Unit 3,
Endeavour House,

Longbridge Road,
PL6 8LR

FIRNTEC
BUILDING COMPLIANCE

VISUAL STRUCTURAL APPRAISAL

89 Laburnum House

Bradwell Avenue
Dagenham
RM10 7AE

Job Reference: 901

20th January 2024

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BUILDING COMPLIANCE

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Document Issue

Revision	Date	Purpose of Issue
A	20.01.2024	Issued for Review

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Dated: 20/01/2024

Reviewed by

Firntec Project Consultant

Dated: 20/01/2024

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1. Executive Summary

The building survey revealed that the overall structural integrity of the property is sound. No major structural issues were identified that pose an immediate threat to the occupants or the building's stability. However, some further investigations are required to properly assess the building's health and condition. These are:

- Concrete material tests for strength, cover depth, carbonation, presence of chlorides and HAC.
- Intrusive investigations into the cladding fixings

As there are no signs of structural distress we suggested completing the above within the next 18 months by engaging a qualified specialist contractor to complete the investigations.

Regular maintenance is crucial to preserving the property's condition and preventing future issues. The building is to be surveyed at regular 3 year intervals to inspect for signs of movement, structural decay and/or defects.

2. Introduction

2.1. Brief

Firntec were appointed by London Borough of Barking and Dagenham to perform a visual structural appraisal of the 17 storey purpose built residential block known as Laburnum House, RM10 7AE, in Dagenham. The instruction was to identify the key structural elements of the building and is prepared to be included as part of the Building Safety Case Report for the housing block. The inspection relates to the main building only and any external fences/walls, sheds and outbuildings/garages have been excluded from our scope. An inspection of the property was undertaken by Firntec on the 10th January 2024. The scope of the inspection included limited, visual observations of the interior and exterior of the structure. The inspection was limited to accessible areas which included the external elevations (viewed from the ground), communal areas, stair core, plant rooms and the roof.

Figure 1: Site location

2.1 Limitations

This report is based upon a visual inspection of the property, as described above. This report describes the findings and draws conclusions of a general nature and is not an intrusive survey of the building and no calculations were carried out with regards to load transfer and verification of structural members.

Whilst comments are made to satisfy the requirements of the brief, the report has, of necessity, not been exhaustive and cannot therefore constitute a warranty as to the soundness or otherwise of the property in areas hidden from visual inspection or not seen during the inspection.

No internal finishes were disturbed during our inspection, and no opening up works or invasive inspections were undertaken. We were not able to observe any structural elements where hidden under finishes.

This report has been prepared for the sole use of the client London Borough of Barking and Dagenham.

Disassembly or removal of any portion of the structure, mechanical equipment, plumbing equipment, or electrical equipment is beyond the scope of this inspection. There is no warranty or guarantee, either expressed or implied, regarding future performance, life, insurability, merchantability, workmanship, and/or need for repair of any item inspected. Please note that any liabilities associated with Asbestos including surveys, identification and removal have been excluded.

The components of the property included in the scope of the inspection, if present and applicable, include: structural foundations, primary load-carrying framing members, roof surface, façade structure, and miscellaneous items related to the property. The scope of the inspection is specifically in relation to structural elements and hence general building defects which are not structurally significant may not be included.

2.3 Survey Methodology

Initially a desk top study was completed through research of online records and available archive information. The desk study considers site-specific historical, geological and environmental characteristics such as the expected soils condition and if the site is within a flood zone. It also includes a review of the existing available information provided by the client. From this we are able to determine the expected construction type and materials used and plan the survey accordingly.

Once the nature of the site and surrounding areas has been recorded the more detailed inspection of the building can take place. This includes an appraisal from the inside and outside of the building. A visual appraisal is completed on every level with a more detailed assessment completed at intermittent floors, always including roof level, top floor and ground floor.

If archive drawings are unavailable the structural form of the building is determined by searching for the areas where the underlying structure is visible such as plant rooms, bin stores or service cupboards.

The integrity of the building is assessed searching for signs of structural movement, material decay and inspecting the condition of the structural elements.

Below is a list of completed actions for each area inspected:

ACTION	POINTS CONSIDERED
INSPECT ROOF AREA	• Check for signs of cracking at junctions

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	• Check levels • Check for obvious defects
CHECK FINISHES IN FLAT/COMMUNAL AREAS	• Review each area for damages to finishes which may be caused by structural movement
SEARCH FOR CRACKS IN STRUCTURE	• Search for cracks in structure, in particular at junctions between elements • Are cracks penetrating structure • Follow the trail of the crack to assess cause
CHECK FLOOR/CEILING LEVEL	• Sagging ceiling or unlevel floors may indicate deficient design or overloaded floor plates
INSPECT CUPBOARDS	• Inside cupboards underlying structure often visible • Finishes may not have been updated and therefore provide insight into original features
ASSESS CLADDING FIXINGS	• Search for access to view cavity • Search for defects of failed wall ties such as bulging walls, cracking and separation of window reveals • Check for lifting/sagging of lintels
CHECK OPERATION OF DOORS/WINDOWS	• Search for windows and doors which are out of square, binding, cracks in the architraves
SEARCH FOR MATERIAL DEFECTS	• Identify materials used and known issues with material
INSPECT PLANT ROOMS AND SERVCE ROOMS	• Areas often without finishes revealing underlying structure Often structural form and key elements visible •
INSPECT EACH ELEVATION EXTERNALLY	• Search for cracks and/or signs of structural movement
IDENTIFY OVERHANG STRUCTURES	• Search for overhang structures • Inspect for visible defects
ASSESS STAIR CORE	• Often shear core providing stability • Stair form (precast/in-situ)
INSPECT GROUND FLOOR	• Search for vents to determine if floor is ventilated / suspended • Check levels

Table 1: Site Survey Actions

Reference shall be made to Table A of BRE Digest 292 “Cracking in Buildings” 2nd Edition (2016)

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Table A: Classification of damage and repair for different crack widths

Category of damage	Description of typical damage (*Ease of repair in italics*)	Approximate crack width
0	Hairline cracks of less than about 0.1 mm width are classed as negligible.	Up to 0.1 mm
1	Perhaps isolated slight fracturing in building. Cracks rarely visible in external brickwork. *Fine cracks of up to 1 mm width can be treated easily using normal decoration.*	Up to 1 mm
2	Cracks not necessarily visible externally. Cracks can be filled easily. *Redecoration probably required. Recurrent cracks can be masked by suitable linings.* Some distortion to doors and windows, which may stick slightly. *Some external repointing may be required to ensure weathertightness.*	Up to 5 mm
3	Doors and windows sticking. Service pipes may fracture. Weathertightness often impaired. *The cracks will require some opening up and can be patched by a mason. Repointing of external brickwork and possibly a small amount of brickwork to be replaced.*	5–15 mm or several, each up to 3 mm
4	Window and door frames distorted, floor sloping noticeably*. Walls leaning or bulging noticeably*. Some loss of bearing in beams. Service pipes disrupted. *Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows.*	15–25 mm, depending on number
5	Beams losing bearing, walls leaning badly and requiring shoring. Windows broken with distortion. Danger of instability. *This requires a major repair, involving partial or complete rebuilding.*	Usually greater than 25 mm, depending on number

* Local deviation of slope, from the horizontal or vertical, of more than 1 in 100 will normally be clearly visible. Overall deviations in excess of 1 in 150 are undesirable.

Table 2 – BRE Digest 292 Table A

2.4 Potential Material Defects

Material defects in concrete and brickwork buildings can have various causes and can affect different components of the structure. Here's a list of common material defects in concrete and brickwork buildings:

Concrete Defects:

1. Honeycombing: Incomplete filling of the concrete mix, leading to voids or honeycomb-like structures within the concrete.

2. Cracks: These can occur due to various factors, such as shrinkage, settlement, overloading, temperature changes, or inadequate reinforcement.

3. Spalling: Concrete surface peeling or chipping off due to freeze-thaw cycles, corrosion of embedded reinforcement, or poor quality concrete.

4. Efflorescence: White, powdery deposits on the surface caused by the migration of soluble salts to the surface and their crystallization.

5. Alkali-Aggregate Reaction (AAR): Also known as "concrete cancer," it's a chemical reaction between alkaline cement paste and certain reactive aggregates, causing cracking and deterioration.

6. Corrosion of Reinforcement: Exposure to moisture and chloride ions can lead to corrosion of the steel reinforcement, weakening the structure.

7. Shrinkage Cracks: These cracks occur as the concrete dries and shrinks, especially if curing was not adequately done.

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8. Carbonation: Carbon dioxide reacts with the alkaline compounds in concrete, lowering the pH and potentially affecting the passivation of steel reinforcement.

9. Presence of High Alumina Cement(HAC): HAC was widely used in the manufacture of structural pre-cast concrete in the 1960's as it accelerated curing. However HAC is found to be prone to a conversion process which could result in the concrete being reduced in strength.

Brickwork Defects:

1. Spalling: Similar to concrete, bricks can also spall or chip off due to freeze-thaw cycles, corrosion of embedded materials, or poor-quality bricks.
2. Efflorescence: As with concrete, bricks can also experience the migration of soluble salts to the surface, resulting in efflorescence.
3. Cracking: Bricks may crack due to structural movement, settling, or improper bonding.
4. Dampness: Bricks are porous, and excessive moisture penetration can lead to damp patches, staining, and deterioration.
5. Leaning or Bulging Walls: Improper construction, foundation issues, or lateral forces can cause brick walls to lean or bulge.
6. Mortar Joint Defects: Problems with the mortar used to bond bricks, such as inadequate strength, poor adhesion, or weathering.

It's important to note that these defects can vary in severity, and timely inspection, maintenance, and repairs are essential to ensure the safety and durability of concrete and brickwork buildings. As part of this survey we will inspecting for common signs of the above defects and in some cases may require further investigative works to determine their presence.

3 Desk Top Study

3.2 Existing Information

To date, we are in possession of the floor plans produced by Gerda and we have received a Fire Risk Assessment by Savills dated 27/04/23.

We have not been provided with any existing calculations for the property.

3.3 Desktop Study: Ground Conditions

Our scope of works did not include intrusive ground investigations or soil testing. In absence of such data, we have undertaken a desktop study to identify the likely founding strata of the property. The British Geological Survey (BGS) produces maps which highlight the general ground conditions around Britain.

The bedrock is the 'London Clay Formation'– clay, silt and sand. Superficial deposits sit on the older deposits referred to as bedrock.

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Figure 2. Bedrock Geology

For the site, the superficial deposits are 'Hackney Gravel Member' consisting of sand and gravel.

Figure 3. Superficial Geology

3.4 Desktop Study: Flood Zone .

Flood zones have been created by the Environment Agency (EA) as a starting point in determining how likely a location is to flood.

There are 3 flood zones as defined by the EA; Flood Zone 1, 2 and 3. The flood zones are based on the likelihood of an area subject to flooding, with Flood Zone 1 areas least likely to flood and Flood Zone 3 areas more likely to flood. The property is in Flood Zone 1 i.e. at less than 0.1% chance of flooding in any year.

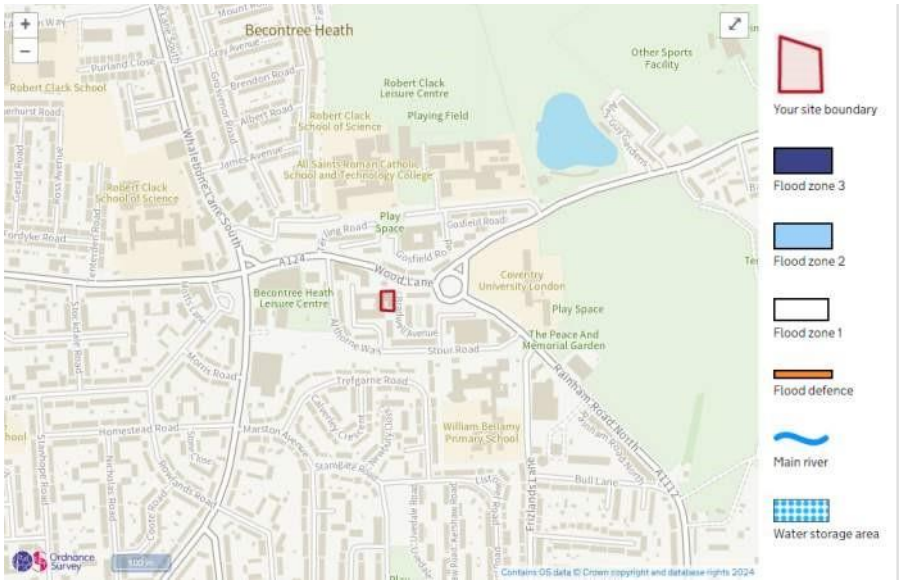

Figure 4. Flood Risk from Environmental Agency

3.5 Underground tunnels

As part our initial assessment we performed an asset search of the TFL network to determine if the property was within the influence zone of an underground tunnel.

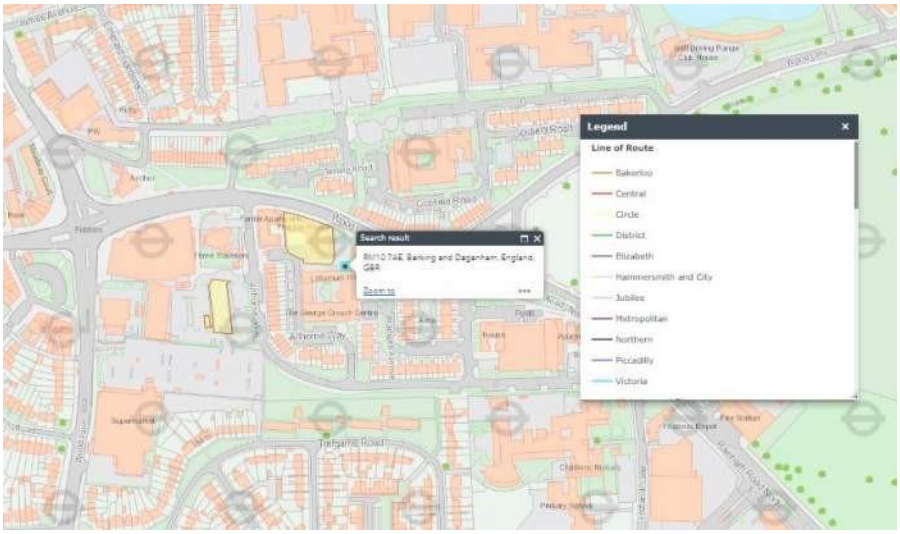

Figure 5. TFL Asset Search of Underground Network The tower is

outside the influence zone of TFL's underground tunnels.

4.1 Description of Building

The existing building is an 17 storey purpose built residential housing block in Dagenham containing 93 dwellings understood to be built in circa 1969. The typical structure is a cast in-situ reinforced concrete (RC) frame

comprising RC floor slabs supported on RC beams and RC wall panels and columns which stack vertically throughout. Given the scale of the existing structure we would expect that the main foundation system is either a series of reinforced concrete pile caps and ground beams or a reinforced concrete raft foundation. Both of these systems will have reinforced concrete piles extending into the bedrock to a significant depth.

Vertically, the building is stabilised in two orthogonal directions by central lift and stair cores which are formed from RC Shear walls.

The in-situ floor slabs, which are effectively tied to the column and wall heads, act as a rigid diaphragm to provide horizontal stiffness.

The building has a flat roof constructed from a cast in-situ RC slab with an RC perimeter parapet.

The external cladding system is understood to be of cavity masonry infill panels with external brickwork and internal blockwork and in some locations RC walls.

The typical floor plan of each storey is formed of two symmetrical blocks linked by a RC slab which forms the communal landing. There is a staircase and two lifts spanning between ground and roof levels which appear to be in two separate shafts. The staircase is in-situ reinforced concrete supported at each landing level and half landing level.

The internal partition walls are unknown but presumed blockwork.

Figure 6 below shows an overview of the building.

Figure 6. Building Overview

4.2 Structural Design Type

In order to comply with the Building Safety Act 2022 the block owner will need to register the structural type with the Building Safety Regulator. As part of the registration process the building material information is required which is indicated in Table 3.

Structure design type
Composite steel and concrete

Concrete large panel system - 1960's	
Concrete large panel system - 1970's onwards	
Modular - concrete	
Concrete - other	X
Lightweight metal structure (aluminium)	
Masonry	
Modular - steel	
Steel frame	
Modular - other material	
Modular Timber	
Timber	
None of these	

Table 3: Structure Design Type

A summary table of the key structural elements is included in the following section.

4.3. Structural elements

Figures 7 and 8 indicate the assumed structural layout of a typical ground floor level and upper level. These diagrams are also included as separate files in the Appendix.

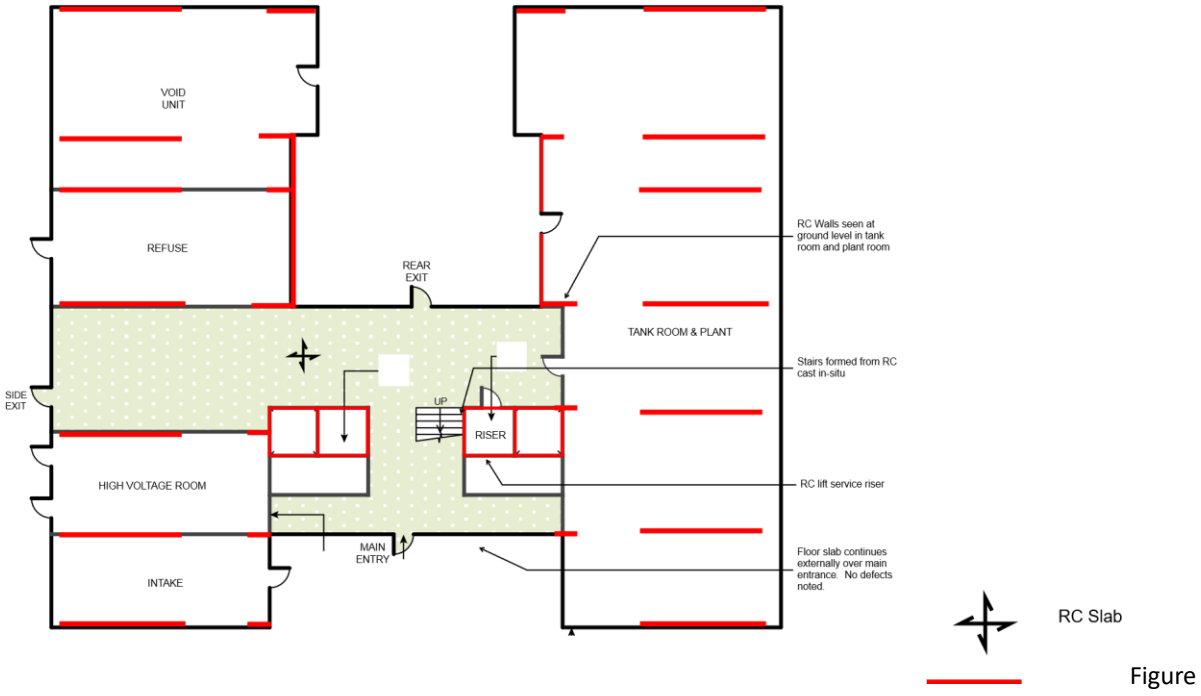

Figure 7: Diagram of ground floor level

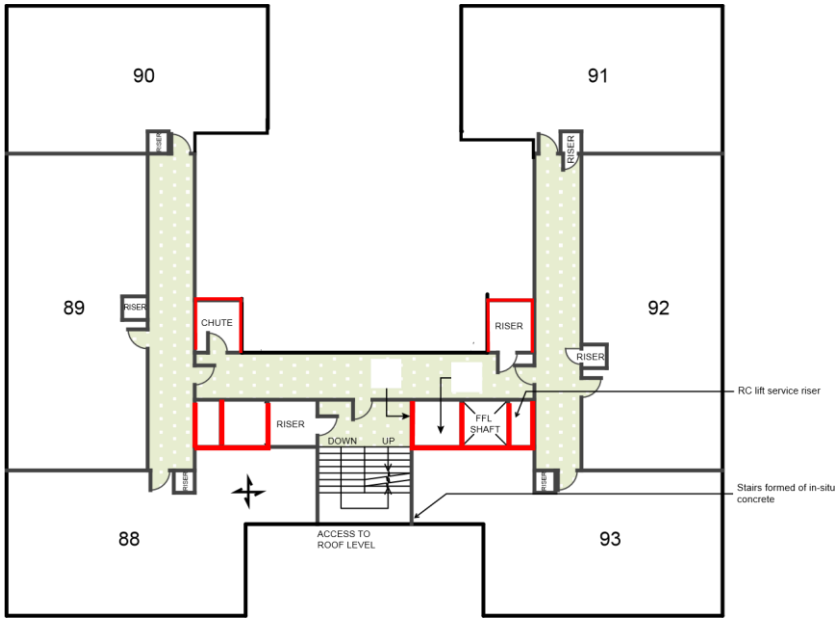

Figure 8: Diagram of typical upper floor structure Table 4 Below is a summary table of the key structural elements

Item	Notes
Original and Current design intent	The building has always been intended for residential use.
Key Materials (Are there any Precast Concrete Elements)	The main construction material for structural elements is reinforced concrete, with clay bricks used for non-loadbearing wall elements
Design Loading Parameters	We assume that the building was designed to the current British Standard Code of Practice of the time which was: **British Standard Code of Practice 3, Chapter V 1952: Imposed Loading** Residential Floors = 40lb/ sqft (equivalent to 1.92kN/sqm) Flat Roof with access = 30lb / sqft (equivalent to 1.44kN/sqm) Stairs and Landings = 60lb/sqft (equivalent to 2.88kN/sqm) **British Standard Code of Practice 114 1957** The structural use of normal reinforced concrete in buildings
Have there been any refurbishments	We are not aware of any extensions to the building
Primary Load Bearing System (Beams, columns, wall?)	The building is a reinforced concrete frame, with vertical concrete walls at regular centres, running vertically throughout the building, and stabilised by a central lift and stair core. The external walls are formed from a cavity wall, with the RC walls hidden within the inner leaf of the wall. We were unable to invetigate the foundations as part of the survey, but for a building of this size and age, it is likely that piled foundations have been used.
Secondary Load Bearing System (floors)	The floors are cast in-situ with reinforced concrete, spanning onto the vetical elements. The floor slabs are visible on the external elevation, and are used to support the outer leaf.
Stability System - Horizontal and Vertical	The in-situ floor slabs, which are effectively tied to the shear walls, act as a diaphragm to provide horizontal stiffness. The building is stabilised vertically by the numerous RC shear walls throughout the building.
Claddings and fixings	We assume that the external wall is constructed as a cavity wall, with a stretcher bond to the outer leaf. We were unable to see within the wall cavity to confirm whether there are ties or masonry supports present.
Roof Build-Up	The roof is built as a concrete slab, with a RC parapet around the perimeter. There is a small amount of water ponding in the middle of the roof, but generally flat. There does not appear to have been any additional insulation compared with the original construction

Description of any basements	n/a
Description of any cantilevered elements - Type(Juliet, cantilever, hung, stacked)	n/a
Fixing method for cantilevered element	n/a
Cantilevered element structural and decorative materials	n/a
Dimension Cantilevered element	n/a
Current Structural Condition (Poor, fair, good, excellent)	Fair
Signs of structure not performing correctly (movement or failure)	No signs were observed which indicated that the super-structure was not performing as intended.
Finishes in flat	The flats have not been inspected
Structural Cracks Visible?	There was seperation between the roof slab and external walls in the water tank rooms at roof level. Any movment appears stable, and no evidence of water ingress, so no actions required
Floors and Wall Levels	Refer to report
Condition of Elevations	Fair

Table 4: Summary of Key Structural Elements

Figure 9 describes the load path for a RC framed building such as this. The loads distribute from the RC floor plates to the supporting load bearing RC walls/columns. The walls/columns are supported off the foundations which disperse the loads into the ground. The current foundation system is unknown but is presumed to be a reinforced concrete piled system.

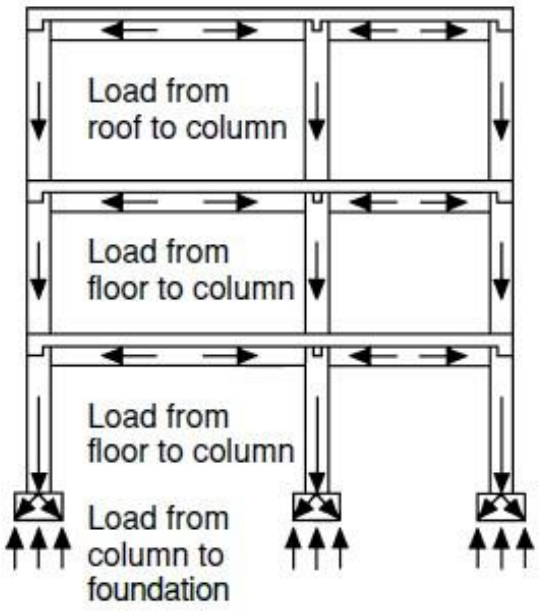

Figure 9 describes the vertical load path for the buildings

4.4 Robustness and Consequence Class

Avoiding disproportionate collapse is a critical concept for the design of new buildings and checking existing ones. It has to be accepted that explosions, usually gas, do occasionally occur and can cause severe damage to

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residential properties. Avoiding disproportionate collapse ensures that the structure of a building is designed or strengthened to ensure that damage is relatively limited.

The requirement was a consequence of the Ronan Point Large Panel System (LPS) building disaster of 1968. The Ronan Point enquiry produced recommendations (MHLG Circular 62/68) requiring all LPS blocks to be tied together. The initial recommendation referred to buildings with piped gas and required the structure to withstand a force of 34 kN/m^2. Another MKHG circular followed a few months later (71/68) which required a similar approach to buildings where gas was not supplied or had been removed but the pressure which the structure had to withstand was 17 kN/m^2.

The current building regulations (Part A – Structure) are regularly revised and include requirements for robustness to be included, specifically the horizontal tying requirement, to apply to all residential blocks, regardless of height. This emphasises the need when assessing existing buildings with regards to the building regulations, for judgement, research and experience to be applied. Regulation 8 of the regulations places a limit on all requirements such that they "shall not require anything to be done except for the purposes of securing a reasonable standard of health and safety for persons in and about the building".

The requirements for buildings depend on it's "consequence class" as described in Table 11 of Part A of the building regulations 2010.

Class	Building type and occupancy	Summary requirements
1	• House not exceeding 4 storeys. • Agricultural buildings. • Buildings into which people rarely go.	• No additional measures are likely to be necessary.
2A	• 5 storey single-occupancy houses. • Hotels, apartments and other residential buildings not exceeding 4 storeys. • Offices not exceeding 4 storeys. • Industrial buildings not exceeding 3 storeys. • Retailing premises not exceeding 3 storeys of less than 2000 m^2 floor area in each storey. • Single-storey educational buildings. • All buildings not exceeding 2 storeys to which members of the pubic are admitted and which contain floor areas exceeding 2000 m^2 at each storey.	• Horizontal ties, OR • Effective anchorage of floors to walls, as described in the codes of practice.
2B	• Hotels, apartments and other residential buildings exceeding 4 storeys, but not exceeding 15 storeys. • Educational buildings greater than 1 storey, but not exceeding 15 storeys. • Retail premises greater than 3 storeys but not exceeding 15 storeys. • Hospitals not exceeding 3 storeys. • Offices greater than 4 storeys but not exceeding 15 storeys. • All buildings to which members of the pubic are admitted and which contain floor areas exceeding 2000 m^2 but less than 5000 m^2 at each storey. • Car parking not exceeding 6 storeys.	• Horizontal ties and vertical ties as described in the codes of practice, OR • Show that the removal of a wall or column will cause only limited damage, OR • Design as 'key elements'.
3	• All buildings defined above as Class 2A and 2B that exceed the limits on area and/or number of storeys. • All buildings, containing hazardous substances and/or processes. • Grandstands accommodating more than 5000 spectators.	• Systematic risk assessment.
Note Basement storeys may be excluded provided they meet Class 2B criteria		

Table 5: Building Type and Consequence Class

Laburnum House is classified as a Class 3 building. There are effectively three approaches to determining compliance.

1. Compliance with tying rules
2. That the removal of a wall or column will cause only limited damage – refer to figure 10 for requirements
3. Showing that "key elements" and "non-removable" – i.e. can withstand the accidental loading requirements discussed above.

It is very complex to accurately model the behaviour of a building under explosive loadings but recognised techniques, combined with engineering judgment enable a reasonable assessment to be made. In this case, with a sequence of load-bearing columns/walls across the footprint of the building tied into the slabs, the building

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may comply with points 1 and/or 2 of the requirements however a detailed analysis would be required to confirm compliance.

In addition as the building is classified as a Class 3 building, a systematic risk assessment to determine whether there are any hazard scenarios that have an unacceptable level of risk and if so to identify steps to mitigate those risks. BS EN 1991-1-7 presents a flow diagram of the overall risk analysis procedure.

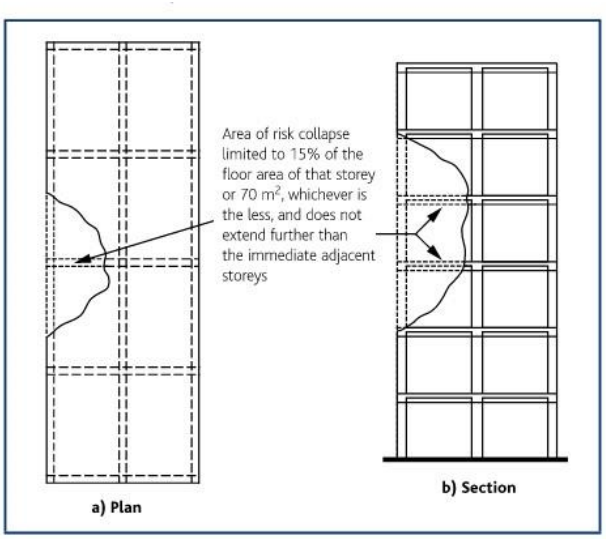

Figure 10: Requirements for Limited Damage approach

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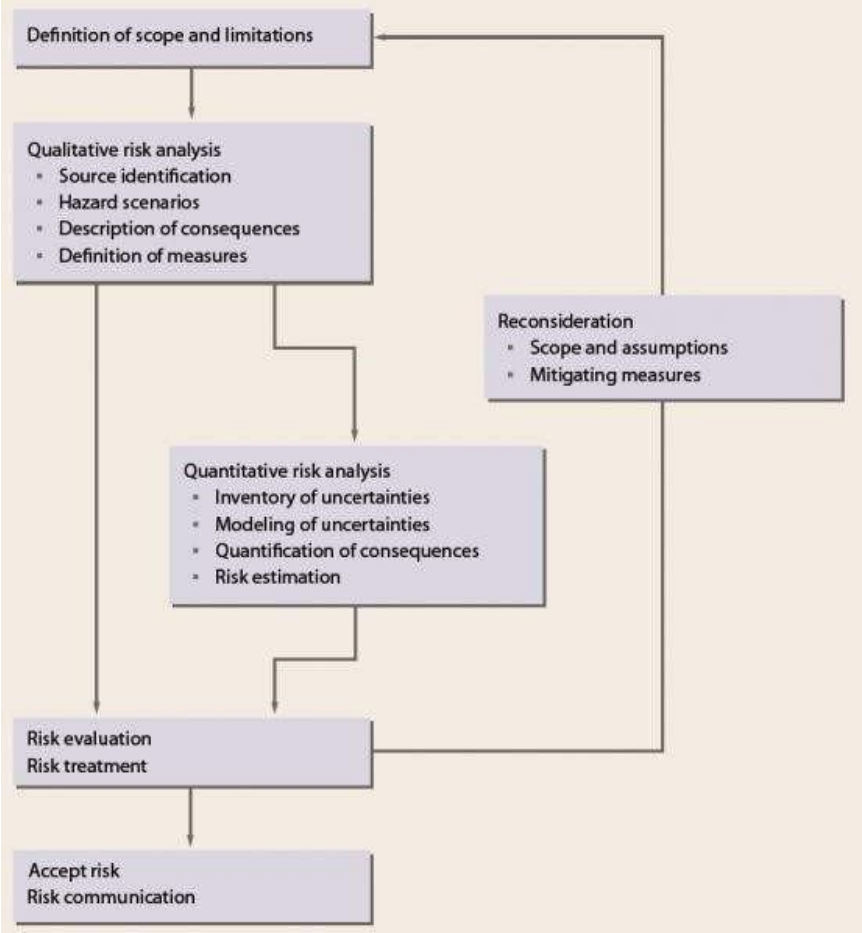

Figure 11: Systematic Risk Assessment for Class 3 Buildings

4 Site Inspection

The inspection took place on 10/01/24 and the findings have been recorded in this report. The scope of the inspection included limited, visual observations of the interior and exterior of the structure and was viewed from ground level. The report contains a limited amount of photographs taken during the inspection.

5.1 External Walls Elevations

The exterior elevations were generally in ok condition and no significant structural defects were noted to the cladding panels. There were no significant cracks or tell-tale signs of any significant structural movement noted at the time of our inspection.

The external cladding system is constructed as a cavity wall, with a stretcher bond to the outer leaf. We were unable to see within the wall cavity to confirm whether there are ties or masonry supports present. The exterior walls were noted to be plumb with no signs of significant bowing, bulging or leaning noted to the cavity walls indicating failed fixings, however their presence and condition cannot be confirmed.

It was not possible to inspect the lintels over the window opening however due to the building type we would expect a slab thickening over each opening.

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Figure 12 and 13: Close up and overview of elevations

5.2 Roof

The flat roof structure is a reinforced concrete cast slab with perimeter RC parapet wall allowing safe access. There is an enclosure which partially covers the roof area comprising the lift plant, stair core and water tank. This structure is formed of block and masonry walls with cast in-situ RC slab covering.

There were no tell-tale signs of any significant structural movement noted at the time of our inspection.

The exterior walls were noted to be plumb with no signs of significant bowing, bulging or leaning noted to the cavity wall panels.

The roof has a felted finish. The exact build-up of the roof finishes were not accessible at the time of inspection. It is recommended an intrusive survey of the roof finishes is completed by a specialist surveyor to assess the condition of the roof covering.

A plant room likely for telecommunications equipment has been installed to the roof level off a steel subframe. No calculations were provided for this, we can only presume that the slab was checked for the additional point loads added to the structure.

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Figure 14 and 15: Roof Level

5.3 Typical Floor Plan

The stair core and landing areas of every level were inspected with more detailed assessments made at third points over the height of the building. Refer to Appendix A for site records.

The floors in the communal landings were noted to be solid concrete floors. The floors were checked with a spirit level and were considered level and within tolerance. The doors and windows to the communal landings from the stair core all appeared to be level and opened and closed without difficulty. There were no signs of structural movement detected.

There were vertical concrete walls supporting the floor plates at every level.

The interior of the stair core walls were checked and were plumb and in line with observations made to the exterior – no significant signs of leaning or movement noted. The concrete appeared in fair condition with few BRE category 1 cracks but no structurally significant defects were noted.

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Figure 16 and 17: Vertical RC Structure Visible with RC soffit

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Figure 18 and 19: Lift motor room and level of vertical element

5.4 Summary Key Elements

To assist in compiling the Building Safety Case Report a summary table of the key structural elements which may be included as suggested in the Building Safety Act 2022 has been compiled with highlighted cells indicating areas of missing information which require further investigations.

ELEMENT	FINDING
PRIMARY MATERIAL OF CONSTRUCTION	• Reinforced Concrete – Intrusive investigations required
TYPE OF BUILDING	• Concrete Frame
PRIMARY LOAD BEARING SYSTEM	• Cast Concrete Floors on RC Frame
STABILITY SYSTEM	• Shear Walls
CLADDING SUPPORT SYSTEM AND FIXINGS	• Cavity wall with external stretcher bond
ROOFING MATERIALS	• Felt on flat RC slab
FOUNDATIONS	• Presumed Piled System but unknown
BALCONIES	• NA
OTHER OVERHANG STRUCTURES	• NA
BUILDING CONSEQUENCE CLASS	• Class 3 as per Part A of Building Regulations

Table 6: Key Structural Element Summary

Refer to Appendix A for detailed photographic record of the salient structural elements recorded.

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6 Conclusions and Recommendations

The findings of this report are that the existing structure is generally sound and appeared to be in a fair condition for its age. There were no tell-tale signs of any significant structural movement or cracks which fall in the BRE Category 3 or above.

Intrusive investigations are required to determine areas of unknown information as highlighted in Table 5. Although we expect cavity construction with internal block tied to an external leaf of brickwork it is not possible to confirm without further investigations by a specialist surveyor. There are no signs the wall ties have failed however it is impossible to determine their presence and condition without further investigations by a specialist who can use a metal detector and endoscope.

There are no signs of ground movement across the footprint of the building therefore although we can only assume the piled foundation type we do not deem it a pressing matter to perform the intrusive and costly trial pits which would be required to confirm their presence. These should be included in the scope at the next major structural intervention works to the building.

Due to the age of the building it is wise to perform periodical health checks to the concrete elements. This should include tests for concrete strength, cover depth, carbonation, chlorides and HAC. It would appear that these tests have never been performed to this building and therefore we recommend engaging a specialist contractor within the next 18 months who will be able to perform the tests and provide a interpretive report.

Regular maintenance is crucial to preserving the property's condition and preventing future issues. The building is to be surveyed at regular 3 year intervals to inspect for signs of movement, structural decay and/or defects.

Unit 3,
Endeavour House,
Longbridge Road,
PL6 8LR

Appendix A – Structural Elements Survey

FIRNTEC
BUILDING COMPLIANCE

Unit 3,
Endeavour House,
Longbridge Road,
PL6 8LR

Laburnum House, 89 Bradwell Ave, Dagenham RM10 7AE

Structural appraisal survey

Laburnum House, 89 Bradwell Ave, Dagenham RM10 7AE

Ruben Wood
RW Structures
17/01/2024

Property Details

Name: Laburnum House, 89 Bradwell Ave, Dagenham RM10 7AE

Summary: Structural appraisal survey

Reference: Laburnum House, 89 Bradwell Ave, Dagenham RM10 7AE

Description: Block of flats, consisting of, separate units

Elements : 21

Area/ element inspected

Reference: Internal

Location: 16th Floor

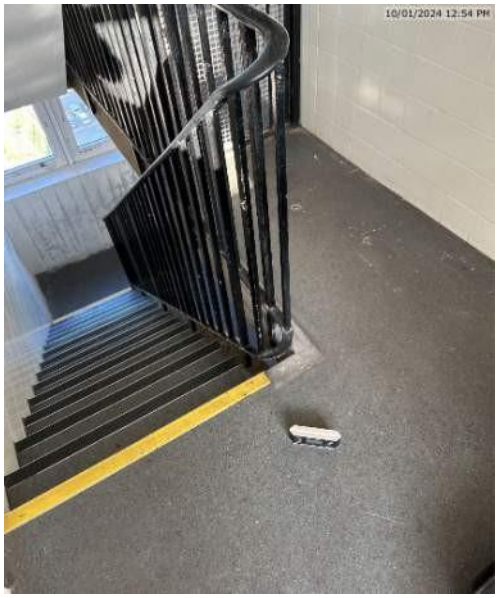
Created: 10/01/2024

Description: Photographs indicating indicating wall alignment within stairwell area.

Assigned To: Internal finishes

Reviewed By: Ruben Wood

Area/ element inspected



Reference: Internal

Location: 16th Floor

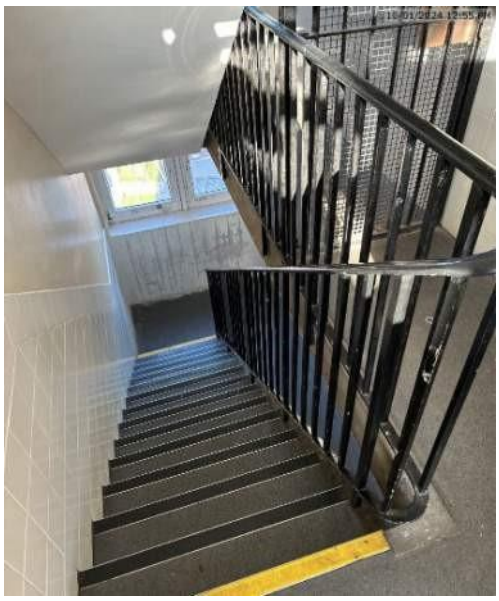
Created: 10/01/2024

Description: Photographs indicating finished floor levels within the stairwell area.

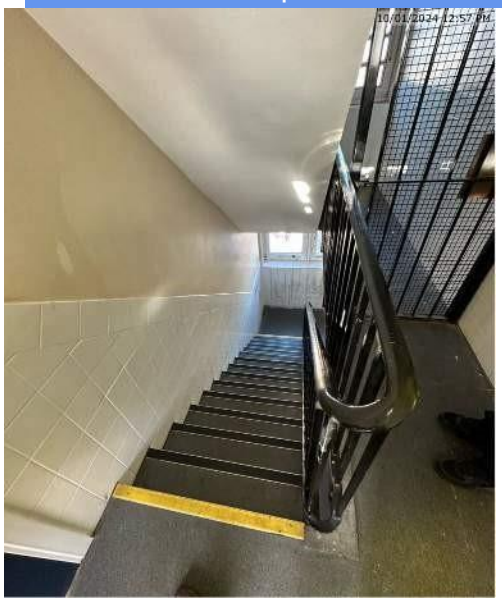
Assigned To: Internal finishes

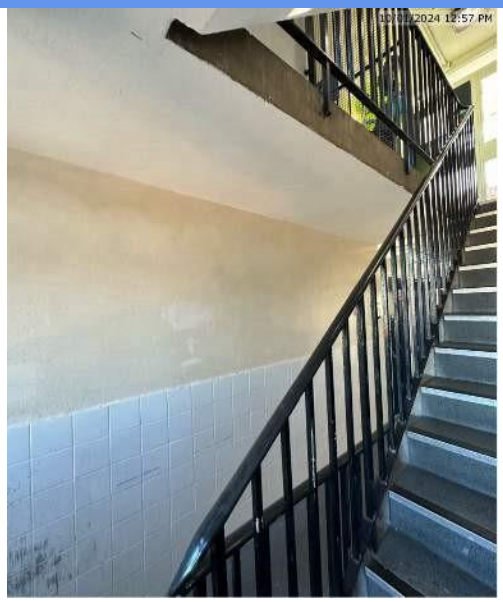
Reviewed By: Ruben Wood

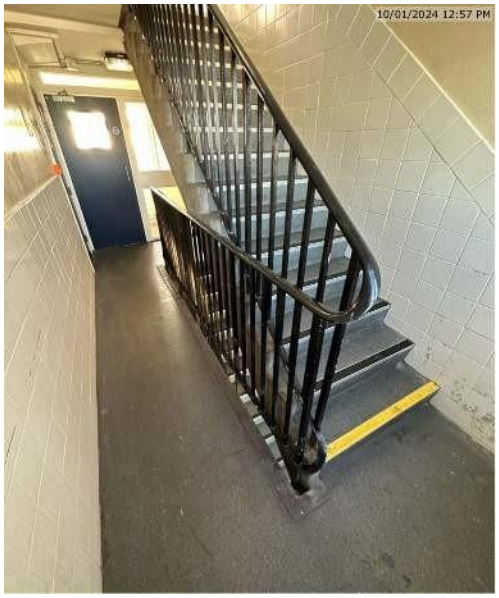
Unit 3,
Endeavour House,
Longbridge Road,
PL6 8LR



Area/ element inspected



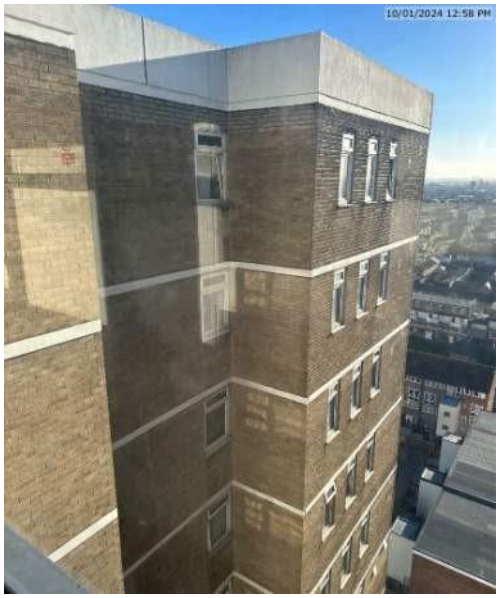




Reference:	Internal
Location:	16th Floor
Created:	10/01/2024
Description:	Photographs indicating stairwell area. Photographs also indicate floor slab thickness and stair stringer thickness.
Assigned To:	Internal finishes
Reviewed By:	Ruben Wood


10/01/2024 12:58 PM


10/01/2024 12:58 PM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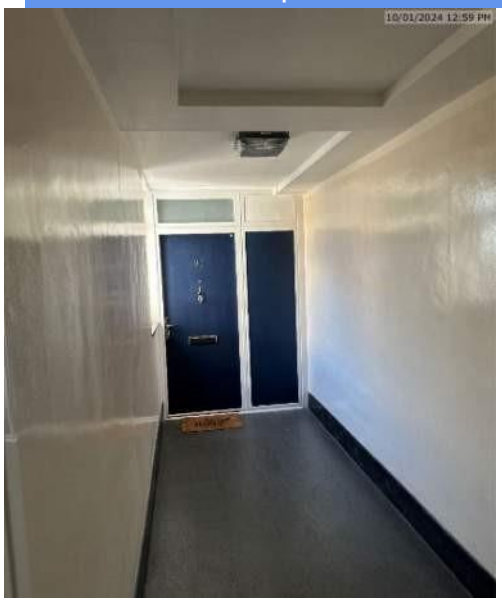
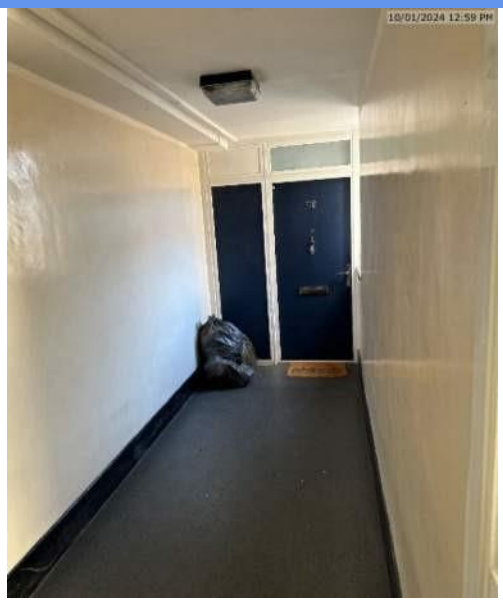
Area/ element inspected





Reference:	Internal
Location:	16th Floor
Created:	10/01/2024
Description:	Photographs indicating corridor forming access to flats and lift shaft. Please note all access doors open and close with ease with no binding. Photos also indicate external elements of the building.
Assigned To:	Internal finishes
Reviewed By:	Ruben Wood

Reference: Internal

Location: 16th Floor

Created: 10/01/2024

Description: Photographs indicating wall alignment to side of lift shaft.

Assigned To: Internal finishes

Reviewed By: Ruben Wood

Area/ element inspected

Area/ element inspected

Reference: Internal

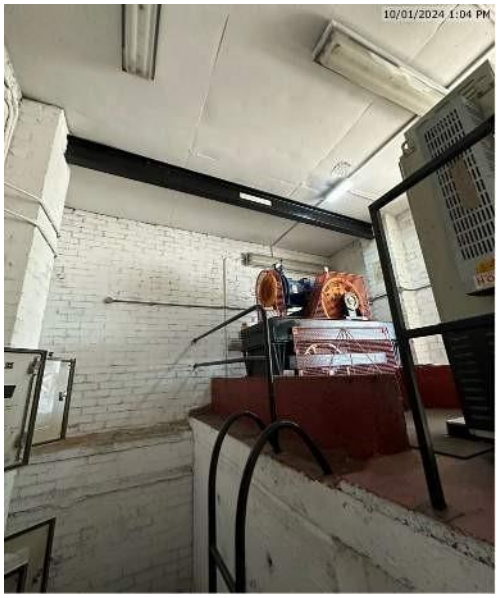
Location: 16th Floor

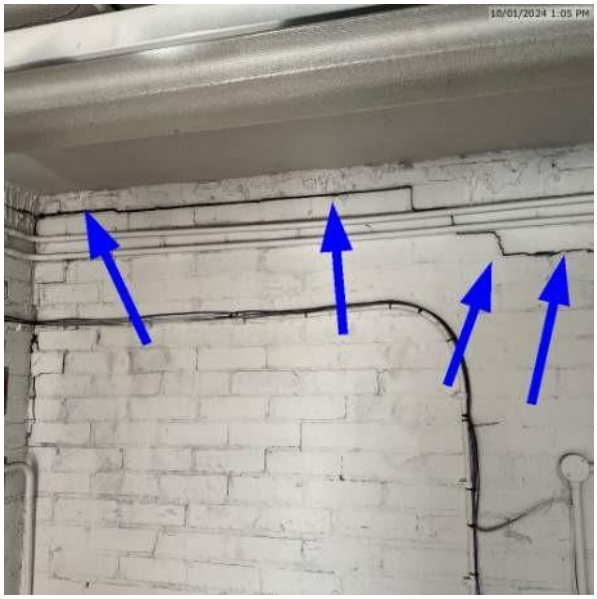
Created: 10/01/2024

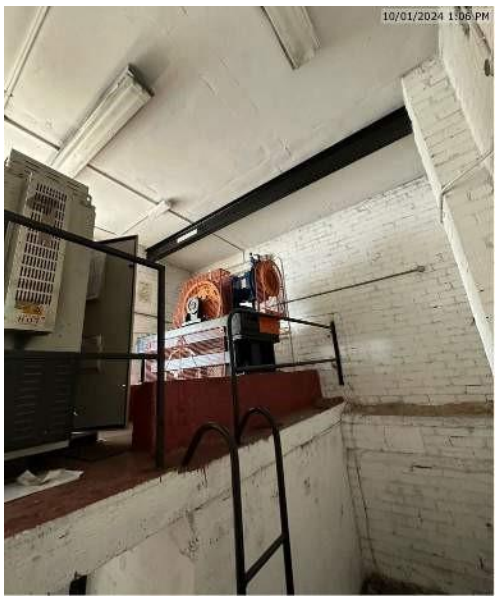
Description: Photographs indicating finish floor levels within corridor/ lift shaft access.

Assigned To: Internal finishes

Reviewed By: Ruben Wood

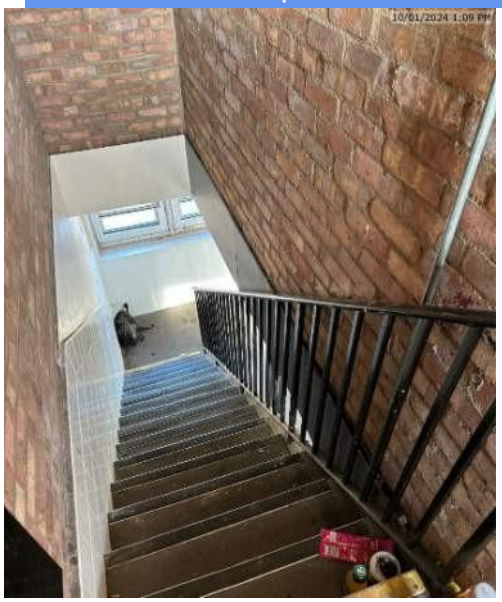


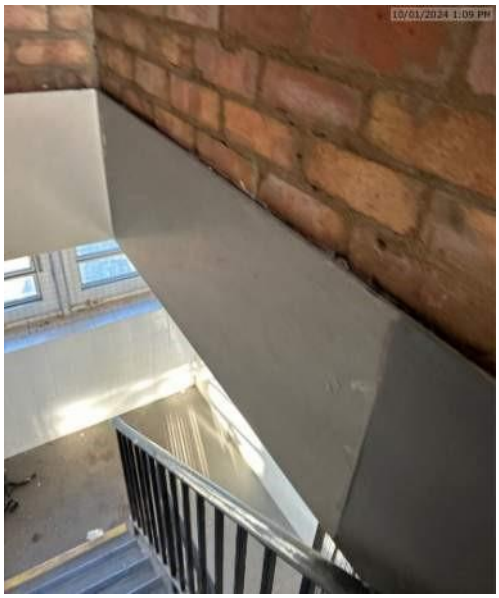




Reference:	Internal
Location:	Internal roof level
Created:	29/11/2023
Description:	Photographs indicating internal plant room which houses the motors for the lift shafts. Please note walls consist of a brick finish with concrete sections also. Please note the floor consist of a concrete finish and also the ceiling. Please note the steel beams at ceiling level supported on brick piers. There are open joints to the brickwork and this occurs between the first and second course at ceiling level.
Assigned To:	Internal finishes
Reviewed By:	Ruben Wood

Area/ element inspected





Reference: Internal

Location: Internal roof level – staircase area

Created: 10/01/2024 Description: Photographs indicating walls which consist of a brick finish with a concrete staircase and concrete ceiling. Photographs also indicate stair stringer thickness.

Assigned To: Internal finishes

Reviewed By: Ruben Wood

Area/ element inspected

Reference:	External
Location:	Roof level
Created:	10/01/2024
Description:	Please note access was not available to the roof area on the day the survey was conducted.
Assigned To:	External elements
Reviewed By:	Ruben Wood

Area/ element inspected

Reference: Internal

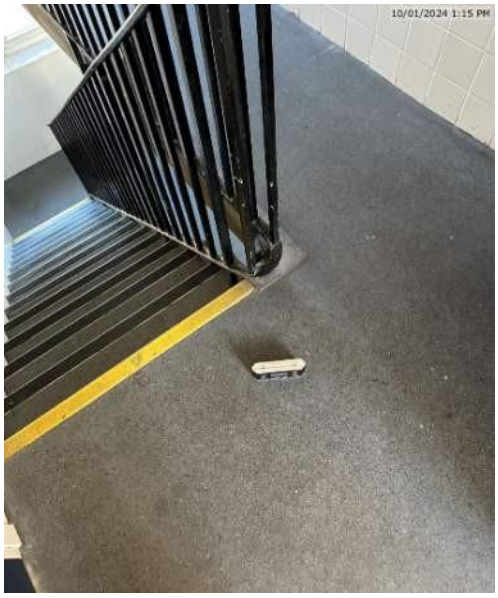
Location: 8th Floor

Created: 10/01/2024

Description: Photographs indicating wall alignment within the stairwell area.

Assigned To: Internal finishes

Reviewed By: Ruben Wood



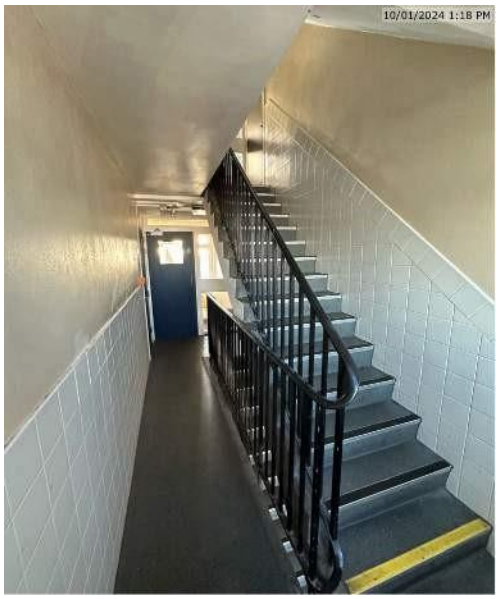
Reference: Internal

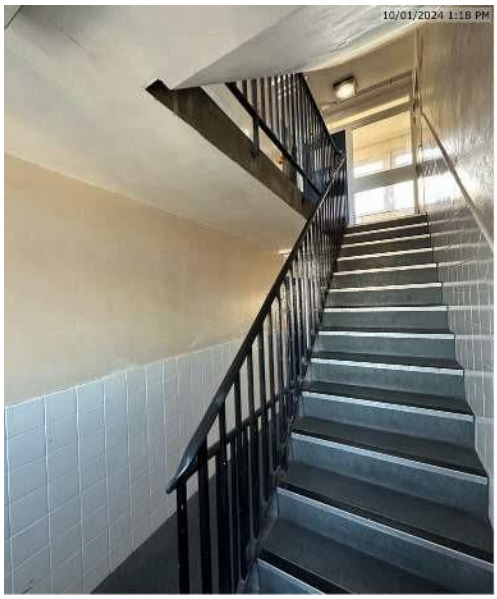
Area/ element inspected

Location: 8th Floor
Created: 10/01/2024

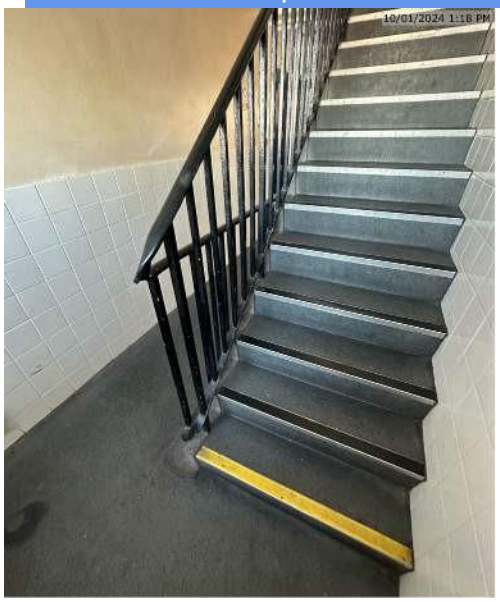
Description: Photographs indicating floor finish levels.
Assigned To: Internal finishes

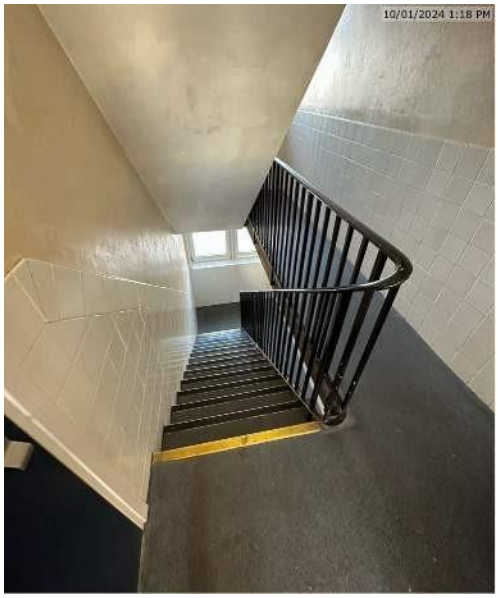
Reviewed By: Ruben Wood

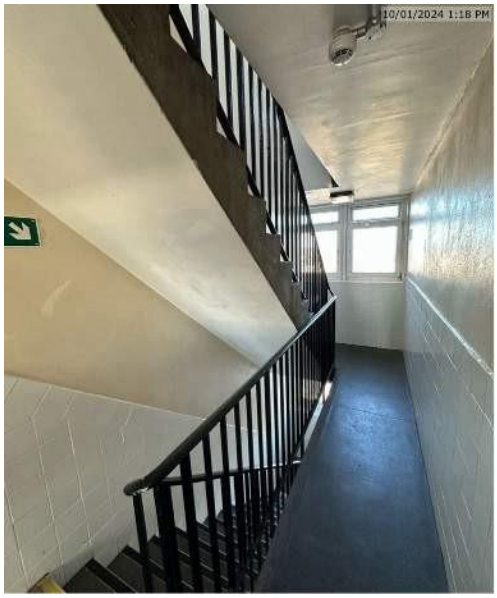




Area/ element inspected







Reference:	Internal
Location:	8th Floor
Created:	10/01/2024
Description:	Photographs indicating stairwell area. Photographs also indicate stair stringer thickness and floor slab thickness.
Assigned To:	Internal finishes
Reviewed By:	Ruben Wood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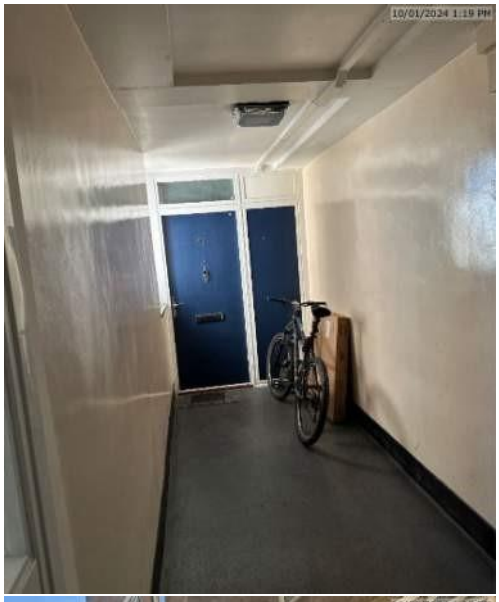
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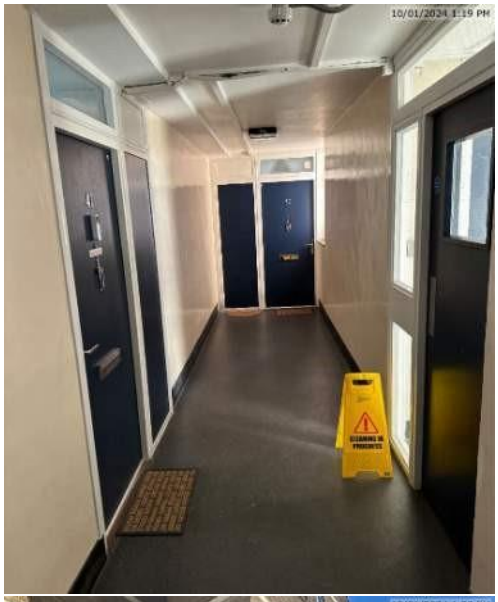
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Area/ element inspected

Reference: Internal

Location: 8th Floor

Created: 10/01/2024

Description: Photographs indicating internal corridor with access to lift shaft. Photographs also indicate external elements of the building. Please note, access doors open and close with ease with no binding.

Assigned To: Internal finishes

Reviewed By: Ruben Wood

Reference:	Internal
Location:	8th Floor
Created:	10/01/2024
Description:	Photographs indicating finish floor levels to lift shaft area.
Assigned To:	Internal finishes
Reviewed By:	Ruben Wood

Area/ element inspected

Reference: Internal

Location: 8th Floor

Created: 10/01/2024

Description: Photographs indicating wall alignment to side of lift shaft.

Assigned To: Internal finishes

Reviewed By: Ruben Wood

Reference: Internal

Area/ element inspected

Location: Ground floor
Created: 10/01/2024

Description: Photographs indicating wall alignment within stairwell area.
Assigned To: Internal finishes

Reviewed By: Ruben Wood

Reference: Internal

Location: Ground floor
Created: 10/01/2024

Description: Photographs indicating finished floor levels.
Assigned To: Internal finishes

Reviewed By: Ruben Wood

Area/ element inspected

Reference:	Internal
Location:	Ground floor
Created:	10/01/2024
Description:	Photographs indicating internal lobby/ entrance area with access to lift shafts.
Assigned To:	Internal finishes
Reviewed By:	Ruben Wood

Area/ element inspected

Reference: Internal

Location: Ground floor

Created: 10/01/2024

Description: Photographs indicating wall alignment to side of lift shaft.

Assigned To: Internal finishes

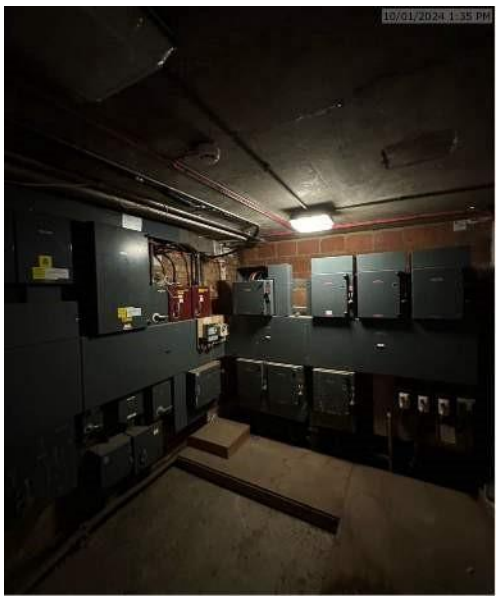
Reviewed By: Ruben Wood

Area/ element inspected

Unit 3,
Endeavour House,
Longbridge Road,
PL6 8LR

Reference:	External
Location:	External
Created:	10/01/2024
Description:	Photographs indicating external elevations and elements of the building.
Assigned To:	External elements
Reviewed By:	Ruben Wood

Area/ element inspected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10/01/2024 1:36 PM

Reference:	Internal
Location:	Ground floor internal electrical room
Created:	10/01/2024
Description:	Photographs indicating internal areas with brick finish and concrete supporting walls. Floor consist of a concrete finish and concrete finish to ceiling. Please note, that there is a section of wall which consist of a breeze block finish and this is located to the inside skin of the main rear elevation wall.
Assigned To:	Internal finishes
Reviewed By:	Ruben Wood

SYMBOLS	
	RC Slab

R
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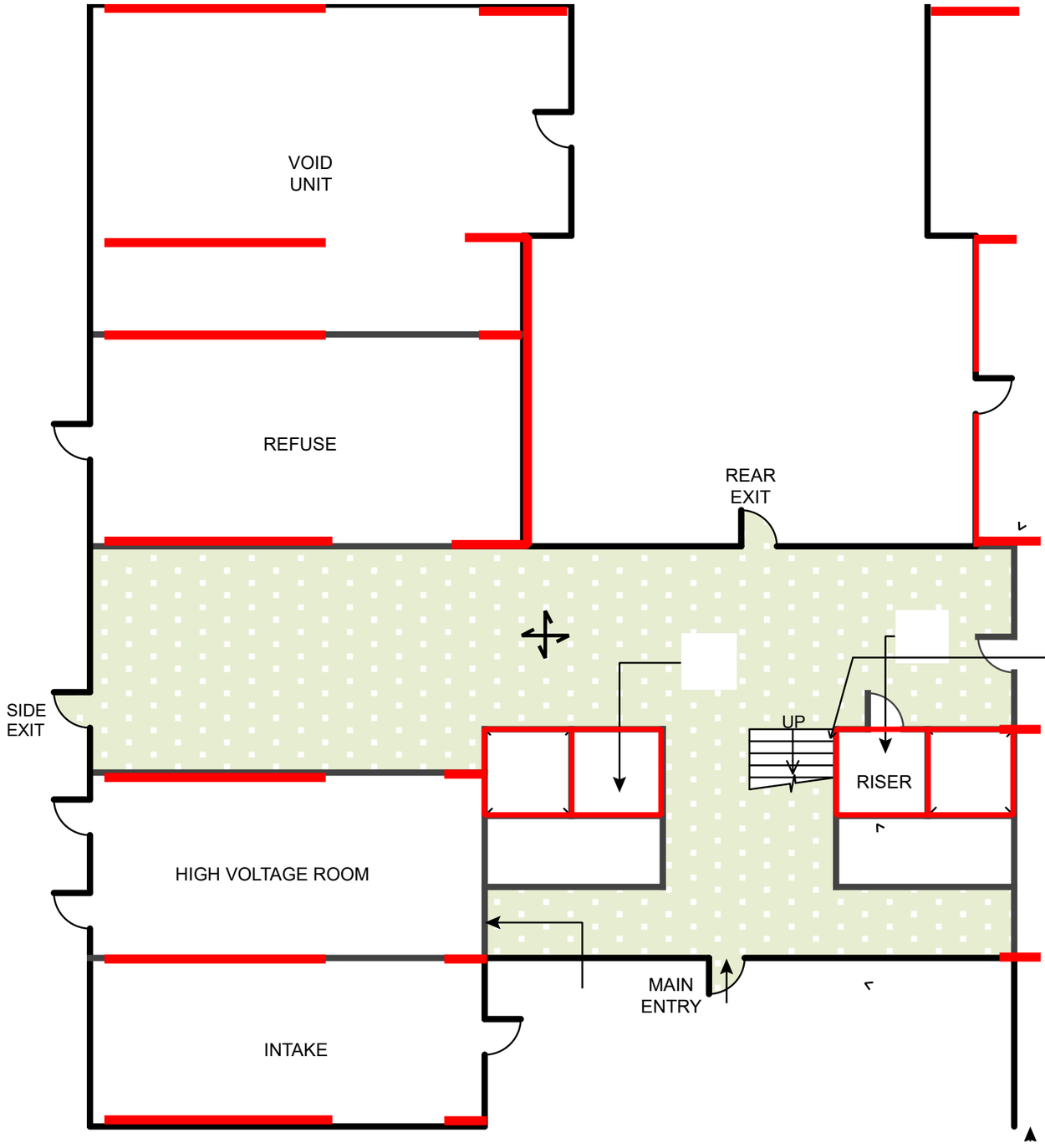
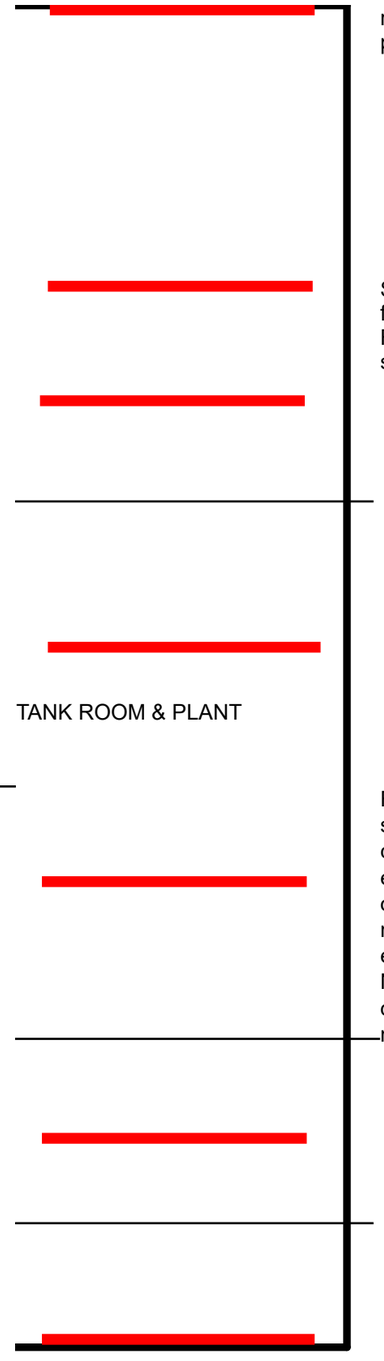
	Address : Laburnum House, Bradwell Avenue, RM10 7AE	January 2024	

Vertical concrete element. RC Wall





Address : Laburnum House,
Bradwell Avenue,
RM10 7AE

January 2024

Survey Date:

ROUND
LOOR

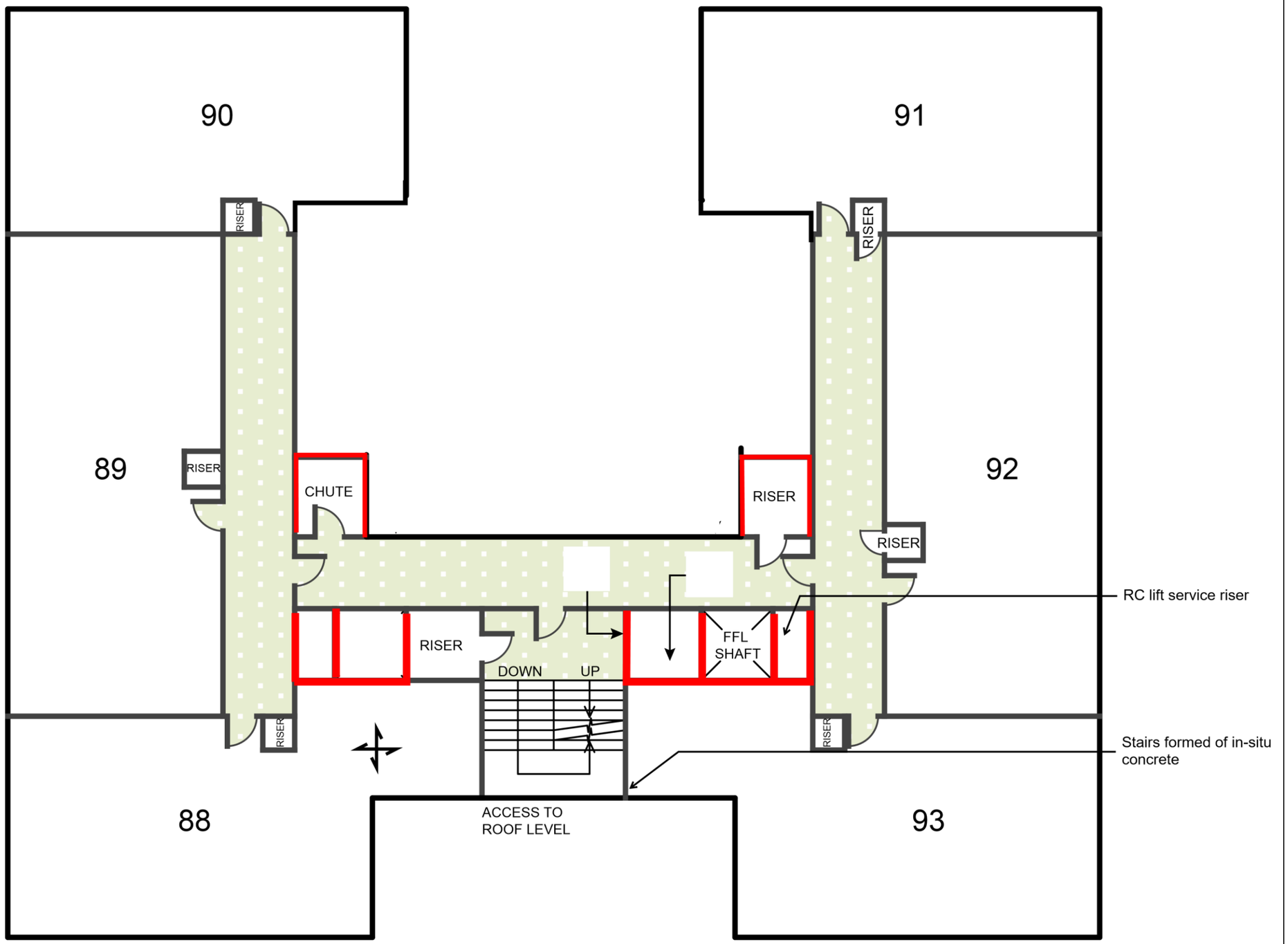
Address : Laburnum House,
Bradwell Avenue,
RM10 7AE

January 2024

SYMBOLS	

Assumed RC floor slab throughout

Vertical concrete element. RC Wall



Address : Laburnum House,
Bradwell Avenue,
RM10 7AE

January 2024

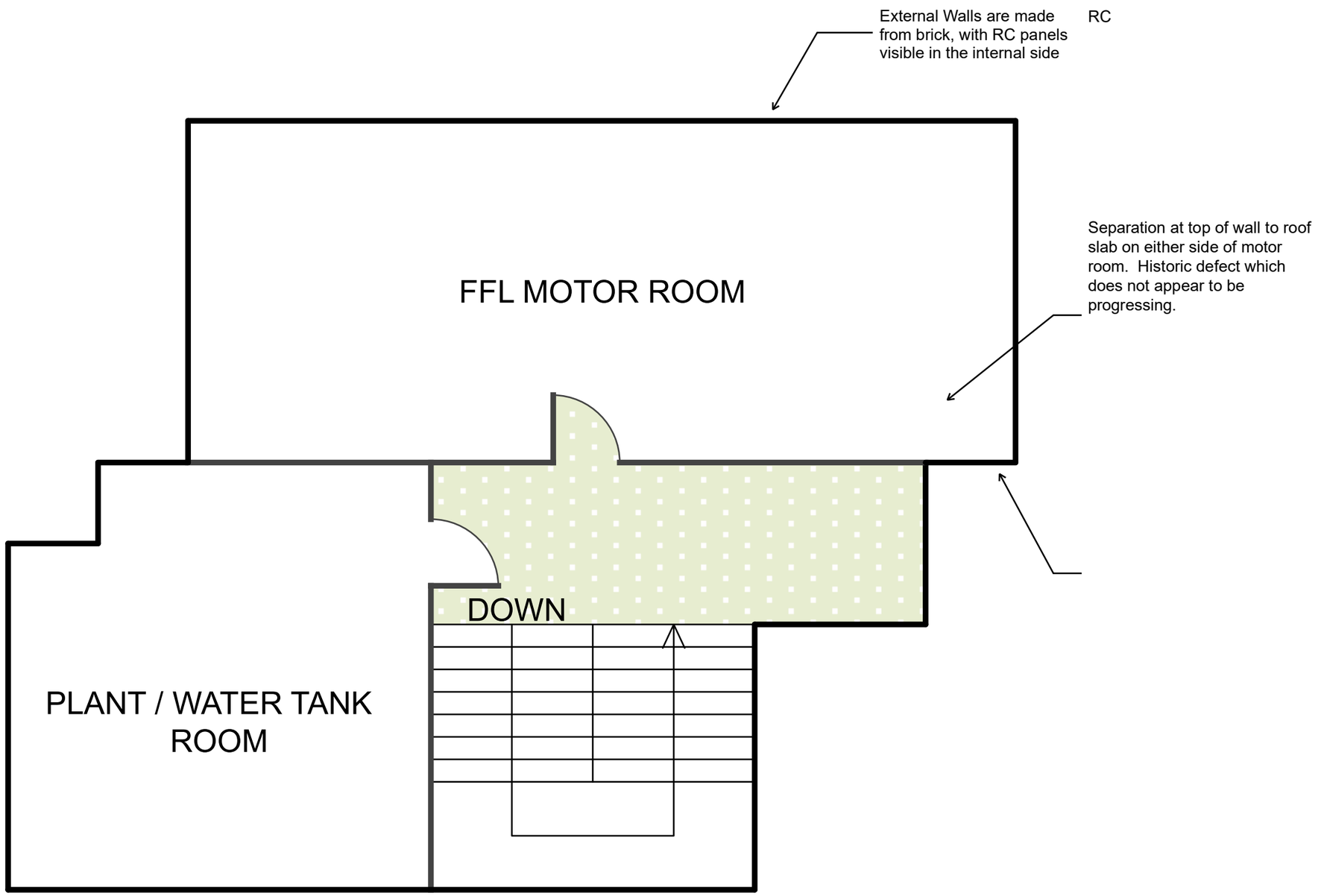
Survey Date: FLOOR 16

Address : Laburnum House,
Bradwell Avenue,
RM10 7AE

January 2024

SYMBOLS	Lift Overrun built from

RC Parapet around perimeter



Address : Laburnum House,
Bradwell Avenue,
RM10 7AE

January 2024

Survey Date:

ROOF LEVEL

Address : Laburnum House,
Bradwell Avenue,
RM10 7AE

January 2024

	Address : Laburnum House, Bradwell Avenue, RM10 7AE	January 2024	

01752 977147 info@firntec.com www.firntec.com