial condensation. at low level causing delamination of the brickwork. General wear and tear of aged render and pointing | Arrange for a specialist to check all L/L render for soundness, and suitability of the brick base for re-rendering | Low level problem and repair to be agreed, High level render repairs. Pointing repairs to rear addition | Continued falling away of render and pointing, deterioration of exposed brickwork, and further internal damp problems |
| House 4, Side gable elevation with large patches of loose and hollow render & missing render at low level. **Photo 23** | Improper, impervious render and/or penetrating damp or interstitial condensation. causing delamination of the brickwork | Arrange for specialist to check all L/L render for soundness, and suitability of the brick base for re-rendering | To be agreed | Continued falling away of render, deterioration of exposed brickwork, and further internal damp problems |
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| House 4, Ground floor timber staircase has missing lower two treads | Possibly removed following rot or infestation | No | Reinstate treads, following inspection of ground floor substrate (possible damp source) | Mandatory repair |
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## 4.0 Conclusions

The property has effectively been neglected for the past 15 – 20 years without regular maintenance, and has consequently developed into a state of dereliction, and unable to be inhabited as they currently stand. They are very damp throughout and the result of water ingress, leaks, and protective render falling away, have led to areas of wet and

dry rot in the first floor and flat roofs, internal plaster and decorations in very poor condition, and several of the lathe and plaster ceilings coming down.

However, the structure is generally robust and there are no signs of foundation failures or movement/cracking etc in the superstructure, walls are vertical, and the timber roof structure appears generally sound with good lines. There are some slipped slates on the roof but very few missing, and the three brick chimney stacks are vertical and look in good order, other than some pointing that requires checking and upgrading.

In order to bring the property back into use, there are some fundamental works that need to be carried out before any internal modifications, new services installations, or decorations should be considered, principally relating to making the buildings watertight, carrying out some structural timber repairs, and stabilising the ceilings throughout.

24th October 2018

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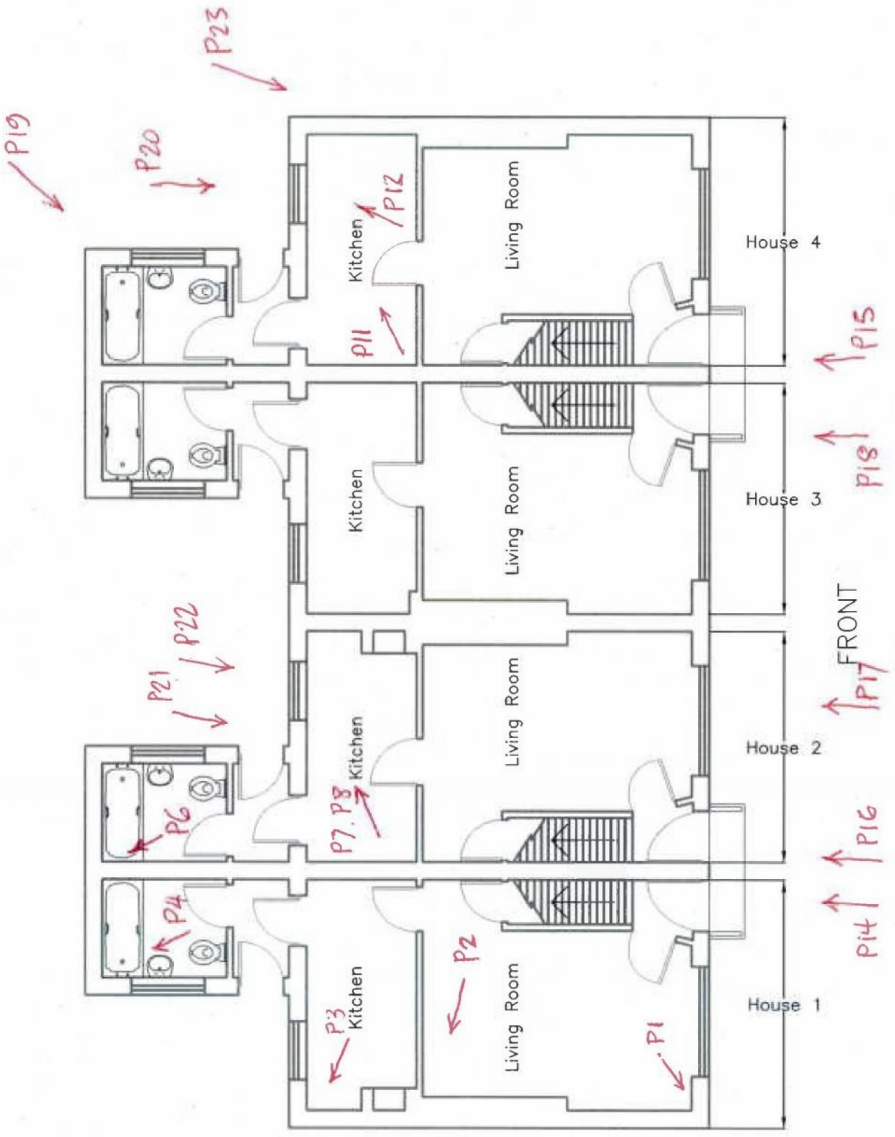
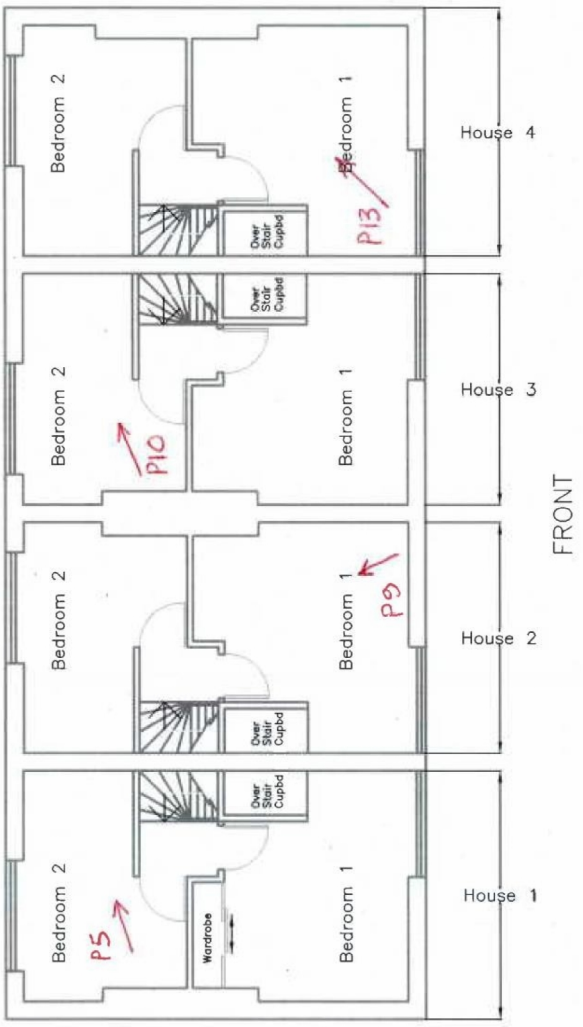



Ground Floor – Existing Layout




First Floor – Existing Layout

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| General comments: | The following images are photographs taken during the site inspection. These images should be viewed in conjunction with the rest of this report.<br>  <br>Picture 1 – House 1, Severe damp in ground floor living room<br>  <br>Picture 2 – House 1, Severe damp in ground floor living room | |

Picture 3 – House 1, large open vent in kitchen

Picture 4 – House 1, Wet rot in rear extension roof timberwork

Picture 5 – House 1, Damp and ceiling plaster down in bedroom 2

Picture 6 – House 2, Wet and probable joist rot in ceiling to rear addition

Picture 7 – House 2, Severe dry rot in timber floor over kitchen

Picture 8 – House 2, Severe dry rot in timber floor over kitchen

Picture 9 – House 2, Ceiling plaster down in bedroom 1

Picture 10 - House 3, Ceiling plaster down in bedroom 2

Picture 11 - House 4, Severe dry rot in timber floor over kitchen

Picture 12 - House 4, Severe dry rot in window timber in kitchen

Picture 13 – House 4, Ceiling plaster down in bedroom 1, similar in living room

Picture 14 – Houses 1 & 2, front elevation with l/l render coming away

Picture 15 – Houses 3 & 4, front elevation with l/l render coming away

Picture 16 – Houses 1 & 2, front doorways and dilapidated timber porch

Picture 17 – House 2, low level brickwork face powdering and delaminating on front elevation where rendering has come away.

Picture 18 – House 3, low level brickwork face powdering and delaminating on front elevation where rendering has come away.

Picture 19 – Houses 3 & 4, rear addition and main house elevation with large areas of render coming away.

Picture 20 – House 4, main house rear elevation with large areas of original render coming away.

Picture 21 - House 2, main house rear elevation with large areas of original and newer render coming away.

Picture 22 – House 2, main house rear elevation with large areas of original and render coming away.


Picture 23 – House 4, Flank gable wall with loose and hollow rendering at low level and some missing render.