RETROSPECTIVE FIRE STRATEGY – RESIDENTIAL

Realty Management Ltd

Timber Wharf

32 Worsley Street

Castlefield

Manchester

M15 4NX

Author:

Simon Childs EngTech MIFireE

Fire Consultant

Peer Review:

Anthony Buck BSc (hon), CMIOSH MIFPO MIFSM

Fire Safety QA/Validator

Date of Site Visit: 23 April 2024

Document Version: Version 1.0

Project Number: 1132076

Contents

Report Author

Name / Role	Professional Memberships and Qualifications	Signature
Simon Childs Fire Consultant	Engineering Council – Engineering Technician (EngTech) Institution of Fire Engineers – Member Grade (MIFireE) Institution of Fire Engineers – Register of Life Safety Risk Assessors L4 Diploma in Fire Safety (Inspectors) L4 Diploma in Fire Risk Assessment	

Reviewed By

Name / Role	Professional Memberships and Qualifications	Signature
Anthony Buck Fire Safety QA/Validator	BSc (hon), CMIOSH MIFPO MIFSM Tier 3 Registered on the IFSM Tiered Fire Risk Assessor Register	ACB

Disclaimer

Ark Workplace Risk Ltd has provided this report based upon the information gained through documents, processes and activities sighted and provided by the Client, during discussions with Client's representatives and site visits, when applicable. Although Ark Workplace Risk Ltd.'s Consultants are experienced and trained to the highest professional standards, they have no powers under any statutory order to demand entry and the production of documents or information. The advice in the report is therefore given in good faith based upon the evidence seen, the information is given, and the points discussed at the time of the visits. No guarantee can be given that during any subsequent visit by inspectors with statutory powers other non-compliance may not be found. Ark Workplace Risk Ltd will not accept responsibility for any loss arising from such a discovery. Whilst every care is taken to interpret the Acts, Regulations and Approved Codes of Practice; these can only be authoritatively interpreted by Courts of Law.

Confidentiality

As part of a consultancy project, Ark Workplace Risk Ltd may have access to Client information, which is of a confidential or sensitive nature. Such information will be treated in the strictest confidence by Ark™ and will not be communicated or otherwise transmitted to a third party unless expressly authorised to do so by the Client.

Version Control

Document / Version Control			Within ISO 9001 Control:	**NO**
Author	Ark Workplace Risk Ltd			
Date Originated	22.04.2024			
Version	Issued To	Author	Format	Notes
1	Realty Management Ltd	SC	PDF	First version of the Residential Retrospective Fire Strategy based on observations made and information obtained from site visit dated 23/04/2024 and a review of the; 1. Fire risk Assessment (FRA) Dated: 04/05/2022 produced by Warrington Fire, reference AO12758FRA. 2. Fire safety survey of the external façade and balconies. Dated: 26/03/20 produced by FirePrevent.

1 EXECUTIVE SUMMMARY

This document is designed to provide a Residential Retrospective Fire Strategy for Timber Wharf based at 32 Worsley Street, Castlefield, Manchester. The building is under the management, responsibility and control of the Client, Realty Management Ltd.

The building is a high rise (≥18m) multi occupied but primarily a residential building. Construction commenced in 2000 and was completed in 2002 and was designed by Glenn Howells Architects. The building consists of 11 levels comprising of 2 basement levels, ground floor and eight upper floor levels. The building includes commercial units at ground and 1st floor levels of which are separated from the residential accommodation above and are out of scope of tis report. The basement levels of the building are occupied by an internal carpark.

The building has been assessed to identify the existing fire safety provisions and management arrangements against applied enforcement criteria.

The Fire Strategy as detailed within this document describes the fire safety arrangements and systems necessary to maintain the residential occupancy of the building which theoretically could be up to a maximum of 320 people[1] with a primary objective of maintaining life safety.

Additional measures may be required in order to maintain both building protection and for business continuity, however these are not the primary focus of this report and in order to maintain the occupancy figure (with the building's current configuration), the following should be noted:

- As recommended within BS 9997:2019[i], an enhanced level of fire safety management system should be developed and implemented within the building.
- The building was designed for and currently adopts a 'stay-put/defend-in-place' evacuation strategy, whereby in the event of a fire only the occupants within the flat or apartment of fire origin will be alerted by their fire detection warning signal and evacuate. All other residents should remain in their flat or apartment, unless directly affected by heat or smoke and or informed by the fire and rescue / emergency services to evacuate.
- The Client, working with the residents, must ensure and take general fire precautions to secure appropriate levels of fire safety arrangements as detailed within this Retrospective Fire Strategy document.
- The Client and the residents should not alter any such routes and/or exits without a review of the strategy approach and fire risk assessment.
- The Retrospective Fire Strategy should be reviewed regularly and/or when changes are made to the building.

In addition, this report has identified client actions that need to be taken to provide the required levels of protection and/or confirm suitable levels of compliance and these can be found throughout this document and are reproduced in full for ease of reference in Appendix 1 Client Actions

[1] This figure is detailed in Section3.6 in this document,

2 FIRE STRATEGY PREPARATION AND PURPOSE

2.1 Preparation of a Retrospective Fire Strategy

Ark Workplace Risk Ltd has been commissioned by Realty Management Ltd to produce this Retrospective Fire Strategy document. The key people involved in production of this Retrospective Fire Strategy are as follows:

- **Simon Childs** – Fire Consultant – Ark Workplace Risk Ltd
- **James Coote** – Senior Property Manager – Realty Management Ltd

The site visit/survey was conducted unaccompanied on Tuesday, 23 April 2024 by the Ark Workplace Risk

2.2 Purpose of a Retrospective Fire Strategy

Notwithstanding the specific requirements of legislation, it is increasingly recognised that there is a need to ensure that appropriate and effective precautions have been taken to ensure that the potential threat of fire is, as far as reasonably practicable, minimised and that any fire incidents are properly and promptly managed and dealt with.

Within the UK, and elsewhere, fire safety legislation has historically been produced in a piecemeal fashion, usually as a result of an actual fire incident. Furthermore, fire safety and protection standardisation has become a complex issue with many British, European and International Standards covering various specific areas of the subject. Combine this with special requirements of bodies such as the Insurers, and this could lead to a general confusion in the specification and implementation of the various parts that make up the fire safety and protection arrangements being put into place.

Therefore, the purpose of this Retrospective Fire Strategy is to provide an overriding document which sets out the base requirements to satisfy objectives for fire safety within the building. This document encompasses a set of principles governing the subsequent specification, design, implementation and management of fire safety systems and procedures throughout the building. This Retrospective Fire Strategy is designed to ensure that a holistic approach has been adopted to ensure the protection of life safety, and where necessary, the protection of property, environment and business continuity.

2.3 Objectives of Fire Strategy

2.3.1 Primary:

Life Safety

The primary objective of this Fire Strategy is ***Life Safety:***

The 'Life Safety' objective is designed to ensure that all persons, should they need to be, can be evacuated safely from any part of the building in the event of a 'single fire' incident to a place of ultimate safety.

The occupants of the building are familiar with the building, its layout and the means of escape provisions. This Fire Strategy also considers visitors and contractors who may be less familiar with the building and any subsequent additional provisions that are required. The Fire Strategy also takes into account the provisions and requirements of firefighters who may be required to enter the building to conduct firefighting operations and potentially assist with the evacuation.

2.3.2 Secondary:

Property Protection

Although in many cases the objective for property protection is over and above the requirements of national legislation, the surveyed building is considered an expensive asset. Therefore, the 'Property Protection' objective is designed to protect the property from the effects of fire, minimising damage and thereby minimising the disruption to the Client and the occupants.

Business Continuity

Business continuity (normal operation) is a major factor for consideration. The residents / tenants therefore shall ensure that any impact from fire within their demised areas is minimised through safety procedures, policy and liaison with the Building Management Team.

2.4 Responsibility for Maintaining a Fire Strategy

The responsibility for maintaining this Retrospective Fire Strategy lies with the "Responsible Person", as defined under the Regulatory Reform (Fire Safety) Order 2005 as amended (subsequently referred to as the Fire Safety Order)

The Responsible Person should ensure that all elements of the Retrospective Fire Strategy remain up to date with the correct information, ensuring that this document reflects the fire safety provisions and is regulatory compliant. It is recommended that the Retrospective Fire Strategy is reviewed regularly, and on an annual basis as a minimum.

Any alteration or works to the building should ensure they do not impact on the underlying principles governing the subsequent specification, design, implementation and management of fire safety systems and procedures throughout the building.

2.5 Agreed Limitations and Assumptions of the Fire Strategy

This Retrospective Fire Strategy considers the effect of the fire safety provisions implemented within the building, against the applied risk profiles on a helictical basis as opposed to considering each provision individually.

Agreed limitation for this Fire Strategy are as follows:

- The Retrospective Fire Strategy will look to ensure conformance with the relevant approved codes of practice / guidance documents which in turn will support compliance with The Fire Safety Order as amended.
- The Retrospective Fire Strategy is focused on achieving the objectives which are listed above. Anything which is outside the scope of these objectives will likely fall outside the scope of this document.
- Where information contained within this Retrospective Fire Strategy has been compiled from information identified during a site survey and information provided by the Client and other third-party data such as plans and drawings etc. Ark Workplace Risk Ltd cannot take any liability if there are fundamental differences between the 'As Built' information, where provided by the Client, and the building itself, particularly in areas which could not be inspected.
- The inspection carried out by Ark Workplace Risk Ltd at the time of the site visit was of a 'non-intrusive' nature. Therefore, it was not possible to fully confirm construction methods applied.

- The scope of this document relates to the surveyed building only. Any other building attached to or any other areas which are not directly under the management, control and responsibility of the Client have not been included in this Retrospective Fire Strategy.

During the site visit/survey, the following fire safety provisions were inspected:

- The means of escape
- The means for protecting the means of escape
- The means for raising the alarm of fire
- The means for first strike firefighting
- Access and arrangements for the Fire and Rescue Service
- Fire safety management procedures

Under the Fire Safety Order, the 'Responsible Person' has a duty to undertake general fire precautions.

The Responsible Person must take such general fire precautions as will ensure, so far as is reasonably practicable, the safety of any of his employees and in relation to relevant persons who are not his employees, take such general fire precautions as may reasonably be required in the circumstances of the case to ensure that the premises are safe and facilitating Fire and Rescue Service operations.

Life safety protection is founded on a suitable means of escape from the building and the limitation of ignition, fire propagation and fire spread impacting on the means of escape.

The Retrospective Fire Strategy has been designed to demonstrate and evidence how the means of escape provisions interact with the fire safety engineered solutions, if present, to ensure occupants should they need to can safely and quickly evacuate the building in the event of a fire.

This Retrospective Fire Strategy also demonstrates the methods in which the building design meets the requirements of the relevant legislation and standards at the time of its design, construction completion and provides a detailed philosophy around which the fire safety and fire protection measures are defined. It contains key information on the specification of fire safety systems, and the management organisation for controlling fire safety in accordance with The Fire Safety Order, The Fire Safety (England) Regulations 2022 and the Building Safety Act 2022.

2.5.1 Performance Based Design

Where any aspect of the fire safety provisions lies outside of the recommendations of prescribed guidance, an alternative approach may be adopted to demonstrate at the very least a comparable level of fire safety is provided.

This Retrospective Fire Strategy considers the total fire safety package within the building to provide a functional and practical solution to fire safety provision.

2.5.2 Other Factors Taken into Account

In assessing the fire safety provisions to meet the requirements of this Retrospective Fire Strategy, the following factors have been considered:

- Anticipated probability of a fire occurring.
- Anticipated severity of fire.
- Ability of the building structure to resist the spread of fire and smoke.
- Historic aspects of the building.

- Consequential danger to persons in and around the building.
- Legislation and guidance introduced since the building was originally constructed, or last altered.

2.5.3 Assumptions

Fires do not normally start in two different places in a building at the same time. Initially, a fire will create a hazard only in the part in which it starts and is unlikely, at this stage, to involve a large area. The fire may subsequently spread to other parts of the building, usually along the circulation routes. The items that are first to be ignited are often furnishings and other items. It is less likely that the fire will originate in the structure of the building itself and the risk of it originating accidentally in circulation areas is limited, provided that the combustible content of such areas is restricted.

As different occupants of the building may have differing levels of familiarity with the building and the means of escape strategy, the onus is therefore on the Building Management Team to formalise a strategy to enable effective fire safety procedures to be followed in the event of an emergency. This strategy must be unified throughout the building.

Managing fire safety is the whole process throughout the life of the building, starting with the initial design, which is intended both to minimise the incidents of fire and to ensure that when a fire does occur, appropriate fire safety systems (including active, passive and procedural systems) are in place and are fully functional.

The management of fire safety is thus an essential element in averting disaster in the event of a fire. Although many buildings will never have a serious life-threatening fire, it is essential for fire safety procedures to be planned and implemented for every building.

2.6 Mandatory Framework

Ark Workplace Risk Ltd is unaware of any specific legislative or insurance requirements for this building above and beyond those described in the relevant Approved Codes of Practices (ACoP) or current legislation.

2.6.1 Legislation

The following legislation is applicable to this building and has been incorporated within this report.

a) The Regulatory Reform (Fire Safety) Order 2005 as amended is the primary fire safety legislation in England and Wales.
b) The Fire Safety Act 2021 (the "Act") has amended the Fire Safety Order with the intention of improving fire safety in multi-occupancy domestic premises.
c) The Fire Safety (England) Regulations 2022[ii],
d) The Building Safety Act 2022[iii] contains a wide range of changes to law covering building safety during design, construction and occupation, and the creation of a new regulatory framework for higher-risk (residential) buildings. The Act also makes changes to the overlapping Fire Safety Order which covers safety in workplaces and other premises.
a) The Building (Higher-Risk Buildings Procedures) (England) Regulations 2023[iv]

2.6.2 Insurers

Insurance companies may require a higher standard of fire performance than that recommended in the relevant guidance documents.

Guidance of performance appropriate to insurance requirements can be found in the Loss Prevention Council (LPC) Design Guide for the fire protection of buildings. The insurance industry has also produced various other guides which are directed at property protection, and these can be located by clients if required.

Many insurers use the LPC Design Guide for the fire protection of buildings and Fire Safety Approved Document Volumes *(building age dependant)* incorporating insurers' requirements for property protection as a basis for providing guidance to the building designer on what they require.

2.7 Design Basis – Approach

For the production of this Retrospective Fire Strategy, the most appropriate methodology will be of a 'Hybrid Approach'.

A hybrid approach uses (where necessary) a combination of prescriptive guidance from existing national codes and published standards but adopts a performance-based approach when strict adherence to code compliance is considered unsuitable or cannot be achieved. Any performance-based analysis, if used, must be justified with Quantitate Risk Analysis (QRA) techniques demonstrated where necessary.

2.7.1 National Codes and Standards

The building, being an existing multi-occupancy residential premises, is within the guidance scope covered and issued by the British Standards Institute, namely (but not exclusively) BS 9991:2015 – Fire safety in the design, management and use of residential buildings – Code of practice[v]

BS 9991:2015, by its scope and application can be used as a tool for evaluating existing residential buildings, although fundamental change in line with its recommendations might be limited or not practicable. It also enhances the management of fire safety and provides recommendations and guidance on the ongoing management of fire safety in a building throughout the entire life cycle of the building.

Primary

The Primary Guidance document used for the retrospective fire strategy for this building will be:

- ***BS 9991: 2015*** *Fire Safety in the design, management, and use of residential buildings – Code of Practice.*

Supporting Guidance Documents:

Where necessary, reference may be made to the following:

- ***Approved Document B 1991*** *(second impression with amendments 1992) – The Building Regulations*
- ***Approved Document B 2000 -*** *The Building Regulations*
- **BS5588-**7:1997 Code of practice for the incorporation of atria in buildings
- ***BS 9999: 2017*** *Fire Safety in the design, management, and use of buildings – Code or practice.*
- ***Gov Guidance - Fire safety in purpose-built blocks of flats*** *(as amended 2021)*

It is assumed that the building was compliant with the Building Regulations, or a building standard enacted at the time of its design and completion, although it is accepted that reliance upon the statutory building control approval cannot be utilised to confirm legal conformance.

2.8 Other Relevant Information:

The Retrospective Fire Strategy is not a Fire Risk Assessment and the survey carried out by Ark Workplace Risk Ltd for the purposes of this Fire Strategy was of a 'non-intrusive' nature.

Therefore, it was not possible to comprehensively confirm the construction methods applied. Any information regarding 'As Built' design was taken from supporting information, where provided, and observations of the construction techniques, materials and methods noted during the survey.

The non-intrusive survey also extended to compartmentation. Compartment floors, walls or ceilings were not surveyed unless access was readily available to voids; therefore, the integrity of the compartmentation has not been examined as a part of the retrospective fire strategy survey.

2.9 Fire Strategy – Validity and Review

It is important that this Retrospective Fire Strategy also reflects how fire safety is managed and how the fire safety systems and arrangements interface within the building. For this to remain valid, any changes that may affect the fire safety arrangements **MUST** be reported to the Responsible Person(s) who is responsible for ensuring that this Retrospective Fire Strategy is reviewed, amended as is necessary and republished and communicated to the various interested parties.

These changes could include:

- alterations to the layout – those that affect means of escape or fire safety for example;
- alterations to fire safety provisions and systems within the premises;
- changes of key personnel, management and/or management arrangements; and
- changes in the fire load and/or processes undertaken by tenants which have a substantive effect on the building.

It is also recommended that this Retrospective Fire Strategy is reviewed after completion of a Fire Risk Assessment or an evacuation of the building to ensure that any lessons learnt can be accommodated within the review.

Not withstanding this, it is recommended the Retrospective Fire Strategy is reviewed, regularly, to ensure that it remains valid.

3 INTRODUCTION

3.1 Scope

The scope of this Retrospective Fire Strategy is limited to the in scope building only, specifically the client responsible common areas including:

- ground floor main entrance and the full height circulation core (atrium) areas;
- internal staircase cores (atrium and the two protected stairs, one at each end of the building) and stair landing / lobby areas serving basement, ground and upper floors;
- the final exits and means of escape leading to them;
- basement carparking areas;
- basement bin room;
- 1 x passenger lift systems serving basement, ground and upper floors;
- communal residential corridors on all floors;
- sample of electrical and mechanical services riser cupboards on upper floors;

The Retrospective Fire Strategy excludes the following areas:

- external roof areas;
- lift and other plantrooms (no access);
- Commercial demises:
- Lift rooms – no access.

In addition, all residential units, that are outside of the client's immediate management, control and responsibility are excluded from this Retrospective Fire Strategy, in so far as these are the responsibility of the private residence occupants themselves who are out of scope of the Fire Safety Order 2005. That being said, the doors between the occupiers' demised areas and the common areas have been considered.

Although not relating to the client managed areas, consideration to the fire safety provisions of the individual residential areas has been given to ensure that in the event of a fire occupiers can safely evacuate to either a place of 'relative' and/or 'ultimate' safety and is designed to evidence a holistic approach to the fire safety of the building occupants.

This Retrospective Fire Strategy has not considered any additional requirements associated with the secondary objectives of 'Property Protection' and 'Business Continuity', and any information relating to 'variations to the prescriptive approach' are on the basis of primary objective being 'Life Safety'.

3.2 Building Overview and Description

Timber Wharf is a high rise (≥18m) multi-occupied residential building providing 160 self-contained general needs flat residences. The building is of a cross wall concrete construction type and continuous balconies with storey-height glazing set up a simple layered rhythm. It consists of 9 above ground storeys, comprising of ground floor and eight upper floor levels with level eight comprising of the upper floors of the duplex flats on level 7. The building occupies a sloping site with the elevation facing onto the canal being at a lower level to the access point on Worsley Street. The building identifies itself as having two basement levels, B1 and B2, and practically due to the sloping site, B1 is at ground floor level on the canal side of the building.

The residences are served by three staircase enclosures of which the primary stair is within the enclosed centrally located atrium and with the other two protected stairs located one at each end of the opposing residential wings emanating off the atrium.

There is a single passenger lift which is located within the enclosed atrium space. The lift is marked as a "Fireman's Lift" and with a fire service override type switch located at ground floor in the atrium.

Vehicular access to the building is via Worsley Street with the ramp access to the building underground carparks available also. Pedestrian access for residents is via the single main entrance to the ground floor of the atrium, occupants of the commercial demises have independent access points off Worsley Street. There is also a pedestrian access gate into the building gardens at the rear of the building off the adjacent canal path.

Access within the building is via the main entrance leading to the lift and or the atrium staircase. Access to all residential levels, i.e. level 2 and above, is provided via atrium stair landing levels from which the two separated residential corridors can be accessed. The ground floor of the atrium also has stairs which descend to an external door leading to the rear garden area of the building. Routine access to the carpark areas is via a mid building point lobbied stair (below the atrium) which descends to levels B1 and B2 and serves also as the mid point carpark means of escape route. The two protected stairs, one on each of the
The main internal staircase (atrium) serves ground and all upper floors. The secondary protected fire escape staircases at each end of the building serve as means of escape from each upper floor residential corridor separately and also as escape stairs by ascent from each end of the basement carpark levels.

The communal corridors on all residential floors are protected corridors and lead to the residential flat entrance doors. The residential stairs are not directly and separately lobbied but instead provide indirect lobby protection via the protected stair and corridor method. The exception to this being the stairs to and from the basement which are all provided with direct lobby protection.
The residential protected corridors also contain electrical and mechanical services riser cupboards for the flats.

Figure 1 - Front main entrance, atrium external view

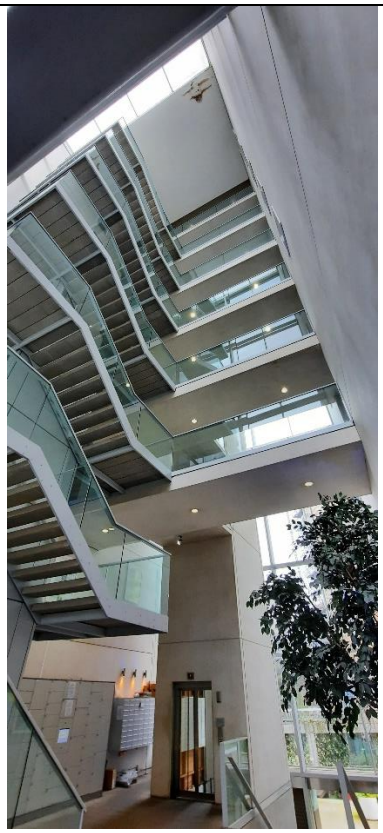


Figure 2 - Enclosed atrium internal view

Figure 3 – Typical residential corridor view.

Figure 4 - Typical car park view.

Security arrangements at the building appear suitable. CCTV surveillance is present in the main common areas of the building and suitable access control measures are in place where appropriate throughout the inspected areas. Other areas such as plant rooms, riser cupboards and roof areas are kept securely locked with access limited to authorised persons only.

The building, on external appearance, is primarily of a reinforced concrete frame construction under a flat roof. The building must be designed and constructed so that the unseen spread of fire and smoke within concealed spaces in its structure and fabric is inhibited.

From a visual inspection the surveyed areas have internal walls that are of both a solid type of construction such as brick and blockwork with a facing of plaster and painted and other walls of a lightweight stud partition type.

Plant areas are located at basement level with building service risers passing through floor slabs.

Floors appear of a reinforced concrete slab design and must be designed to achieve a fire resistive quality appropriate to the height of the building. The staircases were observed as being of a concrete and steel construction.

Throughout this document, reference is made to the REI capability in minutes of fire resistance. This relates to the 'elements' capabilities with regards to its load bearing capacity (R), its integrity - resistance to fire penetration (E) and its insulation - resistance to heat transfer (I) as required in determining the passive fire safety provisions within the building.

Scaled floor plans/drawings of the building were not available at the time of the survey; therefore, the escape strategies are based on the evacuation strategy, applied risk profiles, and means of escape provisions in terms of exits widths and numbers, travel distances, staircases and compartmentation. During the survey, the buildings means of escape and fire safety provisions of all accessible areas of the Client's responsible areas in the building were evaluated.

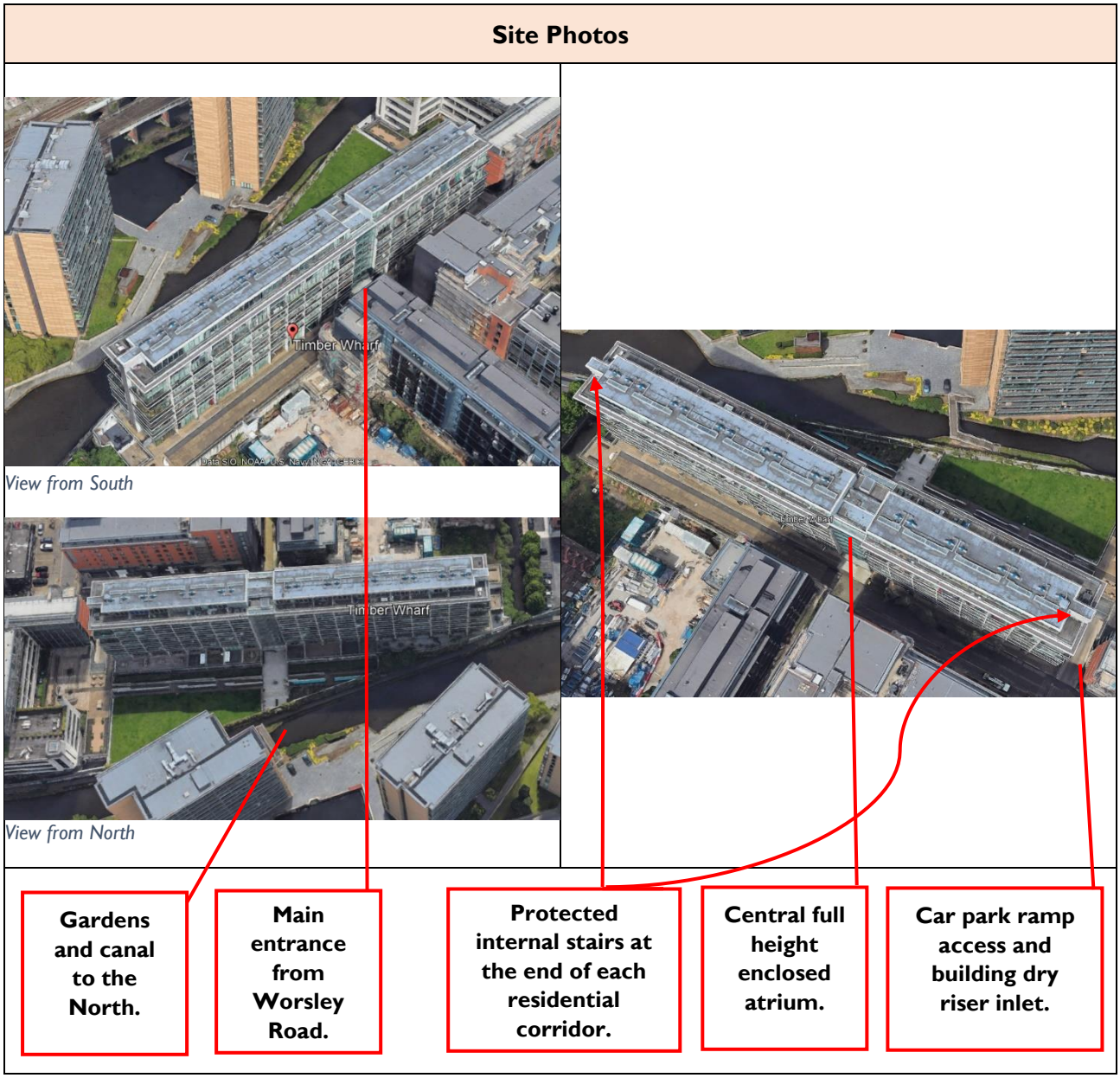


Figure 5 - Site Images (images courtesy of Google Earth Pro)

3.3 Building Height

As a multi-storey and multi-occupied residential building, the building height is key. This is specifically identified in The Fire Safety (England) Regulations 2022 and whereby the method of height of a building is to be measured to the height to the top storey in accordance with Appendix D of The Building Regulations 2010 – Fire Safety: Approved Document B.

The height of the building is calculated in line with recommendations of Approved Document B. The height is measured and as shown in Appendix D, Diagram D6 according to applicability.

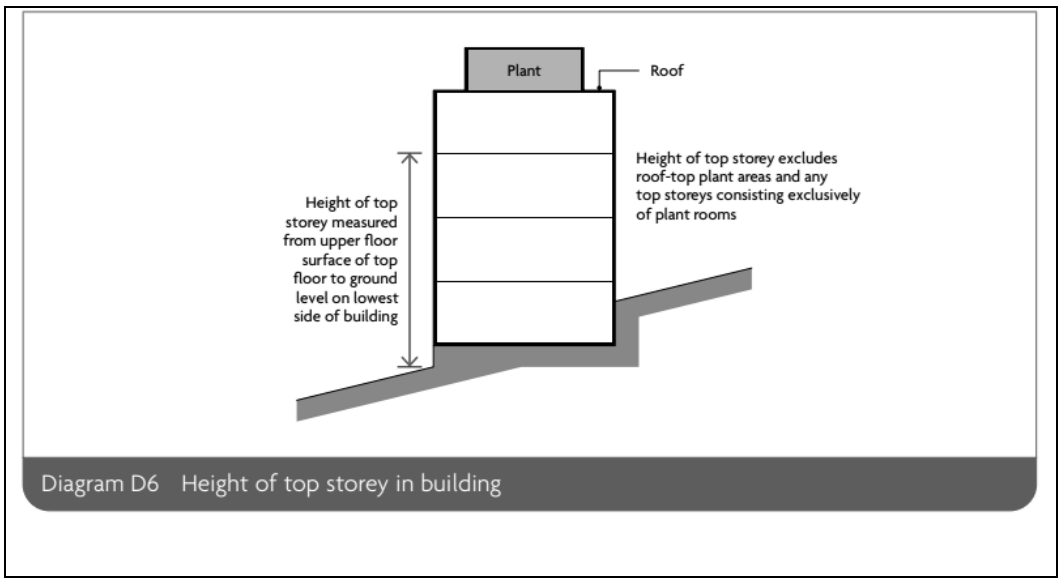


Figure 6 - Approved Document B Diagram D6 - height of a building.

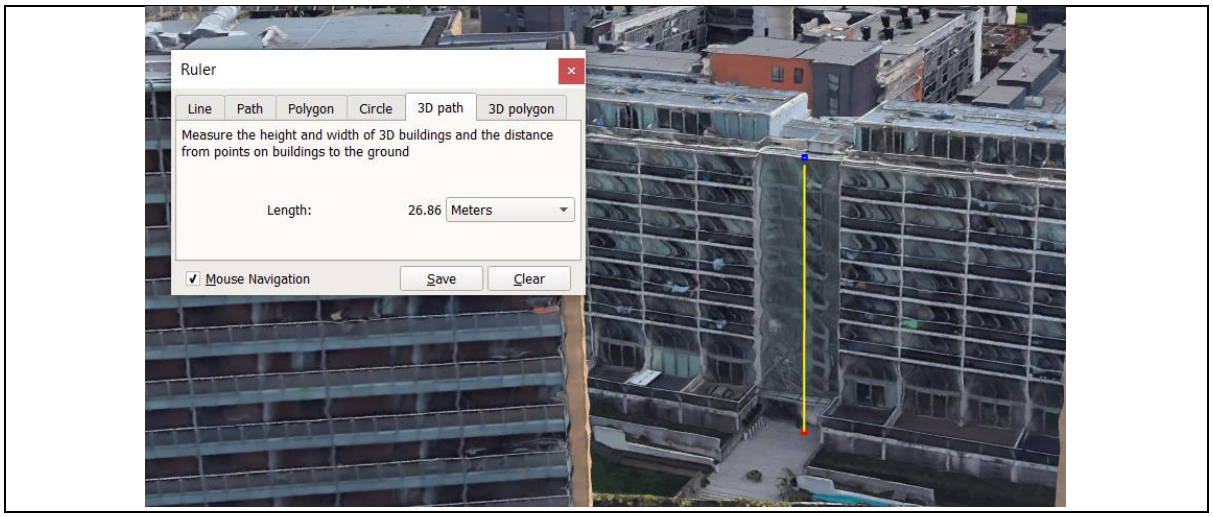


Figure 7 - building height as measured and illustrated in Google Earth Pro - Lowest side of building measurement.

Therefore, and in this case for Timber Wharf, a building height of ≥26m has been assessed in line with the Approved Document B Appendix D guidance above and by utilising the Google Earth Pro software measurement tool to support and as shown in the above Figure.

For information, and when measured from "fire service access" level, the height of the building at the main entrance on Worsley Street to the topmost occupied floor is ≥20m. This measurement, even if taken to level 7 as the lower level of the top floor duplex flats, has bearing further within this report in paragraph 7.3.5 Firefighting Shafts.

3.4 Building Staircases

The building is served by three protected staircases which serve the following floors:

Staircase Designation	Floors Served
Atrium stair (upper floors)	Residential floors. (ground to 7th)
Atrium stair (basement floors)	Ground to basement carpark levels

West staircase (protected escape stair)	Basement levels and all residential floors, roof and 7th floor duplex upper level.
East staircase (protected escape stair)	Basement levels and all residential floors, roof and 7th floor duplex upper level.

Table 1- Staircase Designation

3.5 Escape Principles

For an employed means of escape strategy to be robust, the escape principles from each storey are defined to ensure the means of escape provisions in terms of number, size, direction and distance of travel suitably reflect the fire risk and occupancy of the building.

Fundamentally, the residential building is designed to operate under a stay put evacuation strategy and occupants will not normally evacuate on mass. However, should it be necessary the following principles are applicable.

Area/Floor	Escape Principle – If necessary
Flats across all floors	The building is provisioned with three protected staircases and provides two directional escape for residents would make their way to the nearest available stair and descent would then be made to ultimate safety on the ground floor where the stairs discharge directly to outside. Duplex flat occupants, with the exception of 7th floor duplexes, have internal stairs within to negotiate initially. 7th floor duplexes can access alternative escape via their terraces.
Basement carpark occupants	Two directional escape is available and ascent to ultimate safety is via one of three lobby protected staircases. Occupants in these areas should evacuate simultaneously.

Table 2 - Escape principles

3.6 Occupancy Characteristics

3.6.1 General Considerations

For the development of the building Retrospective Fire Strategy, a conservative approach is taken for the occupancy characteristics from the data provided by the Client and information obtained during the site visit.

The occupancy figures are an estimate based on the numbers of private residences and their capacities and by using data provided within the fire risk assessment.

The occupancy of the building predominately comprises general needs residents and their guests, along with site-based visiting building management staff/contractors.

Current maximum occupancy is estimated in the region of 340 based on approximately 2 persons per residence and or contractors or cleaning staff.

Floor	Area/Use Description	Floor estimated max Occupancy
Ground	Commercial units	Out of scope. Commercial units have their own entrances and exits
Floor 1	Commercial units	

Floor 2	Flats 201 – 227	54
Floor 3	Flats 301 - 327	54
Floor 4	Flats 401- 427	54
Floor 5	Flats 501 - 523	46
Floor 6	Flats 601 - 627	54
Floor 7	Flats 701 - 729	58

Table 3 - Estimated Occupancy Levels

Based on the information above, it is recommended the need for an **ENHANCED (LEVEL 1)** type of fire safety management system (as defined within BS 9999:2017 along with BS 9997:2019[vi] Fire Risk Management Systems - Requirements). This Enhanced level of fire safety management aims to demonstrate best practice and to not just meet basic compliance with current legislation.

Management System Level	Management System Type	Robustness	Minimum Assurance	Conformity
1	Enhanced	Best practice	High level of assurance	Conformity with a management system standard such as BS 9997:2019 - Fire risk management systems - Requirements with guidance for use and PAS 7 2013 - Fire Risk Management System Specification

Table 4 - Enhanced Management Level

The fire safety manager/Responsible Person nominated to monitor and control the management of fire safety should define the organisation's fire risk management system, and a method of implementing the overarching policy within a fire risk management strategy. The principal factors listed below should be taken into account when defining and documenting fire risk management strategy.

Key factors of any fire risk management strategy

Management Factors	Provision
Fire risk assessment	The fire risk assessment must be regularly reviewed. In the case of any fire, alterations or refurbishment the fire risk assessment should also be reviewed.
Resources and authority	The resources necessary to implement, maintain and improve the fire risk management system should be maintained.
Fire safety training	Where applicable, sufficient number of staff should be trained in fire prevention, fire protection and evacuation procedures, and be able to use the appropriate extinguishing equipment (and media), so as to provide full coverage of the building, with provision for contingencies, sickness, or holiday absences. Building-specific fire safety training needs to be delivered to all staff. Staff training in the safe use of charging equipment and the actions to take in the event of a fire, including the safe isolation of power from the charging station (if the system malfunctions and does not automatically do this).

Management Factors	Provision
Control of work onsite	The means by which the end user or occupier will control work on site should be determined, e.g. repairs to structure, and in particular hot work. A work control system should include clear lines of responsibility communicated to contractors; a permit system which takes into account the risks to relevant persons; logging and work control audit processes; and routine checking and supervision.
Maintenance and testing	Fire safety equipment, installations and systems need to be inspected and tested on a regular basis by a competent person so as to ensure that they operate effectively in the event of a fire. Processes should be determined for maintenance and testing of fire safety systems.
Communications	The need for internal and external communication procedures should be determined, to ensure that all of those involved in management of fire risk, or who could potentially be involved in an incident, are provided rapidly and effectively with relevant information. These procedures should include defined lines of communication of significant findings arising from fire risk assessments and should stress the importance of maintaining fire safety information.
Emergency planning	To identify various possible emergencies and incidents. Accordingly, responding to unplanned events, potential emergencies or disasters should be established, documented and maintained. The planning should include logistical issues such as shelter provision, communications, transport, the weather, the time of day, time of week, time of year (holidays etc.) and traffic-related issues, as well as scenarios such as water failures.

Table 5 - Management Level Key Factors for Consideration

The Building Management Team must have a full understanding of the building, the fire safety systems provided and equipment, and consider the following:

a) any change in use of the premises which could affect the buildings fire safety and risk profile (e.g., increased fire load and process risks, introducing the public, changes to sleeping risk, seasonal changes).
b) how the necessary fire safety levels can be practicably achieved in the existing premises and whether they are appropriate.
c) historic and environmental aspects of the premises and to what extent they need to be disturbed.
d) legislation and guidance introduced since the premises were originally constructed, or last altered, or since their fire safety was last assessed.
e) the interrelationship between life safety and measures to protect building/contents.
f) business continuity.

The Building Management Team must develop bespoke fire safety procedures and be provided with training in basic fire safety awareness, fire safety and evacuation strategies and how the passive and active fire safety systems react in the event of a fire so the relevant information can be provided to residents.

4 FIRE SAFETY (MANAGEMENT) STRATEGY

4.1 Management Overview

The management of fire safety is essential in controlling fire hazards and averting the loss of life in the event of a fire in a building. Many buildings will never have a serious life-threatening fire; however, it is essential that fire safety procedures and maintenance of systems are planned for every building and as such support compliance with The Fire Safety Order.

The primary focus of this Retrospective Fire Strategy is in two main areas:

1. The persons present in the building and;
2. The provisions associated with ensuring safe access/egress and additionally on firefighter protection.

It is considered that in addressing these, any impact on the environment and other persons will be minimised to a reasonable level. It is believed that the strategy outlined in the previous sections together with an effective fire risk assessment developed from this strategy will provide a template for effective fire management of these premises. BS 9999:2017 requires that the Fire Strategy be brought to the attention of building management and incorporated into the fire risk assessment together with staff training, systems maintenance etc. and documented.

The Fire Safety Order requires that systems provided for fire safety are maintained in good working order at all times. This includes firefighting equipment together with other facilities to be provided for the safety of people in the building and to help firefighters.

4.1.1 Fire Safety (England) Regulations 2022

The Building Management Team must consider, and are advised to action and implement, the requirements of Fire Safety (England) 2022 Regulations that are applicable to this building, based on building height/number of floors.
By following hyperlinks to the Regulations below, clients must ensure each regulation in relation to the height characteristics of this multi-occupied residential building is complied with.

<table>
<tr><th colspan="4">Fire Safety (England) Regulations 2022 – Scope</th></tr>
<tr><td rowspan="2">Duties, Provisions and Regulations that apply

(Note: See links for precise duties)</td><td colspan="3">Residential Building containing two or more sets of domestic premises – considering building height/number of floors *</td></tr>
<tr><td>All in scope buildings</td><td>Between 11m and under 18m *</td><td>High-rise residential building - 18 metres and above OR -
* Has at least seven storeys</td></tr>
<tr><td>Applicable to this building?</td><td>Yes</td><td>Yes</td><td>Yes</td></tr>
<tr><td>Fire Risk Prioritisation Tool</td><td colspan="3">The implementation of the act is likely to be regarded a significant change to an existing building's Fire Risk Assessment. This tool is aimed at a Responsible Person with a number of premises that might require re-assessment. Its purpose is to support Responsible Persons to develop a prioritisation strategy for updating their fire risk assessments following commencement of section one of the Fire Safety Act 2021. Use of the prioritisation tool is encouraged but is not mandatory. The prioritisation tool is not designed to be a risk rating tool to determine whether a building is safe or unsafe. It is not a replacement for a fire risk assessment.</td></tr>
</table>

Information to Residents - Fire Safety Instructions (Regulation 9)	You must display fire safety instructions in a visible part of the building. The instructions must be in a comprehensible form that residents can reasonably be expected to understand. Instruction should include details on the evacuation strategy.		
Information to Residents - Fire Doors (Regulation 10)	You must provide relevant information about fire doors, particularly residents' flat entrance doors as these play an important part in containing any fire within the flat in which it starts. Residents must be given information to the effect that: • fire doors should be kept shut when not in use; • residents or their guests should not tamper with self-closing devices; and • residents should report any fault or damage immediately to the Responsible Person.		
	In addition to the above requirements, buildings between 11m and under 18m or has at least 7 storeys must include:		
Fire Door Checks - Communal Areas (Regulation 10)		All fire doors in communal areas of the building must be checked at least once every three months.	
Fire Door Checks - Flat Front Doors (Regulation 10)		You must use best endeavours to undertake checks of all flat entrance fire doors at periods/intervals not exceeding 12 months.	
	In addition to the requirements detailed in two sections above, high-rise residential buildings (18 metres and above or has at least seven storeys) must also include:		
Secure Premises Information Box (Regulation 4)			in the event of a fire in any high-rise residential building, it is important that certain information is readily available for the fire and rescue service. The box must be capable of containing the documents required by these regulations, and it must be reasonably secure from unauthorised access and vandalism.
External Wall System Design and Materials (Regulation 5)			You must prepare a record of the design of the external walls of the building, including details of the materials from which they are constructed. You must provide this record to the local fire and rescue service by electronic means.
Provide Floor and Building Plans (Regulation 6)			You must prepare a plan for each floor of a high-rise residential building. The plans must contain specific information listed in the Regulations. You must also prepare single page building plan identifying building specific information as listed in the Regulations. You must provide this record to the local fire and rescue service by electronic means.
Lifts and Essential Firefighting Equipment (Regulation 7)			You must undertake monthly routine checks of: • lifts that are intended for use by firefighters • evacuation lifts • other essential firefighting equipment, for example: - rising mains, smoke control systems, fire suppression systems, fire detection and fire alarm systems - evacuation alert systems (a visual check of the control and indicating equipment, but not testing of the system), automatic door

			opening or closing systems linked to fire detection and fire alarm systems & you must keep records of all of these monthly checks. The records of these checks must be accessible to residents of the building. **Note:** Where a fault identified with such equipment cannot be rectified within a 24-hour period beginning with the time the fault is identified, the responsible person must, as soon as reasonably practicable — (a) report the fault to the local fire and rescue authority by electronic means; and (b) report the rectification of the fault to the local fire and rescue authority by electronic means when it has been rectified.
Wayfinding Signage (Regulation 8)			You must provide suitable signage to assist fire and rescue service crews with orientation in the event of a fire. Signage should conform to the specifications and locations set out in paragraph 15.14 to 15.16 of Approved Document B Volume 1 2019 edition incorporating 2020 amendments.

Table 6 - Fire Safety (England) Regulations 2022 requirements based on building height/number of floors.

4.1.2 Building Safety Act 2022

The Building Safety Act 2022[vii], similar to the Fire Safety Order requires that Accountable Persons of multi occupancy residential properties make and give effect to such arrangements as are appropriate, having regard to the size of his undertaking and the nature of its activities, for the effective planning, organisation, control, monitoring, and review of the preventive and protective measures. This is achieved through fire risk assessment, retrospective fire strategy, policies, and procedures and all of which provides recorded information so as to demonstrate the clients record of Fire Safety Arrangements.

4.1.3 Building Safety Act 2022 - Section 156

The Building Safety Bill received Royal Assent in April 2022 and became the Building Safety Act 2022. The new legislation has the effect of amending the Fire Safety Order to:

- require that all Responsible Persons must record their completed fire risk assessment, and in full (where previously only specific information was required to be recorded)
- require that all Responsible Persons must record the identity of any individual (their name), and/or if applicable, their organisation (name) engaged by them to undertake/review any or all of the fire risk assessment and share this with residents of multi-residential unit premises where applicable.
- require that all Responsible Persons must record their fire safety arrangements (demonstrate how fire safety is managed in your premises)
- require that all Responsible Persons must record (and as necessary update) their contact information, including a UK-based address, and share this, along with the identified fire safety risks, preventative and protective measures, any competent persons nominated to assist with firefighting and detection measures, with other Responsible Persons and residents of multi-domestic unit premises where applicable.

- require that all Responsible Persons must take reasonably practicable steps to ascertain the existence of other Responsible Persons who share, or have duties in respect of the same premises, and of Accountable Persons (which are a new legal entity made under the Building Safety Act in the case of higher-risk residential buildings) in relation to the premises – they must then identify themselves to said persons and cooperate with accountable persons so that the accountable persons can carry out duties imposed by the Building Safety Act 2022;
- require that departing Responsible Persons must share all 'relevant fire safety information' with incoming Responsible Persons
- require Responsible Persons of a building containing two or more sets of domestic premises to provide residents with relevant fire safety information in a format that is easily understood by the residents.
- increase the level of fines for some offences.
- strengthen the status of statutory guidance issued under Article 50 of the Fire Safety Order

There is also a legislative requirement that, where the Responsible Person appoints a person to make or review the fire risk assessment, they must be competent. This legislative requirement will be brought into force at a later date, and we will provide relevant guidance in that regard ahead of the commencement date. In the meantime, if you do appoint a fire risk assessor our recommendation is that you ensure they are competent to do so, in terms of having sufficient training and experience or knowledge and other qualities. It remains the case that the Responsible Person has a duty to make sure that a suitable and sufficient fire risk assessment is completed.

4.1.4 Management of Fire Safety Issues

Management procedures have a vital role to play in the:

- Prevention and control of fires.
- Evacuation of the occupants should this be necessary.

The prevention and control of fires involves ensuring:

- Standards detailed in this document are observed.
- Good housekeeping standards are enforced.
- Maintenance procedures are laid down and correctly carried out.

4.1.5 Fire Safety Information

The aim is to ensure that the Responsible Person and Accountable Person(s) for the building have sufficient information relating to fire safety to enable them to manage the building effectively and has all the information to enable them to do all the following.

- Understand and implement the fire safety strategy of the building.
- Maintain any/all fire and life safety system provided in the building.
- Carry out an effective fire risk assessment of the building.

Any issues relating to the fire safety management provisions should be identified and form part of the buildings fire risk assessment.

4.1.6 Responsible and Accountable Person(s)

Overall responsibility for fire safety within the building rests with the owner(s) of the building supported by its managing agent / building management teams.
For buildings in-scope of the Building Safety Act 2022, terminology has been introduced that includes 'Principle Accountable Person' and 'Accountable Persons' for a building in England that is at least 18m in height or has at least 7 storeys and contains at least 2 residential units.

Accountable Person(s)
An Accountable Person is a landlord or freeholder and can be an organisation, partnership or individual who owns or has a legal obligation to repair any common parts of the building.
Common parts are used by residents, such as:

- the structure and exterior of the building
- corridors
- lobbies
- staircases

An accountable person can be a:

- freeholder or estate owner
- landlord
- management company
- resident management company
- right to manage company
- commonhold association

Where there are multiple accountable persons for a building in scope they must, when carrying out their duties, cooperate and coordinate with all other Accountable Persons for that building as far as possible to deliver building safety to residents.

Principal Accountable Person
Each higher-risk building must have one clearly identifiable accountable person, known as the Principal Accountable Person, who is responsible for ensuring that fire and structural safety is being managed for the whole building The Principal Accountable Person will have the same statutory obligations for assessing and managing building safety risks in their own area of the building as other Accountable Persons.
The principal accountable person is usually an organisation, like a commonhold association, local authority or social housing provider.
In some circumstances, an individual can be the principal accountable person. For example, if the individual is:

- the owner of the building
- named on the leasehold as responsible for the maintenance of common parts.

The Responsible Person for the common areas of this building is Realty Management Ltd.

The management of fire safety is essential in controlling fire hazards and averting the loss of life in the event of a fire in a building. Many buildings will never have a serious life-threatening fire; however, it is essential for fire safety procedures that maintenance of systems is planned for every building, supporting fire safety compliance.

Responsibility for the implementation and operation of the fire safety arrangements rests with the Owner/Landlord and their Managing Agent who is responsible for:

- Establishing a Building Management Team
- Implementing the Fire Safety Policy and Management Arrangements
- Arranging for and supporting competent assistance to support fire safety management and carry out the Fire Risk Assessment for the premises.

Where applicable, Landlords of private dwellings in the building which then have been sub let to residential tenants have responsibilities for fire safety www.gov.uk/private-renting/your-landlords-safety-responsibilities and should co-operate and co-ordinate with Realty Management Ltd with the overall fire safety policy and management.

4.1.7 Reporting Structure for Fire Safety

The following organogram outlines the fire safety management arrangements that shall be applied to the building. The diagram provides an indication of organisation/ roles that are required by the Responsible Persons for the building.

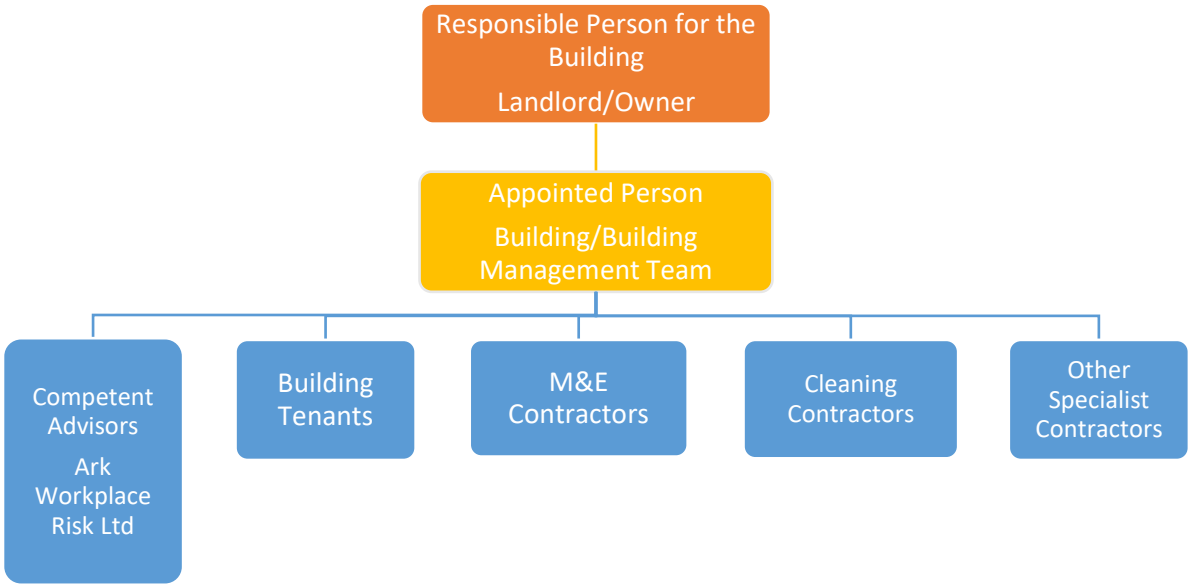


Figure 8 - Fire Safety Management – Functional Organisational Structure – Organogram showing a visual depiction of how all parties have clear communication lines for the reporting of Fire safety faults and concerns within the building and responsibilities.

4.2 Fire Prevention

Realty Management Ltd are wholly committed to its statutory and moral obligation to comply with the requirements of The Fire Safety Order, The Fire Safety (England) 2022 Regulations and the Building Safety Act 2022.

The fire prevention policy for this property should ensure, ***as a minimum,*** compliance with the relevant legislation and includes the following:

- A suitable and sufficient fire risk assessment is undertaken and reviewed on a regular basis which includes co-ordination of fire risks with occupants and any other building tenants. Fire risk assessments are regularly reviewed by the Building Management Team and updated when any significant change is noted. The fire risk assessment should identify potential hazards, risk reduction measures to help eliminate or prevent risks occurring and confirm the physical control measures and arrangements required to manage residual fire risks remain appropriate.
- Control procedures and management arrangements are implemented and maintained are fit for purpose and operating as intended.
- Safety critical systems including *(but not limited to)* automatic fire detection, fire warning (alarm), emergency lighting systems and equipment provided for the building fire safety and firefighting purposes are regularly maintained and tested.
- Maintain a record of the fire safety arrangements for the building.
- The building should maintain an emergency plan to ensure an effective response should a fire occur and that it is continually reviewed for suitability.
- Ensuring routes for Means of Escape (MOE), escape routes are prominently provided with signage and, always kept clear of obstructions and accessible.
- Procedures for reporting and rectifying faults with fire and safety critical equipment are communicated to all tenants and the Responsible Persons, Accountable Persons, **OR** Duty Holders.
- Any hot-works are managed under a permit-to-work arrangement, conducted under suitable risk assessment and method statement.
- Clear and relevant information and instruction should be provided to residents, any staff and employers of others, including contractors, working in the building on how to prevent fires and what action they should take in the event of a fire.
- Fire incidents are fully investigated to determine the cause and if any corrective actions should be implemented.
- Advising and engaging with all residents formally regarding the building`s fire safety arrangements, what to do to in the event of a fire and advice on how to prevent fires occurring.

4.3 Procedures for Fire Risk Assessment

As part of any planning process and to comply with the Fire Safety Order, a Fire Risk Assessment must be carried out and reviewed on a regular basis. In addition, the fire risk assessment should be reviewed when there is any material change, building alteration or change of occupation and/or use or following a fire incident/emergency. It is the responsibility of the "Responsible Person" to ensure that such an assessment is undertaken.

The fire risk assessment is a structured approach to determining the risk from a fire occurring within a building and identifying the precautions necessary to eliminate, reduce or manage the risk. The outcome of the Fire Risk Assessment must be incorporated in the fire emergency plan.

The fire risk assessment must consider those who could be affected, e.g., persons involved, their location, physical and psychological capabilities, and any employees within the buildings. The fire risk assessment must be recorded in full and with co-operation and co-ordination required with other Responsible Persons as appropriate.

The fire risk assessment is carried out for the common areas and must be reviewed on a regular basis, or immediately on:

- Changes to the building which are considered a 'material alteration' to the building layout or structure (material alteration as defined under the Building Regulations).
- Breach of compartmentation boundaries which are designed to provide a given level of fire protection.
- Impact on the effectiveness of the fixed fire protection systems (including both active and passive fire protection measures).
- Significant change to the building which would include changes to occupancy type and a number of occupants, building layout, fire loads, material storage, building design or the activities conducted on site.
- Following an incident (fire).
- Following the issue of a Formal Notice received from an Enforcing Authority.
- Any other reason to suspect that the Fire Risk Assessment is not suitable and sufficient or no longer valid.

The Building Safety Act 2022[viii] issued by HM Government requires that a review and update of such Fire Risk Assessments will be a requirement on an annual basis, and this will be required to be submitted to the Building Safety Regulator (BSR) (Health and Safety Executive (HSE)) as part of a Building Assurance Scheme.

The Responsible Person for the common areas is the Client reporting to the Building Owner/Landlord, who has control over the building as detailed above.

Common areas are considered to be but not limited to escape stairs, service risers, plant rooms and common access and egress routes within the building.

The Responsible Person must ensure that a Fire Risk Assessment is carried out for the common areas. It is also recommended to undertake a sample of the residential demised areas (known as a Type 3 Fire Risk Assessment) on a regular basis and appoint competent persons to carry out the fire risk assessment and to detail required preventative and protective measures within such a fire risk assessment.

The Responsible Person shall advise residents formally of the fire safety arrangements for the building, what to do to prevent fires from occurring, and what to do in the event of a fire. The information should be contained within a resident's handbook which should also address the potential for particular problems arising where residents employ sub-contractors, e.g., for fit-out work.

Client Action: Fire Risk Assessment
The client should assure themselves they have addressed the significant findings identified and recorded within the May 2022 fire risk assessment.

4.4 Housekeeping Procedures

The Building Management Team must conduct regular 'housekeeping' inspections which should include:

- Ensuring all emergency escape routes are always regularly checked and kept clear.
- Ensuring there is no accumulation of combustibles within (or external to) the building.
- Ensuring that all fire doors remain shut, are operable and are in good working order with no obvious defects or obstructions which could affect their operation and effectiveness.
- Maintenance of furniture, interior decor and equipment.
- Managing goods in storerooms/cupboards. Where fire detection is provided and so as not to obstruct and inhibit correct operation of fire detection equipment, materials should not be stacked higher than maximum heights as recommended within BS 5839-1[ix]:
- Hot-work or heat-dissipating processes are managed to control the risk from fire (undertaken under a hot-work permit); and
- Managing penetrations through fire compartmentation to ensure the works are completed satisfactorily.

All patrols and visual inspections will be suitably recorded, and any deficiencies are to be immediately raised and actioned accordingly.

4.5 Control of the Building

The Building Management Team is responsible for the common and un-occupied areas of the building. Residents are responsible for fire safety within their demised areas of the building, although the Building Management Team will play a coordinating role in supporting effective cooperation and coordination.

4.6 Control of Works Within the Building

One of the most important factors when having infrastructure associated work completed on the building is to ensure that the work does not impact on the fire protection measures of the building. For this reason, the relevant sections of this strategy (*including any in the appendices*) should be reviewed when undertaking work which may either:

- Constitute ***'material alteration'*** within the building *(material alteration is defined under the Building Regulations 2010');*
- ***Breach compartmentation boundaries*** which are designed to provide a given level of fire protection.
- ***Impact on the effectiveness of the fixed fire protection systems*** *(including both active and passive fire protection features).*

To ensure that maintenance or building work will not impact or compromise the building's fire safety measures, the Building Management Team should implement checks, validation and verification that appropriate control measures have been implemented (when carrying out any work or when employing contractors to ensure maintenance or building work) to ensure that such work will not impact or compromise the buildings fire safety measures. These include *(but are not limited to):*

- Ensuring all contractors are suitably trained and aware of the building's fire safety measures.
- Ensuring that all works have a suitable and sufficient risk assessment and method statements in place prior to work commencing.

- Ensuring that only competent contractors are used for building and maintenance works. The task of ensuring only competent persons or contractors are appointed lies with the Responsible Person / Accountable Person.
- Ensuring all 'high-risk work is suitably controlled with a permit-to-work system, which includes:
    - The location and tasks permitted.
    - The restrictions imposed (including location, processes, tools etc.)
    - Fire Safety Measures
- Ensuring the contractor is provided with all necessary information (which may include access to this Retrospective Fire Strategy and if available the Fire Management Plan to check the fire resistance of compartment walls).
    - If any fire compartment wall or floor is breached, the penetration should be re-sealed with a suitable fire stopping product which provides the same or greater degree of fire resistance as the fire compartment wall.
    - All fire stopping/compartmentation works are to be carried out by a competent person.
- Ensuring Escape routes are not compromised during refurbishment or maintenance works.

The Building (Higher-Risk Buildings Procedures) (England) Regulations 2023, require high rise multi-occupancy residential building and any qualifying works carried out within or to this building must be done so under application and approval of the Regulator and Local Building Control, unless the work is considered urgent in nature.

If a repair must be carried out urgently, the Accountable Person must:

a) give a notice to that effect to the regulator, describing the work and the reasons for the urgency as soon as reasonably practicable after the work has started,

(b) send a copy of that notice to the responsible person as soon as reasonably practicable after the work has started, and;

(c) submit a regularisation certificate application to the regulator in relation to the work as soon as reasonably practicable after the work is carried out.

Urgent repairs are considered by the aforementioned regulation as:

"Emergency repairs" means repairs to a building which are necessary to be carried out as a matter of urgency due to the risk to the health, safety, or welfare of persons in or about the building.

Further information regarding this regulation can be found on the Government website as detailed below:

https://www.legislation.gov.uk/uksi/2023/909/contents/made

4.7 Inspection, Maintenance and Testing Compliance

The British Standard Institute series provides the basis of the maintenance regime for fire and life safety equipment/systems within buildings. An outline summary of testing and maintenance schedules are provided in the Table below.

The provisions of the Fire Safety Order, relevant British Standards, other Approved Codes of Practice and Guidance should be followed in respect of the maintenance of all life and fire safety systems,

Unless otherwise stated, in respect of the surveyed building, British Standards are used to demonstrate a suitable maintenance regime for fire safety equipment within the building.

Note: *The guidance contained within the British Standard series takes the form of recommended guidance only. The Client should refer to the manufacturers recommendation to ensure an increased frequency is not required to maintain other standards such as insurance or warranty requirements.*

In respect of the maintenance of the fire and life safety systems present in this building, the following schedule is applicable:

System	Frequency	Extent	Code / Guidance
Fire Detection and Alarm System	Weekly	Alarm test utilising differing manual call point in rotation to ascertain system and panel operational status	BS 5839-1 Fire detection and fire alarm systems for buildings – Part 1: Code of practice for system design, installation, commissioning and maintenance[x]
	Monthly	If an automatically started emergency generator is used as part of the standby power supply, it should be started up once each month by simulation of failure of the normal power supply and operated on-load for at least one hour. The test should be carried out in accordance with the instructions of the generator manufacturer, including instructions on the load that should be operated.	
	Quarterly	If provided, quarterly inspection of vented batteries.	
	Annual	Certification from competent person of system operational status, servicing and maintenance. Note: The work described within BS5839 Part 1 for annual testing can be carried out over the course of two or more service visits during each 12-month period as required.	
Fire Detection and Alarm System (Flat detection & alarms - client to recommend to tenants / residents)	Monthly	Test of device using the test button on every device. In the case of interlinked alarms, the "one alarm, all alarm" feature should be verified. The alarm should be visually inspected, and any defects should be noted for action	BS 5839 - 6 "Code of practice for the design, installation, commissioning and maintenance of fire detection and fire alarm systems in domestic premises" and supported by
	Competent Persons servicing	Generally, not normally required unless within certain high risk occupancies.	

System	Frequency	Extent	Code / Guidance
	Battery changes	As and when required as indicated by individual devices or regulated by following manufacturers instructions	manufacturers instructions
Fire Doors	Quarterly	Visual Inspection of fire doors to ensure integrity of protection.	BS 8214 Timber-based fire door assemblies – Code of practice.[xi] BS 9999 Annex I Routine inspection and maintenance of fire safety installations
	Annual	Specialist inspection of fire door systems	
	Note: Clients are advised to ensure their compliance with the Fire Safety (England) Regulations 2022 where communal and residence fire door checks are required. See paragraph 4.1.1 of this report for information.		
Magnetic Door Holders	Monthly	Tested with fire alarm activation – normally outside normal working hours to determine operational status and release	BS 7273-4 Code of practice for the operation of fire protection measures – part 4: Actuation of release mechanisms for doors[xii]
Access Control Doors	Monthly	Tested with fire alarm activation – normally outside normal working hours to determine operational status and release	BS 7273-4 Code of practice for the operation of fire protection measures – part 4: Actuation of release mechanisms for doors[xiii]
Emergency Escape Lighting	Monthly	Short duration test to ensure each luminaire illuminates and that they are present, clean and determine operational status	British Standard 5266 – Part 1 – Emergency Lighting[xiv]
	Annual	3-hour duration test to ensure each luminaire illuminates and remains operational for period.	
Means of Escape Routes	Weekly	Weekly inspection of means of escape routes to determine integrity of escape routes	BS 9999: 2017 Code of practice for fire safety in the design, management and use of buildings.
Fixed Electrical Installations	5 yearly	Specialist inspection and testing of electrical systems to ensure operational status, safety and security	BS 7671:2018+A2:2022 - Requirements for Electrical Installations. IET Wiring Regulations[xv]

System	Frequency	Extent	Code / Guidance
Fireman's Lift	Weekly	Operation of the firefighters lift switch to check the lift returns to the fire service access level, parks with its doors open, and that the lift does not respond to landing calls. If the lift is connected to a building management system or fire detection system, check to ensure that the lift responds to the instruction from the BMS or detection system	BS 9999: 2017 Code of practice for fire safety in the design, management and use of buildings.
Dry Rising Main	6-monthly	Inlets, landing valves, drain valves, door hinges and locking arrangements to the inlet and landing valve boxes should be inspected. Special attention should be given to all valves, spindles, glands and washers to ensure that they are in satisfactory condition so that all equipment is ready for immediate use.	BS 9990 - Non-automatic firefighting systems in buildings
	Annual	A static pressure test conducted - The system should be completely charged with water to a pressure equal to its design operating pressure measured at the inlet for a period of at least 15 min	

Table 7 - Fire safety system maintenance

4.7.1 Fire Safety Management of Potential Negative Impacts

Fire safety management of a building is dependent on four key factors:

1. Building design and construction
2. The interaction of the building design and the fire safety provisions
3. The training, attitude, and management of the occupants
4. The management, testing and maintenance of the fire safety provisions

It is therefore important that potential negative issues (faults and failures) relating to these key factors are considered in this Fire Strategy.

4.7.2 Fire Safety Provisions Fault and Failure Management Summary

Potential Issue	Control Measure	Action on Fault	Action on Failure
Emergency Lighting System			
Power supply failure	Units have independent battery backup – trickle	**Low Risk**	**Medium Risk** Investigate and repair within 2 days

	charge from mains electrical supply	Investigate and repair within 3 days	
Firefighting Dry Rising Main			
System failure	Testing and maintenance in accordance with BS 9990:2015[xvi]	**Low Risk** Investigate and repair within 3 days	**Medium Risk** Investigate and repair within 2 days

Table 8 - Fire Safety Systems Fault/Failure Management Summary

4.7.3 System Fault and Failure Flowchart

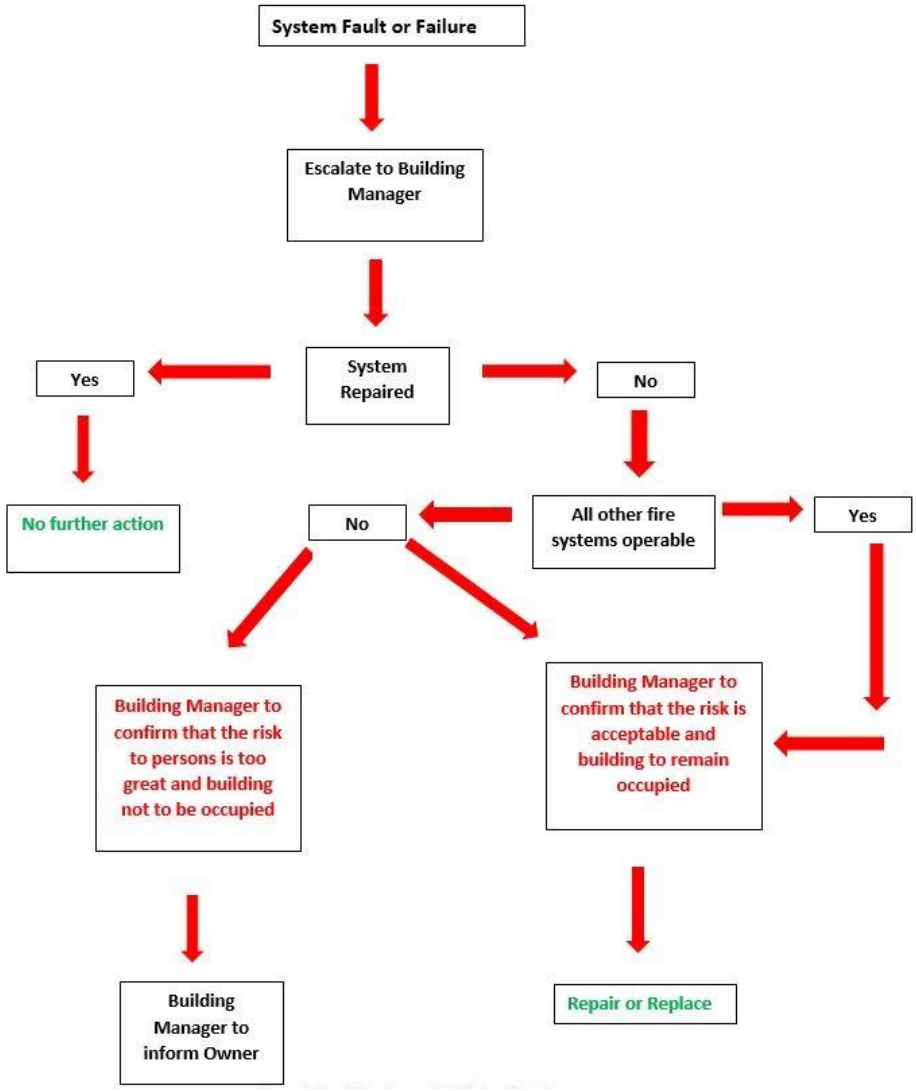


Figure 9 - Fire Safety System Fault/Failure Flowchart

4.8 Training (Staff)

4.8.1 Fire Safety Training

Building management staff, maintenance staff and contractors, where present, are to be provided with fire safety training as part of the initial induction training to the building. The training should include subject areas

pertinent to their positions, responsibilities and the building characteristics. Examples are listed below however Responsible Persons should ensure relevancy and tailor accordingly:

- The evacuation strategy, evacuation procedures, including responsibilities for concierge / building management staff, visitors, contractors, cleaners, and persons with physical disabilities.
- Smoking policy that governs the common areas of the building.
- The importance of fire doors and their role in a fire
- Accumulation of waste materials in high hazard areas (stairways, exits, etc).
- Unauthorised and 'High Hazard' areas (flammable stores, electrical substations etc).
- Actions to take on discovering a fire, methods of raising the alarm, emergency telephones etc.
- Actions to take on hearing the fire alarm.
- Location of fire escapes
- Actions to be taken before leaving their job, such as switching off machinery, isolating the power and closing the doors behind them.
- Where necessary, the location of pre-arranged fire assembly points and roll call procedures.
- Where provided, information on the location and use of portable fire extinguishers and any fire extinguishing system.

Records of training must be maintained by the Responsible Person. All personnel are expected to repeat the training at least on an annual basis.

4.8.2 Fire Evacuation Drills

As the building is put to residential use, fire drill exercises are not a requirement. Residents, however, should be advised of the actions to take on finding a fire within their demised area.

Onsite maintenance personnel must receive training for their actions in the event of fire.

5 MEANS OF ESCAPE STRATEGY

5.1 Fire Emergency Evacuation/Escape Methodology

The general philosophy for means of escape is that the occupants of the building should if required be able to turn their back on a fire and escape via the nearest exit without additional assistance from other occupants or firefighters. This is achieved by providing alternative escape routes where necessary, limiting travel distances, providing sufficient exit widths and escape routes that, depending upon the use of the building, will have specified periods of fire resistance.

5.1.2 Dual Evacuation Strategy

The building is considered and recommended to employ a dual evacuation strategy, depending on the activities and use of the respective parts of the building. In the residential demised areas, a 'stay-put/defend-in-place' fire policy should be employed subject to other competent advice, whereby in the event of a fire only the occupants in the apartment/flat of fire origin will evacuate in the first instance. All other occupants should remain in their apartment/flat, unless directly affected by products of combustion or informed by the Fire and Rescue/Emergency Services to evacuate.

In the communal and shared areas including the basement car park and plant rooms, roof areas and company maintenance staff, a 'simultaneous' evacuation policy should be employed, whereby in the event of the need for fire evacuation, this will be undertaken simply by means of persons reacting to the fire alarm warning signal or when a fire is discovered, then making their way, by the nearest available means of escape, to a place of ultimate safety outside and away from the building.

During a 'simultaneous' evacuation of the communal and shared areas, the residential demised areas should not be alerted by the alarm of fire and therefore remain in their demised areas (flats) in accordance with the 'stay-put/defend-in-place' policy.

5.1.3 Evacuation Strategy Changes

In the event of it being deemed necessary to temporarily change or if a premises has changed the evacuation strategy in purpose-built blocks of flats, the National Chiefs Fire Council (NFCC) has produced Guidance to Support a temporary change to a simultaneous evacuation strategy in purpose-built blocks of Flats (V4 18/08/22).
The guidance supports clients as Responsible / Accountable Persons in meeting their duties and guide them towards a consistent, standardised approach to a change in evacuation strategy and implementation of interim measures'.

5.1.4 Assembly Point

It appears an assembly point has not ben designated for the building. Whilst the residential occupancy would not normally require an assembly point, persons who may be in the common areas and the basement car parking or plant rooms will be evacuating simultaneously and therefore require a point to which they can assemble. The fire risk assessment does not identify a need for an assembly point.

Client Action: Fire Assembly Point
For the evacuation of the common areas, it is recommended a fire assembly point is designated and identified on Fire Action Notices positioned within the affected areas.

5.1.5 Requirements for persons with disabilities (mobility, cognitive or sensory)

Occupiers or visitors who may have disabilities, for example mobility impairments, may enter the upper floors of the building using the lift however they may require assistance to evacuate in the event of a fire.

Details should be provided to occupiers and their visitors informing them of the actions to take in the event of a fire to enable them to evacuate the building or if appropriate, to remain in a place of relative safety. (e.g. a designated refuge area if provided).

For residential premises, The 'Responsible Person' should ensure that they have a suitable process in place to canvass and be aware of any persons within their building who have a disability that would hinder or prevent their evacuation from the building. In addition to communicate with the Fire and Rescue Service, via the use of a Secure Premises Information Box, details of any persons (being mindful of The Data Protection Act 2018 it is recommended to have the flat number, floor level only) residing within the building (where they have canvassed and been made aware of them).

The fire safety management and evacuation plan should consider the full range of people who may occupy the premises.

Under current fire safety legislation, it is the responsibility of the person(s) having responsibility for the building to provide a risk assessment that includes an emergency evacuation plan for all people likely to be in the premises, including disabled and or mobility impaired people, and how that plan will be implemented.

Such an evacuation plan should not rely upon the intervention of the Fire and Rescue Service to make it work. In the case of multi-occupancy buildings, responsibility may rest with several persons for each occupying organisation and with the owners of the building. It is important that they co-operate, and co-ordinate evacuation plans with each other.

5.1.6 Refuges

As a residential multi-occupied building, designed it is estimated in the late 1990's, emergency refuge points/communication systems have not been incorporated in the common areas. Design requirements have progressed since this building was built and modern standards for means of escape for all occupants to include those who may have mobility, or cognitive impairments, would now include the provision of refuges in common areas such as the carpark of this building. Whilst a retrospective installation of refuges and refuge communication devices is not mandated, the client should evaluate, and risk assess any need and take appropriate action via the fire risk assessment process.

5.2 Summary of Occupancy (Overview)

The fire safety measures provided, are based on the use of the building, fire loads, occupancy characteristics and building management. The occupancy of the building, for the purposes of this Retrospective Fire Strategy, is based on the number of apartments/flats with an estimated occupancy of three persons in each flat.

Based on the number of flats (160) number of flats, the estimated occupancy of the building is approximately 340 based on 2 persons per flat (as identified in the FRA) plus maintenance staff and visitors.

A fundamental element of occupancy suitability, however, is the ability of the means of escape provisions to accommodate the escaping occupants. The following tables and information advise of the suitability of the means of escape provisions to facilitate the adopted evacuation policy. Where capacities are specified in tables the capacity is the 'absolute maximum" numbers of persons that the provision can accommodate.

Using the information obtained regarding the exit, stair and door widths, the information below indicates the capacities of the provided staircase and fire exits, which can adequately support the current occupancy.

5.3 Horizontal Means of Escape

5.3.1 Identification of Protected Stairwells (Places of Relative Safety).

The building is provided with three protected staircase enclosures which provides the primary means of escape at each level. The staircases terminate in a protected lobby or space and discharge via a final exit door to a place of ultimate safety.

Staircase enclosures are considered to be a 'place of relative safety' (constructed within a suitable fire resisting enclosure and fitted with smoke control where required), supporting the means of escape strategy.

5.3.2 Travel Distances

Horizontal Travel distances are calculated from the furthest point on the floor to the 'place of safety' (ultimate or comparative).

Within the flats, the maximum travel distance permitted without other mitigation is 9m from the furthest point within the dwelling to either a fire protected hallway or to the dwelling entrance door which opens to the 'place of relative safety' (corridor or staircase). Access to flats was not available a the time of survey.

In the common areas, the maximum travel distances, without other mitigation, are as detailed in the table below.

Two directional escape is provided within the residential corridors and within the basement car park areas. It is noted however that the 30m distance limit for corridors is slightly extended. The longest residential corridor two directional distance measured is in the region of 33m and this is further exacerbated in that smoke control appears not to have been provided. Whilst the extended distance is slightly in excess of maximum distance recommendations, it is not deemed to be excessive. The apparent lack of smoke control in the corridors however does not follow guidance as it should have also been provided so as to permit a 30m two directional escape length. This been further recorded in paragraph 6 of this report.

Location	Maximum Travel Distance (m)	
	One Way travel	Two-way travel
Within flats to protected hall or flat entrance door	9	-
Residential (Common Area)	7.5	30
Places of special fire hazard (plant rooms)	9	18
Car park	25	45
Storage (normal hazard)	25	45

Table 9 - Travel distances - Detailed in BS 9991:2015 and Approved Document B

5.3.3 Minimum Number of Escape Routes from a Room, Tier, or Storey

Based on the number of people expected to the use exits in the highest occupancy floors, the minimum number of escape routes which should be provided from a room, tier or storey is one. This is based upon consideration of Approved Document B.

Table 3 Minimum number of escape routes and exits from a room, tier or storey

Maximum number of persons	Minimum number of escape routes/exits
60	1
600	2
More than 600	3

Figure 10 – Approved Document B recommendations.

5.3.4 Horizontal Exit Capacities

Where applicable and flats have corridor / lobby approach to a stair this section is relevant and Approved Document B requires a minimum of 750mm clear width. All doors leading on to the staircases provide a minimal escape width of 750mm at the narrowest point, as measured in the Figure below.

Measurement of Effective Width:

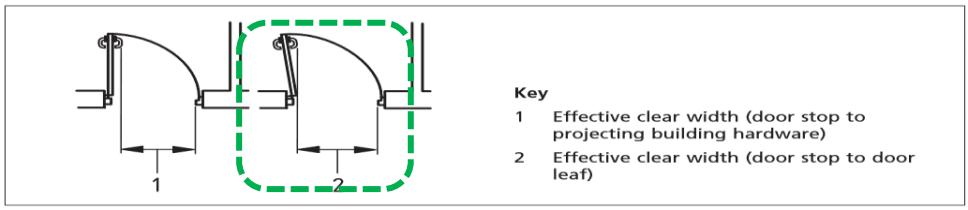


Figure 11 - Measurement of Effective Door Width

Escape Corridor Widths

Corridors form an integral element of the means of escape strategy, therefore the width of a corridor forming part of an escape route should be not less than either:

- The final exit width
- 1200 mm – OR where the corridor is not accessible to wheelchair users, the width may be reduced to 1000 mm.

5.4 Vertical Means of Escape

Stairs used as means of escape should be free of potential sources of fire. However, in limited circumstances, certain facilities may be incorporated into protected stairs. Examples of such facilities are:

- Sanitary accommodation or washrooms, provided that the accommodation is not used as a cloakroom.
- A gas water heater or sanitary towel incinerator may be installed in the accommodation but not any other gas appliance.
- A lift well, provided that the stair is not a fire-fighting stair.
- A reception desk or inquiry office area at ground or access level, provided that it is not in the only stair serving the building or part of the building. The reception or inquiry office area should be no more than 10 m² in area.
- Cupboards enclosed with fire-resisting construction, provided that they are not in the only stair serving the building or part of the building.
- Gas service pipes and associated meters.

Service shafts enclosed with fire-resisting construction with FD30S doors may be accessed from a protected stairway provided that it is not the only stairway serving the building or part of the building.

5.4.1 Staircase Capacity

The unobstructed width (measured between the walls and/or balustrades) of each common stair should be not less than 750mm; a common stair which is a fire-fighting stair should have an unobstructed width (measured between the walls and/or balustrades) of 1100mm.

Taking into consideration the size and construction of the staircase enclosure and the occupancy capabilities of each floor, the staircases have sufficient capacity to accommodate the expected occupancy. The physical width of the staircases in the building were measured at 1381mm for the atrium stair (capacity 286) and a minimum of 1100mm for each of the alternative escape stairs (capacity 230 each).

Outline of Discounting Arrangements

Discounting of a staircase enclosure is not required for this building as the building is fitted with lobby protection (protected corridor approach) to the staircase enclosures.

Merging Flow and Final Discharges

The majority of the building operates a stay put evacuation strategy. However, the stairs and means of escape have sufficient capacity to accommodate all occupants. Minimal merging flows would be present where residential floor occupants enter the stair from their levels, but this does not impact on the overall means of escape.

5.4.2 Final Exit Capacities

Final exit doors play a fundamental part in the means of escape strategy as the exit doors should be suitable in width to accommodate escaping occupants. The final exit door widths were measured to provide the available clear exit widths.

Exit/Designation	Clear Exit Width (mm)	Direction of Opening	Maximum number of people
Front main entrance / exit	1571	Sliding door	324
West stair final exit	1150	Outward	240[2]
East stair final exit	1150	Outward	240[3]

Table 10 - Final Exit Widths and Capacities – Approved Document B

5.5 Inner Rooms

Not applicable for the common areas.

The residential demised areas themselves do not form part of this Retrospective Fire Strategy; however, the following information is provided for reference purposes.

Apartments/flats having an entrance door on the same level as the apartment should meet one of the following recommendations:

[2] Escape to ultimate safety is via a security controlled gate which narrows to 953mm and therefore the limitation on capacity for the exit is reduced to 110 people.
[3] Escape to ultimate safety is slightly restricted by a narrowing of the passageway to 1069mm and therefore the limitation on capacity for the exit is reduced to 223 people.

- The total travel distance from any point of the apartment to the entrance door of the apartment should be limited to 9m. This limit may be extended to 20m if an automatic fire suppression system/sprinkler is fitted and a fire full detection coverage (to Category LD1 standard) and fire alarm system in accordance with BS 5839-6:2019 + A12020[xviii] are installed.
- Cooking facilities should be sited away from the flat entrance door and the internal escape route.
- A protected internal hallway should be provided that leads off to all habitable rooms having a travel distance not exceeding 9m from the apartment entrance door to the door of any habitable room; or
- All habitable rooms should be accessible from an internal hallway and have an alternative exit from the apartment; or
- A 30 min fire-resisting construction should be provided between the living and sleeping areas of the apartment and an alternative exit from the bedroom area should also be provided.

5.6 Means of Escape from Basement Car Parks

Means of escape from basements that are designed to be ancillary to the dwelling use (e.g. parking garages) should be in accordance with BS 9999. Consideration of travel distances has been applied under paragraph 5.3.2 above.

5.7 Means of Escape and Occupancy Justification

Horizontal escape to a place of ultimate safety is via 3 final fire exit doors opening in the direction of escape /travel and one which has an electrically powered sliding door.

Using the information obtained regarding the exit, stair and door widths, the table below indicates the 'maximum capacity' of the provided staircases and fire exits, which can adequately support the current occupancy.

Stairwell	Exit Width from Storey	Persons[4]
Storey exits into stairwells.	West corridor to protected stair – 989mm.	110 each storey exit
	West corridor to atrium – 1858mm (consistent across all floors).	381 each storey exit
	East corridor to protected stair – 989mm (consistent across all floors).	110 each storey exit
	East corridor to atrium – 1858mm (consistent across all floors).	381 each storey exit
	Carpark B1 & B2 West – 1000mm	110 each storey exit
	Carpark B1 & B2 East	110 each storey exit
	Car park B1 & B2 central doors	110 each storey exit

Final Exit	Width mm	Capacity
Front main entrance / exit	1571	324
West stair final exit	1150	220
East stair final exit	1150	220

[4] Based on Table 2.3 widths of escape routes and exits Approved Document B Volume 2 as amended.

Table 11 - Summary / Overview of the Maximum Capacity of the Staircase, Exits and the Building

When addressing means of escape, it should be remembered that fires do not normally start in two different places in a building at the same time. Initially, a fire will create a hazard only in the compartment in which it originates and is unlikely, at this stage, to involve the communal escape routes (corridors).

In assessing the scope of fire safety provisions implemented in the building against the occupancy through a holistic approach, opposed to each measure being assessed in isolation, the means of escape provisions, the occupancy characteristics and the escape capacities detailed above, it is in the considered opinion of the consultant that the means of escape provisions support the applied evacuation strategy.

The client should also consider the fire risk assessment for the building in which means of escape should be considered and evaluated against hazard and risk with any deficiencies brought to the attention of the client in the significant findings.

5.8 Illumination of Escape Routes

Escape routes should be provided with adequate emergency lighting so that occupants or visitors to the building can find their way to safety even in the event of normal lighting failure.

All staircases, internal corridors and final exits appeared fitted with emergency lighting however compliance with BS 5266-1:2016[xvii] could not be confirmed as no evidence was provided of such.

For information and as a minimum, emergency lighting should be provided in the example locations below and for the as built environment, is evaluated through the fire risk assessment process:

Example location should include amongst others:

- In escape routes
- Underground or windowless accommodation
- Toilets over 8m^2
- Stairways in a central core or serving storey(s)
- External escape routes
- Internal corridors
- Open-plan areas of more than 60 m^2
- Plant areas

Establishing if existing emergency lighting is sufficient for the risk should be considered during the Fire Risk Assessment.

6 FIRE SPREAD AND SMOKE CONTROL STRATEGY

6.1 Smoke Control Strategy

No original design information has been provided or believed to be available for the building and hence the provision of smoke control within the building is not understood and on observation appears below the minimum standards required at the time of design and build. The absence of a design fire strategy and or evidence of an alternative fire engineered solution, leads this report to evaluate the building and the provision of smoke control measures as viewed at the time of survey and against known codes of practice at the time of design and build of the building.

Codes of practice used to evaluate smoke control observations seen during the survey are:

- ***Approved Document B 1991*** *(second impression with amendments 1992) – The Building Regulations*
- ***Approved Document B 2000 -*** *The Building Regulations*
- **BS5588-**7:1997 Code of practice for the incorporation of atria in buildings
- ***BS 9991: 2015*** *Fire Safety in the design, management, and use of residential buildings – Code of Practice.*

The areas of concern or insufficient detail known are;

- Residential corridor smoke ventilation
- Carpark smoke ventilation
- Atrium smoke ventilation

Each area noted as deficient based on observations and no record of supporting fire engineered solutions are;

1) **Smoke ventilation systems for the residential corridors** - The general principle is that a vent would be provided to the residential corridor adjoining the stair to facilitate the removal of smoke through the vent prior to it entering a staircase enclosure. The vents can be located either on an external wall or in a vertical shaft and in this case, smoke vents in the corridors do not appear to have been provided. As well as corridor ventilation, codes of practice also require a vent is provided from the top storey of the stairway to outside air, to act as an outlet if smoke enters the staircase. It is evaluated however that since the two protected stairs are each permanently vented to atmosphere across their full heights via incorporated louvre type ventilation slats, it is assumed the omission of a vent at the top of each stair has been adequately compensated for. However, without confirmation of previous design approvals or engineering evidence this cannot be confirmed.
2) **Carpark smoke ventilation** - Where car parks are not fully open-sided, each storey should be ventilated by permanent openings at each car parking level, having an aggregate vent area not less than 2.5% of the floor area at that level, of which at least half should be in two opposing walls. Alternatively, mechanical smoke extract can be an acceptable alternative. In this case, it is noted that the basement car parking levels have been designed to be naturally ventilated but the distribution of the ventilation within the basement car park does not appear to appear to be in line with the guidance in ADB 1992 (and subsequent editions). Sufficient ventilation is not provided on opposing walls and ventilation appears limited on the roadside elevation which raises doubts over how effective the through draft would be in the event of a fire in these lower levels.
3) **Atrium smoke ventilation** – On observation, the atrium is provided with natural ventilation. The base of the atrium has a permanently open louvered air inlet, and the head of the atrium also is provided with a permanently open louvered air outlet. Unfortunately, without supporting design or engineering strategy understanding it is unknown if the inlets and outlets provided are sufficient in the circumstances.

Client Action: Smoke Control

It is recommended the client attempts to identify through any historical records, as built designs, building control records, certification, or dispensations with building control records and or engineered reports produced by the original build project appointed fire engineers Buro Happold FEDRA and Faber Maunsell in an attempt to understand or otherwise the circumstances surrounding the provision of smoke control in the building.
The fire engineers for the building design and build have been identified in an internet search Buildings Library for the premises.
In the absence of historical records justifying the current position, the client should consider the possibility of retrospective smoke control installations but however specialist smoke control design advice should be sought if this choice is made. The client may wish to contact the Smoke Control Association for further such advice.
In the interim, and given the observations above, the client is recommended to liaise with the fire and rescue service for the area and make them aware of the nature of the smoke control observations and that client attempts are being made to investigate and progress.
The client is also advised as an in scope building for the Fire Safety England Regulations 2022, (Regulation 7) to notify the Enforcing Authority of the concerns and potential deficiencies.

6.1.1 Smoke Control in Basements

As highlighted above, the basement level car parks are provided with a degree of natural smoke ventilation, via the open elements of the structure. No further comment will be provided her to prevent duplication.

6.2 Control of External Spread of Fire

6.2.1 Space Separation

BS 9991:2015 and Approved Document B provide guidance on the separation between buildings and boundaries. The intent of this guidance is to reduce the potential for fire spread between building via both direct flame impingement and radiant heat. It is accepted that for buildings within 1m of the boundary flame spread is the main mechanism for fire spread between buildings, beyond this distance radiation becomes dominant.

The measures available to restrict fire spread from the building to a neighbouring structure and vice versa are addressed by considering:

- Direct impingement of flames from one building on another; and
- Radiation (possibly supplemented by burning debris).

No formal space separation calculations have been undertaken as part of this Retrospective Fire Strategy as it assumed that the building would have been subject to a building control body approval.

Whilst it is assumed that the building was subject to approvals, it is recognised that this in itself does not provide evidence of compliance with the relevant Building Regulations applicable at the time of its construction.

Fire spread from building to building by radiation is dependent on:

- The distance between and orientation of the building of origin and the neighbouring structure (radiator to receiver).
- The extent of the building surface capable of transmitting heat (external construction that has fire resistance is assumed to have sufficient insulating properties, such that heat transfer can be ignored).

- The intensity (emissive power) of the source radiation.
- The radiative energy emitted by the building of fire origin is dependent on the size and severity of the fire.

Based on the identified 'unprotected' areas of the building and the guidance of Approved Document B and/or BS 9991:2015, the external wall outer surfaces of buildings should adequately resist the spread of fire over the wall outer surface and from one building to another. This is achieved through space separation, the distance between one building and another and the fire resistance of external faces of walls where necessary.

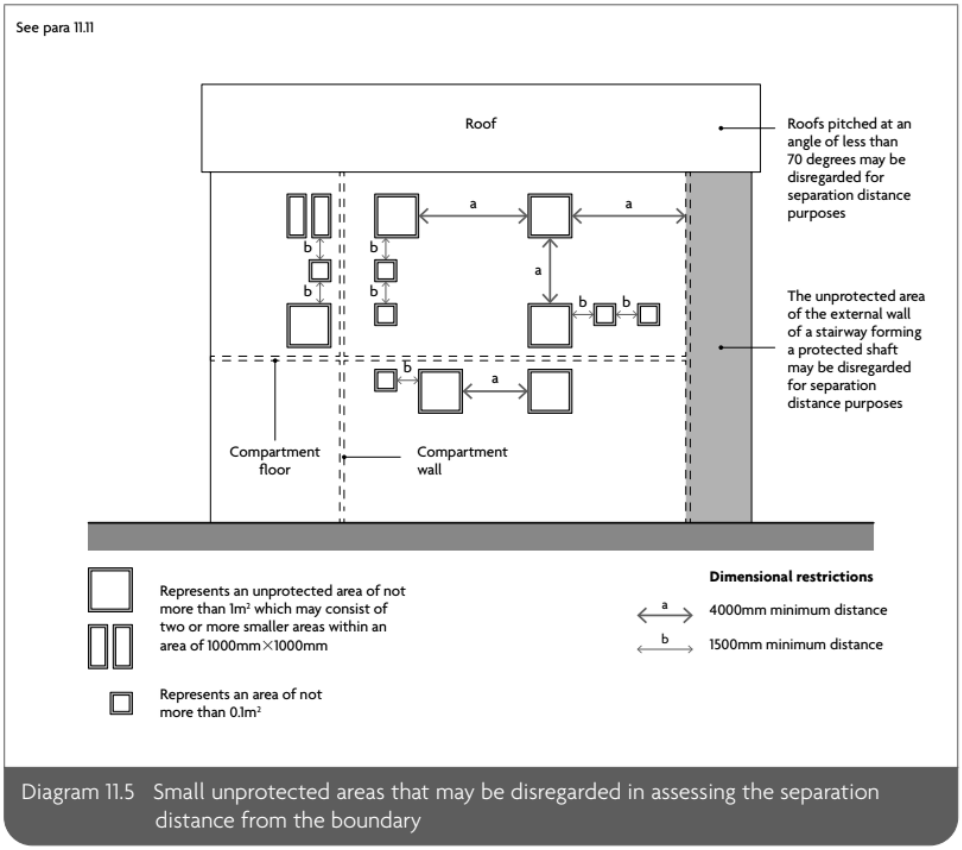


Figure 12 - Diagram 11.5 from Approved Document B 2019 as amended (Volume 1)

6.2.2 External Surfaces

Only materials with a European combustibility rating of 'Euroclass' A1/A2 will satisfy regulations for façade and external wall construction on residential buildings. The table below demonstrates the typical 'Euroclass' ratings of various building materials.

'Euroclass' rating	Definition	Example Materials
A1	Non-Combustible	Mineral Wool, Concrete, Brickwork, Plain Aluminium
A2	Limited Combustibility	Powder Coated Aluminium Cladding
B-s3, d2 (or better)	Combustible	Phenolic Foams, ACM (aluminium composite material)

C-s3, d2 (or better)	Combustible	Phenolic Foams, HPL (high pressure laminate)
D-s3, d2 (or better)	Combustible	PIR (polyisocyanurate), ACM. HPL, Untreated Timber
E-s3, d2 (or better)	Combustible	FR EPS (expanded polystyrene) render, PUR
F-s3, d2 (or better)	Combustible	Standard EPS render, PIR

Table 12 - Euroclass Rating of Example Building Materials

6.2.3 External Surfaces Functional Requirements / External Wall Systems

It would appear from the design and construction (visual survey only) that the external wall façade is constructed from non-combustible products with limited impact on external fire spread.

A fire safety survey of the external façade and balconies has been completed in March 2020 and in which the results of the assessment show that on the whole the materials used in the construction of the external façade system are fully compliant with the functional requirements of Part B of the Building Regulations 2010, the Regulatory Reform (fire safety) Order 2005 and as in force at the time of survey and reporting, MHCLG Advice for Building Owners of Multi-storey, Multi-occupied Residential Buildings.

The report advises where combustible materials have been used on external walls and to provide decking on balcony floors, this has been highlighted in the report and deemed acceptable based on existing control measures currently in place.

Overall, the external fire spread risk for the Timber Wharf building has been identified as Low.

6.4 Control of Internal Spread of Fire (Linings)

The internal linings within circulation spaces within dwellings should either conform to Class 1 surface spread of flame in accordance with BS 476-7, when tested in accordance with BS 476-6, or conform to Class C-s3, d2 when tested in accordance with BS EN 13501-1.

The internal linings within other circulation spaces, including the common areas of blocks of flats, should meet Class 0 (national) or Class B-s3, d2 (European).

Small rooms of area not more than 4 m² should have internal linings conforming to Class 3 (national) or Class D-s3, d2 (European).

NOTE Further guidance on the classification of linings together with limitations on their use is given in BS 9999.
All internal linings and surfaces within the building appear to meet the requirements as detailed in the table below.

Area	**Classification**
Small rooms not exceeding 4m^2 in residential dwellings, 30m^2 in non-residential areas and garages not exceeding 40m^2	D-s3, d2
Other rooms	C-s3, d2.
Circulation spaces in dwellings	C-s3, d2
Other circulation spaces	B-s3, d2

*Table 13 - Surface Lining Classifications (*information taken from *Table 4.1 from Approved Document B 2019 Vol 1)*

The common areas within the building are designated as 'sterile areas' with very low fire fuel loading. If any additional materials are to be introduced within the common areas, they should be agreed prior to introduction, ensuring they meet the classification of internal fire spread and do not significantly increase the fire loading. Any issues with the internal fire spread risk should have been identified in the building Fire Risk Assessment.

6.5 Control of Internal Spread of Fire (Structure)

The fire compartmentation appears to conform to the requirements of Approved Document B and/or BS 9991:2015[xviii] although no destructive or intrusive surveys were carried out of wall voids, under fixed flooring or in ceiling voids.

All building works and any refurbishments, in line with the Building Regulations, should have been approved by a building control body; therefore, compartmentation should be to an appropriate standard.

The elements of structure such as structural frames, load bearing walls (internal and external) and floor structures, based on the height, depth and use of the building should have a REI 90 minute capability as recommended in BS 9991:2015 in terms of the structural elements capabilities in relation to its load bearing capacity (R), its integrity - resistance to fire penetration (E) and its insulation - resistance to heat transfer (I).

It is important that the building structure and key construction elements remain fully functional for a reasonable period during a fire within the building and beneficial for these elements to remain in a serviceable condition post fire for ease of reinstatement. A fire should be contained by fire-resisting elements to prevent the elements of combustion propagating to other parts of the building. Containment should be installed in voids and cavities that could provide a path for a fire to spread.

The basic requirement throughout the building is that structural fire protection is provided to the elements of structure (structural walls, floors, beams, columns, etc.). The table below provides an outline of the requirements in respect of fire resistance.

Building height ≥18m ≤30m	**Minimum Fire Resistance rating when tested to the relevant part of BS 476 (mins)**			**Methods of Exposure**
Part of Building	**Loadbearing**	**Integrity**	**Insulation**	
Structural elements	90	n/a	n/a	Exposed Faces
Compartment floors	90	90	90	From underside
Compartment walls Walls between flats and residential common areas	60	60	60	Each side separately
Protected shafts (stairs, lifts, risers)	90	90	90	Each side separately
Residential stair	60	60	60	Each side separately
Low risk ancillary	30	30	30	Each side separately
Cavity barriers	n/a	30	15	Each side separately
Firefighting shaft	120	120	120	

Notes: *The party wall separating differing purpose groups, commercial units and the car park must achieve a fire resistance rating of a minimum 60 mins.*

Table 14 - Levels of Compartmentation (Examples)

6.6 Compartmentation

Compartmentation throughout the building is based on a floor-by-floor basis with the provision that in some instances there will be penetrations through any compartment which should be enclosed within fire resisting structures and/or be adequately fire stopped.

The spread of fire within a building can be restricted by subdividing the building into compartments, separated from one another by walls and/or floors of fire-resisting construction. The same approach can be applied to prevent fire spread between buildings that are close together. Compartmentation, horizontal or vertical, is also used as part of an escape strategy to create areas of relative safety.

On any one storey in a building, compartmentation can be necessary in the interests of occupant safety:

- To meet travel distance limits.
- To enclose a special fire hazard
- To support the evacuation strategy
- To separate areas having different risk profiles if different standards of fire resistance, or different means of escape, apply
- If the compartment size would otherwise exceed the prescribed limit for the standard of fire resistance proposed
- If there are occupants who need to stay in the building for as long as possible despite the fire, usually for operational safety reasons.

Fire Compartmentation forms a key element of the buildings fire strategy, permitting means of escape and preventing fire and smoke spreading within the building. Any works that are conducted within the building should consider the fire compartmentation provisions to ensure that any damage to fire doors or penetrations through fire compartmentation such as wall, floors or service risers are correctly repaired by a competent contractor, using approved fire stopping methods ideally in line with the published fire stopping guidance contained within Association for Specialist Fire Protection (ASFP) Publications. Any issues with the fire compartmentation should have been identified in the building Fire Risk Assessment.

6.6.1 General

A crucial element within the building in respect of fire safety is the degree, extent and veracity of the passive fire protection systems and arrangements installed, which is determined by the complexity, design intent and use of the premises.

Passive fire protection features restrict the spread of fire and smoke through the flammability of linings, compartmentation of the building and protection of the structural integrity of the building.

Passive fire protection can include the degree of compartmentation installed, which is intended to limit the spread of a fire and smoke to give the occupants time to escape as well as prevent fire spread and subsequent property damage/loss.

The passive protection shall be augmented by appropriate fire stopping where compartment walls and floors are compromised.

In addition, intentional breaches through compartmentation and separating walls are also required in the form of doorways and therefore, fire doors play a vital role in supporting such compartmentation and structural separation. Fire doors, therefore, shall be installed, maintained, and must be operating effectively at all times if the correct level of compartmentation and separation is to be maintained.

It is identified that the fire compartmentation measures, where visible, do not confirm to the requirements of BS 9991:2015 Observations were made which support observations and deficiencies recorded in the fire risk assessment. Therefore, the client is advised to action fire stopping deficiencies as identified in paragraph 6.7 below.

6.6.2 Cavity Barriers

Cavity barriers should be provided to subdivide any large cavity and to seal cavities at wall junctions and window fittings. The key areas that require cavity barriers are as follows:

- At the junction between an external cavity wall and a compartment wall that separates buildings, and at the top of such an external cavity wall.
- At the junction between an external cavity wall and every compartment floor and compartment wall.
- At the junction between a cavity wall and every compartment floor, compartment wall, or other wall or door assembly that forms a fire-resisting barrier.
- In a protected escape route, above and below any fire-resisting construction that is not carried full storey height.
- Where the corridor will be sub-divided to prevent fire or smoke affecting two alternative escape routes simultaneously.
- Within the void behind the external face of rain screen cladding at every floor level, and on the line of compartment walls abutting the external wall of buildings.
- At the edges of cavities (including around openings and windows).

In addition to the above location's, cavity barriers should also be provided in cavities (including ceiling voids and under floor service voids) where the cavity exceeds 20m.

This applies to external wall cavities as well as any internal cavities such as the ceiling void. In any cavity space other than ceiling void where the surface spread rating of the material is C-s3, d2 or worse, a cavity barrier is required every 10m.

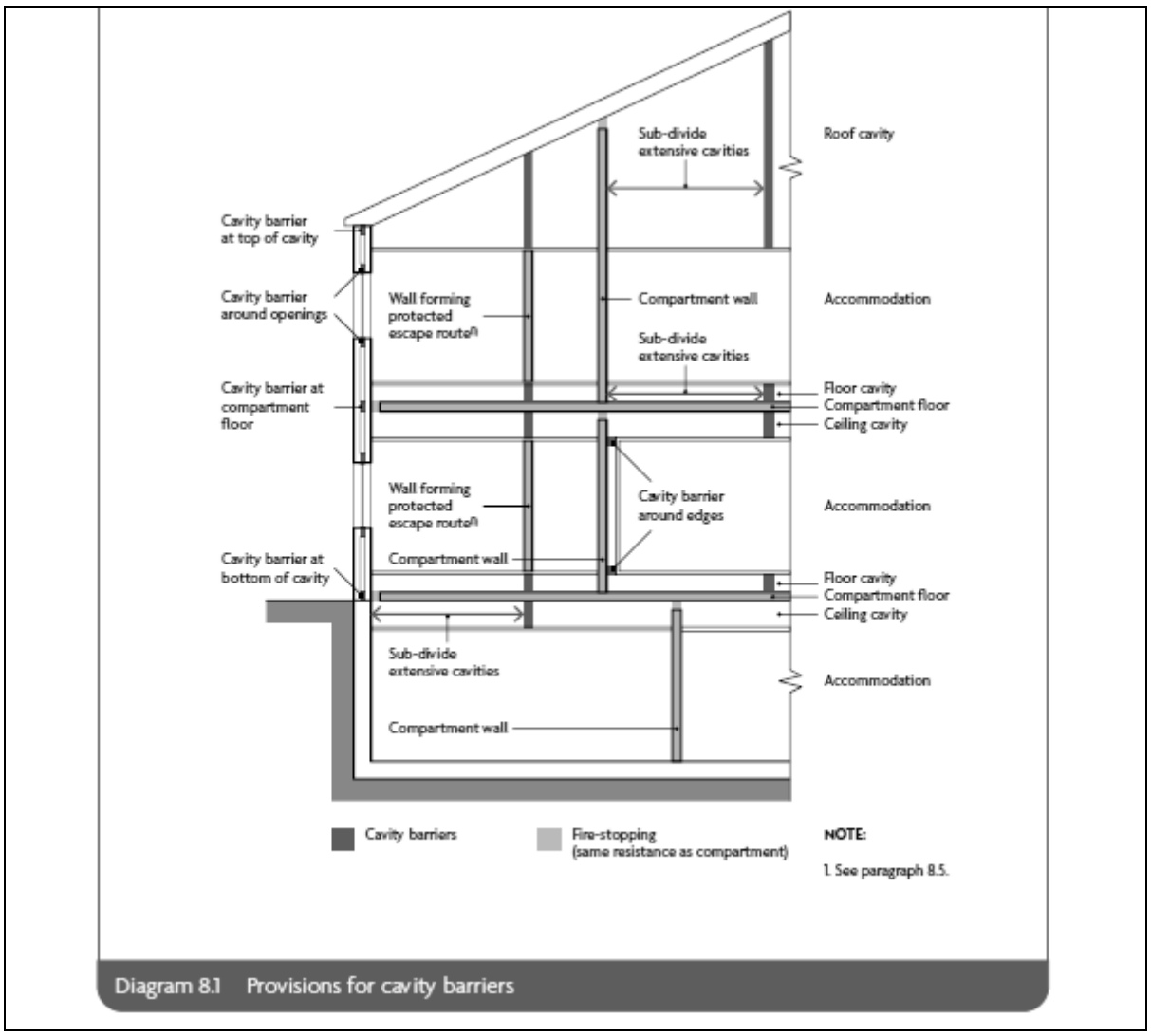


Figure 13 - Diagram 8.1 from Approved Document B 2019 as amended (Volume 1)

The cavity barriers should provide a 30-minute fire rating (30 minutes integrity and 15 minutes insulation). Any penetrations through the cavity barriers should be either:

- Fitted with a proprietary sealing system; or
- Pipes of limited diameters that are sealed with fire-stopping or sealed with sleeving of non-combustible pipe material.

The specification of cavity barriers should not be confused with the specification of fire stopping between fire resisting elements, e.g. walls and floors, which will afford the same level of fire resistance as the fire resisting elements themselves.

6.7 Penetration Seals and Fire Stopping

All openings in compartment walls and floors for service pipes and cables should be appropriately sealed with fire resisting material an accordance with one of the following alternatives.

- For proprietary seals of any pipe diameter, a proprietary sealing system may be provided that has been shown by test to maintain the fire resistance of the wall, floor or cavity barrier.

- For pipes with a restricted diameter, where a proprietary sealing system is not used, fire-stopping may be used around the pipe, keeping the opening as small as possible. The nominal interior diameter of the pipe should be not more than the relevant dimensions given in BS 9991:2015 Table 10.
- A pipe of lead, aluminium, aluminium alloy, fibre-cement, or PVC, with a maximum nominal diameter of 160 mm, may be used with a sleeving of non-combustible pipe as shown in BS 9991:2015 Figure 30

Table 10 **Maximum nominal interior diameter of pipes passing through a compartment wall/floor**

Dimensions in millimetres

Situation	Maximum nominal internal diameter		
	a) Non-combustible material [A]	b) Lead, aluminium, aluminium alloy, PVC [B], fibre-cement	c) Any other material
1) Structure (but not a wall separating buildings) enclosing a protected shaft which is not a stairway or a lift well	160	110	40
2) Compartment wall or compartment floor between flats	160	160 (stack pipe) [C] 110 (branch pipe) [C]	40
3) Any other situation	160	40	40

[A] A non-combustible material (such as cast iron or steel) which, if exposed to a temperature of 800 °C, does not soften or fracture to the extent that flame or hot gas passes through the wall of the pipe.

[B] uPVC pipes conforming to BS 4514 and uPVC pipes conforming to BS 5255.

[C] These diameters are only in relation to pipes forming part of an above-ground drainage system and enclosed as shown in Figure 29. In other cases the maximum diameters against situation 3) apply.

Figure 14 - Table 10 BS 9991:2015

Figure 30 **Pipes penetrating structure**

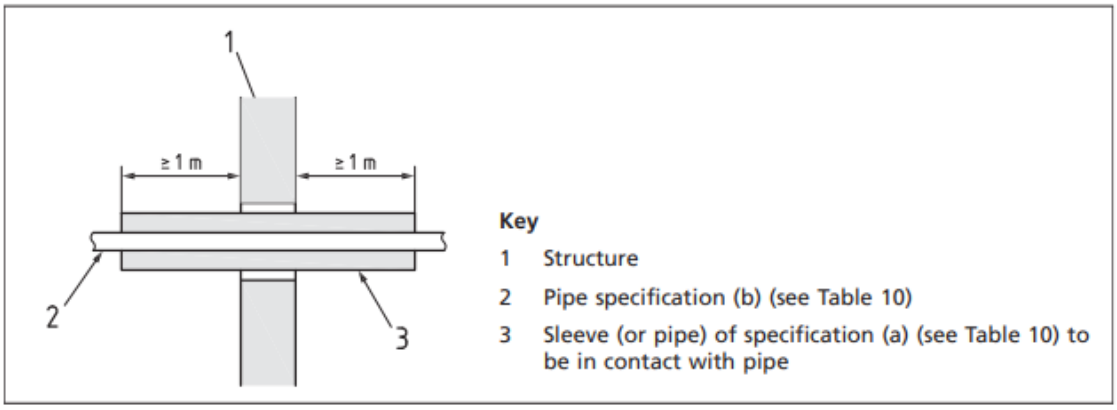


Figure 15 – Figure 30 BS 9991:2015

Client Action: Penetration Seals and Fire Stopping

It is identified that the fire stopping and penetration sealing in some areas and where visible, do not conform to the requirements of BS 9991:2015. Observations were made which support observations and deficiencies recorded in the fire risk assessment. Therefore, the client is advised to action fire stopping and compartmentation deficiencies.

6.7.1 Building Services Risers

Building service risers are open at each level / storey, with the construction of the 'shaft' required to be to a 60-minute fire resisting standard, with the door to the riser at each level being of a 60-minute fire resisting standard (FD60). It could not be confirmed if the fire stopping within all service risers is satisfactory as access to all risers was not available, this however, should also be considered in greater depth forming a part of the fire risk assessment process.

6.8 Active Fire Barriers

There are no active fire barriers observed as provided within the building such as fire dampers and fire shutters, curtains or screens.

6.8.1 Fire Dampers

Any fire dampers, however and where applicable, should be provided within any ductwork at the point which it penetrates a fire separating element. All fire dampers should conform to BS EN 15650:2010 and have an E Classification, equal to or greater than the wall/floor through which they pass.

Fire dampers activated only by fusible links are not suitable for protecting escape routes. In such instances an ES 60 classified fire and smoke damper which is activated by a smoke detector and thermal fuse is used.

The following spaces constitute a protected escape route:

- Protected stair enclosures
- Protected lobbies
- Corridors fire rated for means of escape purposes including single direction of escape and the corridors within the central cruciform core area.

6.8.2 Fire Curtains

Not applicable, none installed.

6.9 Lifts (Passenger)

One passenger lift is provided in the building and is located within the central atrium access core.

The misuse or malfunctioning of lifts can have serious consequences, attributed amongst other things to failure of the power supply or from lifts being called to or held at the fire floor.

Where a fire alarm system covers the common areas and has a suitable electrical output signal, lifts other than firefighting and evacuation lifts should be recalled to an exit floor and then taken out of service in accordance with BS EN 81-73. Where there is no suitable fire alarm system, the lift should be recalled from a manual recall device in accordance with BS EN 81-73.

Lifts must be enclosed in the fire resistance appropriate to the element through which they pass and therefore and as this lift descends to the basement levels must be enclosed within a structure that provides 90 minutes fire resistance.

6.10 Fire Door Provision

Fire doors are required for the protection of escape routes in accordance with BS 9991:2015 and Approved Document B. Example locations requiring fire doors can include;

- Passenger Lift FD60
- Building services risers FD60 or FD30 depending on riser construction
- Flat/Apartment entrance door FD30S (unless external and not on a means of escape)
- Escape Stair door FD30S
- Escape corridor doors FD30S
- Cross Corridor Smoke doors FD30S
- Plant Room doors FD60
- Store doors FD30

Doors in fire-separating elements are one of the most important features of a fire protection strategy, and it is important to select a fire door that is suitable for its intended purpose. They should normally be self-closing unless they give access to cupboards or service risers, in which case they should be kept locked.

Where fire resisting doors are provided in the building, they should be fitted, where appropriate, with cold smoke seals, a positive self-closing device (where appropriate) and any gaps around the doors should not exceed set maximums.

However, original fire doors and those not fitted with cold smoke seals, intumescent strips and with the door closing onto 25mm doorstops or rebates, may be present in older type and existing premises. These, subject to risk assessment and condition survey, may maintain a notional fire door capability without the need for a prescriptive replacement or upgrade.

It can be acceptable for hold-open devices to be used either to hold a fire door in the open position, against the action of a door closer, or to allow it to swing freely, automatically releasing the closing mechanism in a fire situation. If a hold-open device is to be used conditions of use and activation are required and additional specific guidance should be sought.

Doors necessary for escape, which are provided with access controls, are provided with a suitable override facility.
The key doors in the building are:

Area	Required Door Status[5]
Doors to flats	FD30(S)
Doors to protected staircase enclosures	FD30(S)
Doors to staircase lobbies	FD30(S)
Doors to protected corridors	FD30(S)
Cross corridor smoke doors	FD30(S) / FD20(S)
Building services riser doors (open riser design)	FD60
Plant room doors	FD60(S)

Table 15 - Key Fire Resisting Doors on site

[5] Required status. Notional fire doors, subject to risk assessment and condition survey, may be adequate.

7 FIREFIGHTING STRATEGY

7.1 Personnel and Training Requirements

All staff and contractors, who have cause to enter the building shall be provided with fire safety training as part of the initial induction to the building.

7.2 Provision of Portable Firefighting Equipment

Due to the identified risk profile (residential), the training requirement and the risk of injury to potential users, fire extinguishers are not provided. The adopted fire policy is for a rapid evacuation of the impacted area and an early call to the Fire and Rescue Service for assistance.

7.3 Fire Service Intervention

Fire-fighting facilities should be selected and designed to assist the fire and rescue service in protecting life, protecting fire-fighters, reducing building losses, salvaging building and goods, and minimizing environmental damage.

The provided facilities depend on the use, size or layout of the building, the nature of its contents, and the site upon which it is situated. Fire-fighting facilities should include, where appropriate:

- The provision of vehicular access for fire appliances to the perimeter of the building or site.
- Provision of easy and speedy entry to the site and/or the interior of the building for fire-fighters and their equipment.
- Provision of and access to sufficient supplies of a fire-fighting medium
- Means of enabling fire-fighters, once they have entered a building, to reach any point within that building in the shortest possible time, including the provision of firefighters lifts if appropriate
- Means of ensuring that once fire-fighters have arrived at a location within a building, they can remain there in relative safety whilst they carry out their fire-fighting operations
- Provision for fire and rescue service communications
- Provision of facilities to release, or extract, smoke and heat from the building or site
- Provision for removing spent fire-fighting extinguishing medium.

7.3.1 Pre-determined attendance

It is anticipated that the normal attendance time for a fire appliance to arrive at the premises would be within approximately 6 minutes (depending on the availability). The local fire authority is Greater Manchester Fire & Rescue Service. The nearest fire station is detailed below. The distance between this fire station and the building assessed is approximately 1.7 miles.

Fire Station
Salford Fire Station, 52 Liverpool Street, Salford, Manchester M5 4LT Tel: 0161 608 5202 Emergencies: 999

Table 16 - Local Fire Station Details

Due to the size and nature of the building, Fire and Rescue Service attendance provided could be from various (or) other stations based on operational mobilisation.

This Retrospective Fire Strategy accounts for the requirements for Fire and Rescue Service access in and around the building and the potential evacuation of occupants.

7.3.2 External Fire Hydrant

No private external fire hydrant is provided within the boundaries of the development/estate.

Public/local authority external fire hydrants are located On Worsley Street and is considered to be within 40m of building's boundary.

7.3.3 Fire and Rescue Service Vehicular Access Arrangements

Adequate access for fire and rescue service appliances is provided to the building, in terms of access to the building footprint or a suitable entrance with adequate turning circles where necessary in accordance with Building Regulations Approved Document B B5. This is supported with a good standard of water supply available via a hydrant system in the main roadway.

In the case of a building fitted with dry riser fire mains, there should be access for a pumping appliance to within 18m of each dry riser/fire main inlet connection point, typically on the face of the building. The inlet should be visible from the appliance. This is considered to be the case in the building surveyed.

Typical fire and rescue service vehicle access route specification						
Appliance type	**Minimum width of road between kerbs (m)**	**Minimum width of gateways (m)**	**Minimum turning circle between kerbs (m)**	**Minimum turning circle between walls (m)**	**Minimum clearance height (m)**	**Minimum carrying capacity (tonnes)**
Pump	3.7	3.1	16.8	19.2	3.7	12.5
High reach	3.7	3.1	26.0	29.0	4	17.0

Notes.

1. Fire appliances are not standardised. The building control body may, in consultation with the local fire and rescue service, use other dimensions.
2. The road base can be designed to 12.5 tonne capacity. Structures such as bridges should have the full 17-tonne capacity. The weight of high reach appliances is distributed over a number of axles, so infrequent use of a route designed to accommodate 12.5 tonnes should not cause damage.

Table 17 - Fire vehicle access route specification

7.3.4 Dry / Wet Rising Firefighting Mains

As the building is greater than 18m in height, there is provision of a dry rising main to assist firefighting operations. Each residential corridor is provided with an outlet and on each floor. Unusually, the outlets are not located within the protected stairs as would be expected and instead outlets are within the residential corridors themselves. Hose lengths will be consequently no more than 45m to the furthest point on any storey for an un-sprinklered building to facilitate a firefighting attack. The inlet valve is located located for Fire Service use with an augmented water supply (fire hydrant) within 90m. The system should conform to BS 9990:2015.

Client Action: Dry rising firefighting main
The client should liaise with the fire and rescue service for their informational and operational planning purposes given the location of the dry riser outlets are not in the expected and code of practice recommended locations of the stair enclosures.

7.3.5 Firefighting Shafts

Codes of practice at the time of design and build, which is assumed to be Approved document B 1991 Section 17 given the buildings age, details that buildings with a floor more than 20m above fire service access level, or with a basement at more than 10m below ground or access level, should be provided with firefighting shafts containing firefighting lifts.

It would appear in this building that a firefighting shaft and the required associated facilities have not been provided. In the absence of documentation or fire engineering reports / evidence, the reason why such access and facilities for firefighters have not been provided, is unknown and this report author is completely unsighted as to the reasoning.

BS 5588-7:1997 Code of practice for the incorporation of atria in buildings (paragraph 20), which is assumed a current guidance document at the time of building design and build, quotes the provisions for fire service access and firefighting in an atrium building should generally be in accordance with the requirements for the equivalent non-atrium building, although the geometry of the building might result in more firefighting shafts being needed than in the equivalent non-atrium building (although the area of the atrium void should be ignored for the purposes of calculating the number of firefighting shafts required).

The shaft must contain a firefighting staircase, a firefighting rising main, firefighting lift, and a smoke control system and must be approached from the 'accommodation' via two fire door protection. The firefighting staircase should also be provided with a means for venting smoke via the head of the stair.

Client Action: Firefighting Shaft

It is possible that Timber Wharf was designed to be below the 20m threshold, but the position should be confirmed.
It is also recommended the client attempts to identify through any historical records, as built designs, building control records, certification, or dispensations with building control records and or engineered reports produced by the original build project appointed fire engineers Buro Happold FEDRA and Faber Maunsell in an attempt to understand or otherwise the circumstances surrounding the non provision of a firefighting shaft and associated facilities for firefighters in the building.
The fire engineers for the building design and build are identified in an internet search Buildings Library for the premises.
In the absence of historical records justifying the current position, the client is recommended to liaise with the fire and rescue service for the area and make them aware of the nature of building and the non provision of expected access and facilities for their operational response.

7.3.6 Fire Fighting Lifts

The one passenger lift systems installed on site, within the atrium, is identified as a fireman's lift only. Consultation with the onsite maintenance staff identifies that the building is not provided with standby power systems for a life safety systems such as lifts etc. which is normal for old design standards and provision of a fireman's lift as opposed to a firefighter's lift.

7.3.7 Firefighter facility signage

Firefighter facility signs are provided to identify and locate equipment provided for firefighters, such as services isolation points and firefighting rising mains.

7.3.8 Wayfinding Signage

In addition, to assist the Fire Service to identify each floor in flats/apartments with a top storey more than 18 m, or any new building 11m (including those existing buildings undergoing relevant material alterations) above ground level, building floor identification signs and flat/apartment indicator signs should be provided.

The floor identification signs should meet all of the following conditions:

- The signs should be located on every landing of a protected stairway and every protected corridor/lobby (or open access balcony) into which a firefighting lift opens.
- The text should be in sans serif typeface with a letter height of at least 50mm. The height of the numeral that designates the floor number should be at least 75mm.
- The signs should be visible from the top step of a firefighting stair and, where possible, from inside a firefighting lift when the lift car doors open.
- The signs should be mounted between 1.7m and 2m above floor level and, as far as practicable, all the signs should be mounted at the same height.
- The text should be on a contrasting background, easily legible and readable in low level lighting conditions or when illuminated with a torch.
- The wording used on each floor identification sign should take the form Floor X, with X designating the number of the storey, as intended for reference by residents. The floor number designations should meet all of the following conditions.
- The floor closest to the ground level should be designated as either Floor 0 or Ground Floor.
- Each floor above the ground floor should be numbered sequentially beginning with Floor 1.

All floor identification signs should be supplemented by flat/apartment indicator signs, which provide information relating to the flats/apartments accessed on each storey. The flat/apartment indicator signs should meet all of the following conditions.

- The signs should be sited immediately below the floor identification signs, such that the top edge of the sign is no more than 50mm below the bottom edge of the floor identification sign.
- The wording should take the form Flats X–Y, with the lowest flat/apartment number first.
- The text should be in sans serif typeface with a letter height of at least half that of the floor indicator sign.
- The wording should be supplemented by arrows when flats/apartments are in more than one direction.
- The text and arrows should be on a contrasting background, easily legible and readable in low level lighting conditions or when illuminated with a torch.

7.3.9 Secure Premises Information Box

The Fire Safety (England) Regulations 2022 make it a legal requirement for existing high-rise residential buildings in England to have a secure information box installed on the premises.

The regulations require responsible persons to install a suitably secure information box in or on their high-rise building. They will also be required to provide in the box:

- Their UK contact details.
- The UK contact details of any other person who has the facilities to and is permitted to access the building as the responsible person considers appropriate.
- Copies of the building's floor plans – which identify specified key fire-fighting equipment.
- A single page block plan - which identifies specified key fire-fighting equipment.

Access should be given to the fire and rescue service. Boxes should be maintained, and their contents kept up to date in line with the duties imposed by the regulations and the Fire Safety Order.

The regulations require the box to be suitable for the purpose for which it is intended and should be reasonably secure from vandalism and unauthorised access. The information in the boxes is information only of use by and interest for the fire and rescue service. Access should be provided to the fire and rescue service.

Chapters 2 to 4 of "The Code of Practice for the Provision of Premises Information Boxes in Residential Buildings" produced jointly by the FIA and the NFCC sets out good practice on secure locations to install information boxes: PIBS_Guide_06-21_V2. The regulations do not require a responsible person to include in the box any personal or sensitive information about residents.

Attention should be drawn to section 1.8 of the above publication in the instance of residents with mobility, cognitive or sensory impairment(s).

7.3.11 Fire Service Escort Arrangements

"Fire Escort" arrangements are not provided as the building is managed remotely. The Fire Service, when attending the site, on arrival, will assess the incident and access the building via the appropriate means.

8 FIRE DETECTION AND PROTECTION STRATEGY

8.1 Detection and Warning of fire

8.1.1 System Installation

An Automatic Fire Detection and Warning (Alarm) system which appears to meet the requirements of a BS5839 Part 1 Category L5 system is installed within isolated plantrooms, refuse chutes and machinery spaces of the building only. The only area where manual call points were noted was in the refuse stores in the basement car park. There were no manual call points by the storey exits therefore a relevant person may not be made aware of a fire in the car park at its early stages.

This system does not provide a common fire alarm and does not have a fire alarm panel in the building but instead reports to a fire alarm control panel in the adjoining building which houses the client maintenance team office.

No other means of fire detection and warning was noted as installed in the building, other than close to held open self closing fire doors, to include within the common spaces such as the two storey large car parking areas.

Access to the private flats was not possible during the survey so provision of means of warning within the flats cannot be confirmed. Anecdotal evidence recorded within the fire risk assessment suggests that varying degrees of BS5839 Part 6 domestic alarm systems are provided within the flats however this cannot be corroborated.

The residential corridors are fitted with magnetically held open fire doors to and from the atrium, cross corridor fire doors and doors onto the protected escape stairs at each end of the building all of which appear as interfaced with BS5839 Part 6 smoke alarms installed in close proximity to individual doors only and designed solely for the purpose of releasing and closing the separate doors adjacent to the individual smoke alarms.

Client Action: Detection and warning of fire

The client is advised the current provision of means of warning and detection is substandard and consideration for upgrade must be considered.

It is recommended the current and limited BS5839 Part 1 Category L5 system in the basement and refuse chute is expanded and upgraded to provide means of detection and warning within the basement carpark levels and to provide a Category L3 installation for these common areas and so as to facilitate the appropriate evacuation strategy for these areas.

The current domestic type smoke alarms in the residential corridors designed for the closing of held open fire doors to stairs and the cross corridor points should be considered for upgrading and potentially replaced with a more robust BS5839 Part 1 system to category L5 and provided again solely for the closing of the held open fire doors. Audible alarms in the corridor locations as part of the L5 system are not recommended. Alternatively, if the corridor doors do not need to be held open then doors should be allowed to stay in the self closing closed position and all holding open mechanisms and smoke detectors could be removed.

8.1.2 Visual Alarm devices

Not installed or required in common areas.

8.1.3 Audibility

Alarm audibility levels in flats or apartments have not been measured or confirmed.

8.1.4 Interfaces

It was identified that there are a number of interfaces with the fire alarm system. The interfaces appear to be designed to:

- Close held open fire doors

A cause-and-effect document was not available for confirmation.

8.1.5 Zone Plans

Fire alarm zone plans are provided in the maintenance staff office.

8.2 Automatic Fire Suppression

There are no fire suppression systems currently installed within the building and there is no requirement to install such systems in a building of this age, height, size and use.

8.3 Life Safety Power Supply Systems

Fire safety systems power supplies and their control wiring should be protected against the effects of fire to ensure they operate in the event of a fire.

All life safety equipment requires an alternate Life Safety Power Supply. Where dual power supplies are recommended by the relevant British Standard or industry guide to any life safety system, the primary power source should generally be taken from the public electricity supply, with secondary power being supplied from an alternative utility supply from another substation, a generator, an uninterruptable power supply (UPS) or batteries.

At the time of the site visit, no details were available for any secondary (back-up) power supplies to life safety systems, which are required to operate in the event of a fire on loss of mains power. It is assumed therefore that the fire alarm system and emergency lighting system are provided with a trickle charged battery emergency power system. This however could not be confirmed.

8.4 Electrical Cabling

Electrical cabling for fire safety systems should comply with BS 8519:2020[xix] and BS 7671:2018+A2:2022[xx] for the electrical supplies to fire safety and emergency systems.

All cabling along escape routes should be suitably supported. Steel ties may also be required to avoid dropping cables affected by heat obstructing escape routes and firefighting access due to the failure of fixings. Cabling supports should comply with the requirements of the manufacturer's instructions and other guidance in BS 5839 Part 1 and BS7671:2018+A2:2022[xxi].

8.5 Electric Vehicle Charging Points

The provision of electric vehicle charging points or suitable risk assessment of the hazards could not be confirmed. If charging points are provided and installed on site or in the vicinity of the building or are planned to be installed on site, then the client should consider an 'Electric Vehicle Charging Point Fire Risk Assessment' be carried out and the fire risk assessment should consider such hazards and risks alongside this.

Appendices

Appendix 1: Client Actions

The following Client Actions are recommended in this Retrospective Fire Strategy.

Return to Executive Summary

Client Actions	
1	Report Paragraph 4.3 **Client Action: Fire Risk Assessment** The client should assure themselves they have addressed the significant findings identified and recorded within the May 2022 fire risk assessment.
2	Report Paragraph 5.1.4 **Client Action: Fire Assembly Point** For the evacuation of the common areas, it is recommended a fire assembly point is designated and identified on Fire Action Notices positioned within the affected areas.
3	Report Paragraph 6.1 **Client Action: Smoke Control** It is recommended the client attempts to identify through any historical records, as built designs, building control records, certification, or dispensations with building control records and or engineered reports produced by the original build project appointed fire engineers Buro Happold FEDRA and Faber Maunsell in an attempt to understand or otherwise the circumstances surrounding the provision of smoke control in the building. The fire engineers for the building design and build have been identified in an internet search Buildings Library for the premises. In the absence of historical records justifying the current position, the client should consider the possibility of retrospective smoke control installations but however specialist smoke control design advice should be sought if this choice is made. The client may wish to contact the Smoke Control Association for further such advice. In the interim, and given the observations above, the client is recommended to liaise with the fire and rescue service for the area and make them aware of the nature of the smoke control observations and that client attempts are being made to investigate and progress. The client is also advised as an in scope building for the Fire Safety England Regulations 2022, (Regulation 7) to notify the Enforcing Authority of the concerns and potential deficiencies.
4	Report Paragraph 6.7 **Client Action: Penetration Seals and Fire Stopping** It is identified that the fire stopping and penetration sealing in some areas and where visible, do not conform to the requirements of BS 9991:2015. Observations were made which support observations and deficiencies recorded in the fire risk assessment. Therefore, the client is advised to action fire stopping deficiencies.
5	Report Paragraph 7.3.4 **Client Action: Dry rising firefighting main** The client should liaise with the fire and rescue service for their informational and operational planning purposes given the location of the dry riser outlets are not in the expected and code of practice recommended locations of the stair enclosures.
6	Report Paragraph 7.3.5 **Client Action: Firefighting Shaft** It is possible that Timber Wharf was designed to be below the 20m threshold, but the position should be confirmed.

	It is also recommended the client attempts to identify through any historical records, as built designs, building control records, certification, or dispensations with building control records and or engineered reports produced by the original build project appointed fire engineers Buro Happold FEDRA and Faber Maunsell in an attempt to understand or otherwise the circumstances surrounding the non provision of a firefighting shaft and associated facilities for firefighters in the building. The fire engineers for the building design and build are identified in this internet search Buildings Library for the premises. In the absence of historical records justifying the current position, the client is recommended to liaise with the fire and rescue service for the area and make them aware of the nature of building and the non provision of access and facilities for their operational response.
7	Report Paragraph 8.1 **Client Action: Detection and warning of fire** The client is advised the current provision of means of warning and detection is substandard and consideration for upgrade must be considered. It is recommended the current and limited BS5839 Part 1 Category L5 system in the basement and refuse chute is expanded and upgraded to provide means of detection and warning within the basement carpark levels and to provide a Category L3 installation for these common areas and so as to facilitate the appropriate evacuation strategy for these areas. The current domestic type smoke alarms in the residential corridors designed for the closing of held open fire doors to stairs and the cross corridor points should be considered for upgrading and potentially replaced with a more robust BS5839 Part 1 system to category L5 and provided again solely for the closing of the held open fire doors. Audible alarms in the corridor locations as part of the L5 system are not recommended. Alternatively, if the corridor doors do not need to be held open then doors should be allowed to stay in the self closing closed position and all holding open mechanisms and smoke detectors could be removed.

Appendix 2: Floor Plans

The following floor plans were available at the time of the survey. Neither Ark Workplace Risk Ltd or the Author can confirm the accuracy of the drawings.

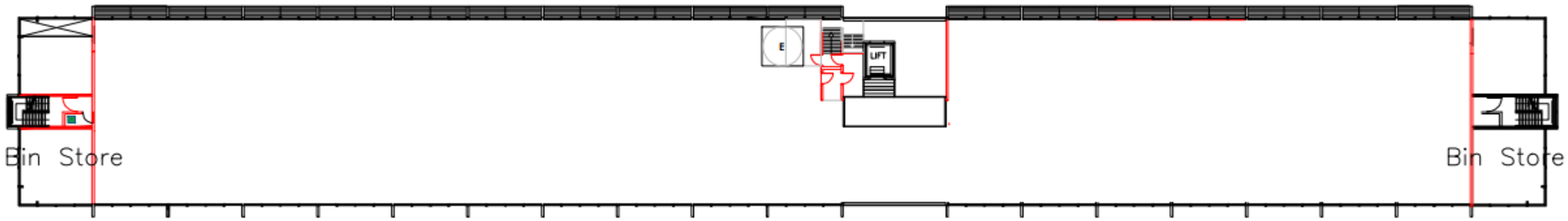


Figure 16 – Basement 2

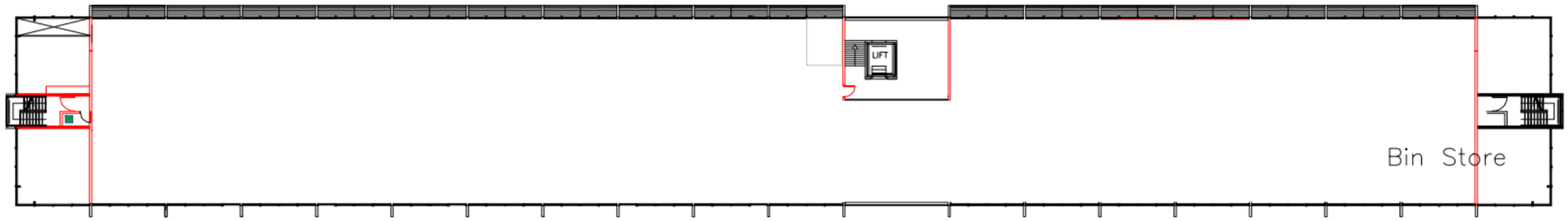


Figure 17 - Basement 1

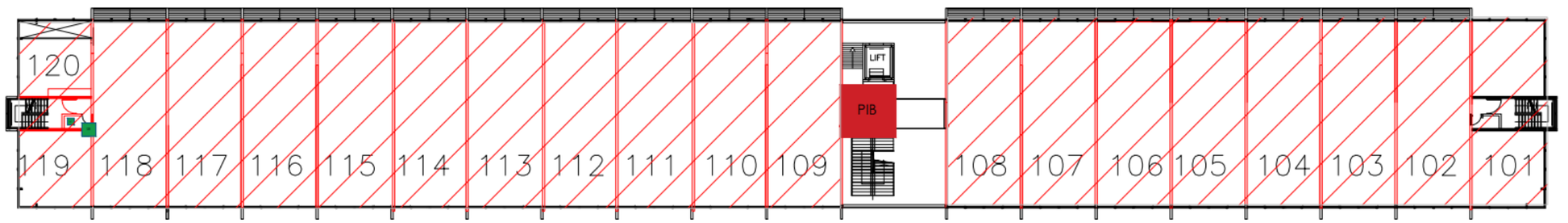


Figure 18 – Ground.

Figure 19 – First.

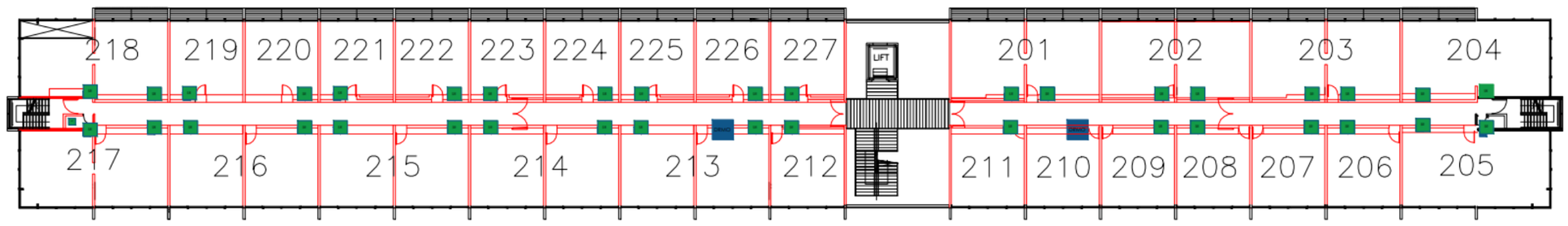


Figure 20 – Second.

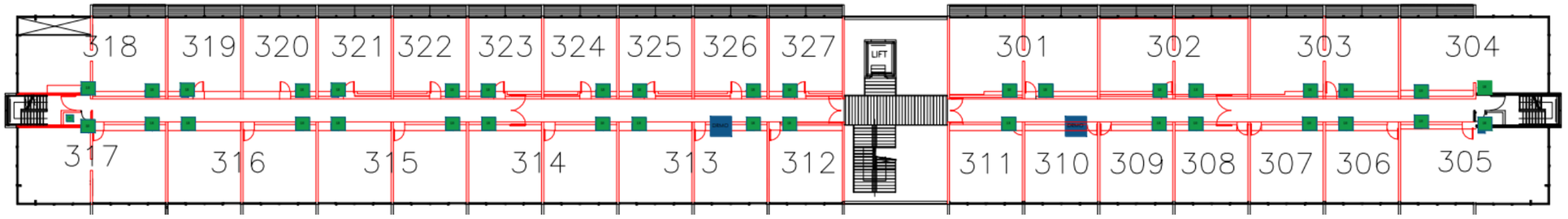


Figure 21 – Third.

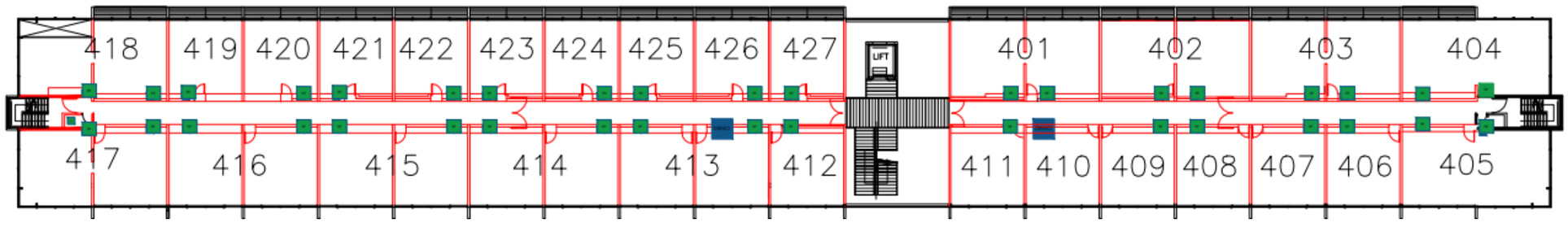


Figure 22 – Fourth.

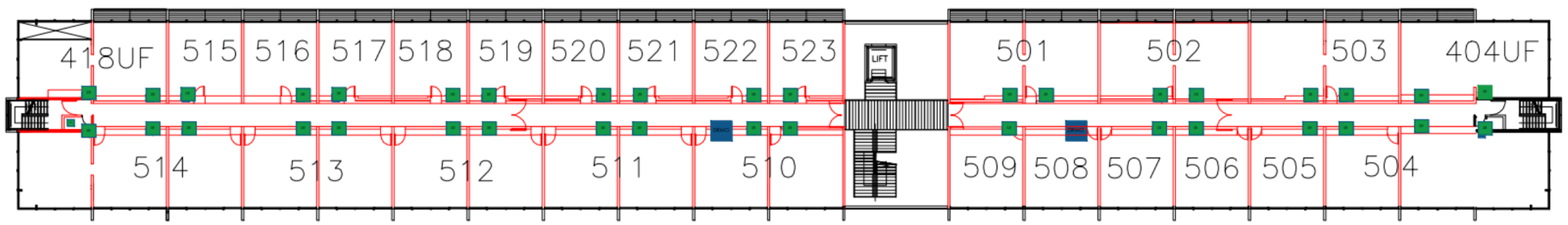


Figure 23 – Fifth.

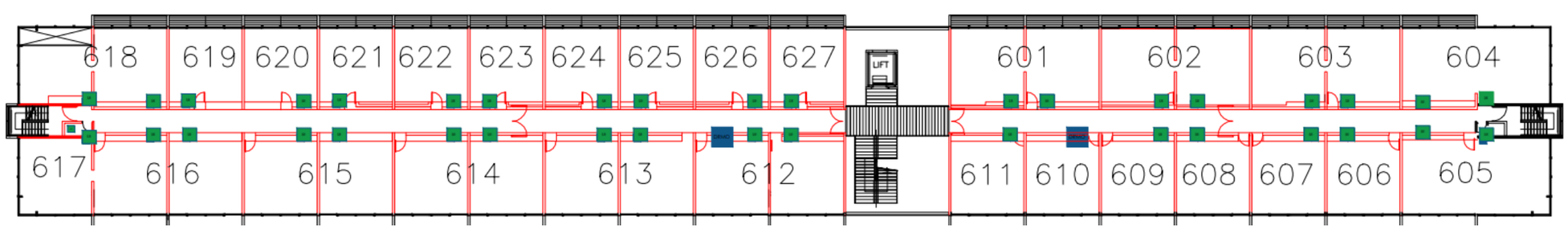


Figure 24 – Sixth.

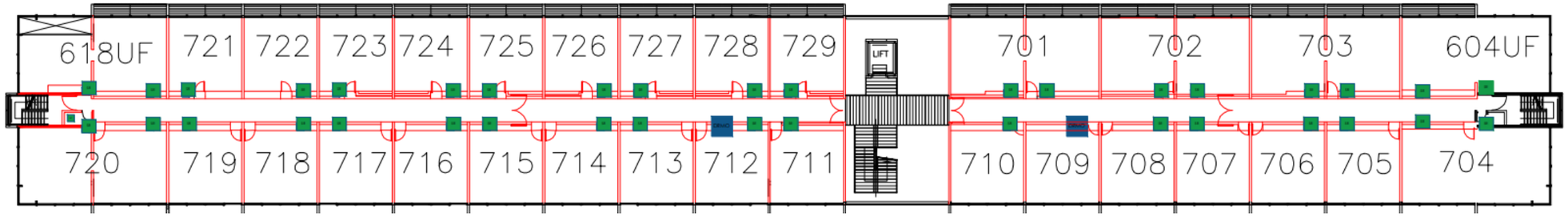


Figure 25 – Seventh.

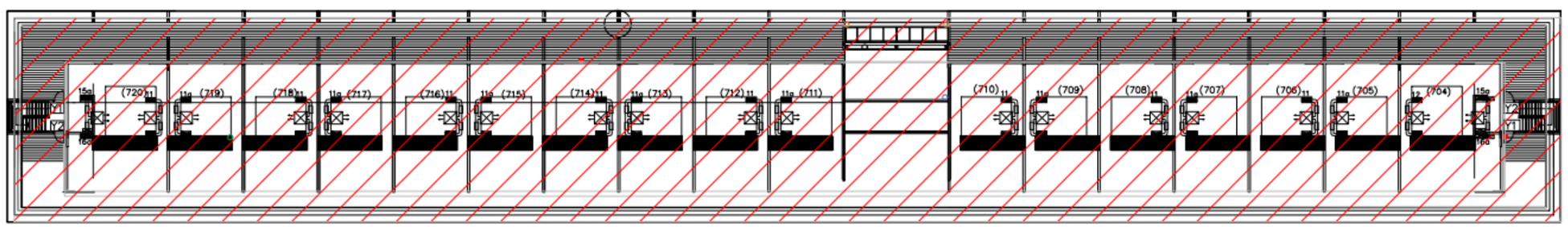
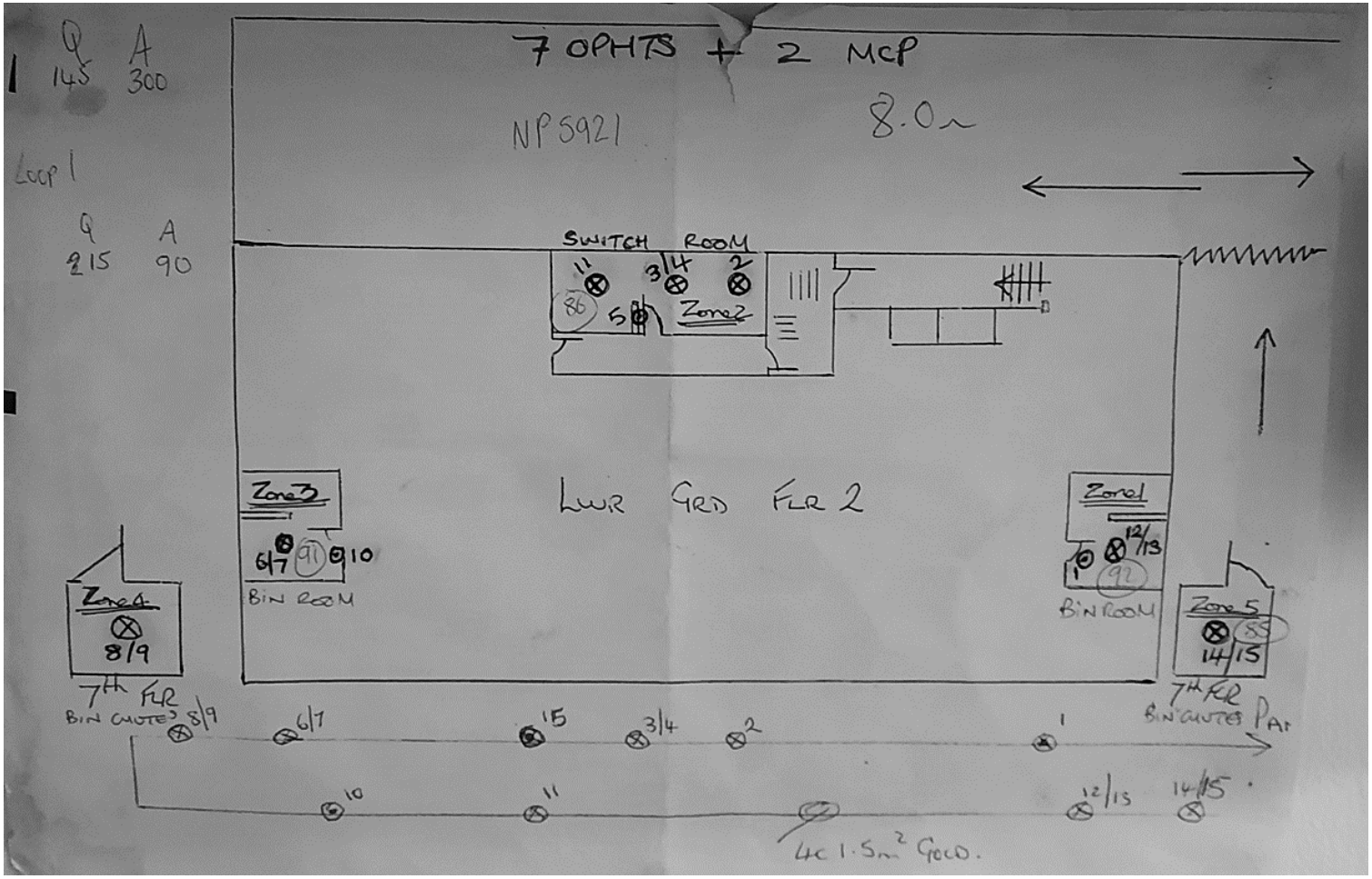


Figure 26 - Eighth.

Appendix 3: Fire Alarm System Zone Plans/Chart

The following fire alarm system zone plans/chart were available at the time of the survey. Neither Ark Workplace Risk Ltd or the Author can confirm the accuracy of the drawings.



Appendix 4: Fire Alarm System Zone Cause and Effect Statement/Matrix

The fire alarm system cause and effect statement/matrix for the building was not available at the time of writing the Retrospective Fire Strategy.

References

[i] BS 9997:2019 - Fire risk management systems. Requirements with guidance for use; Published in 2019 by The British Standards Institute https://shop.bsigroup.com/ProductDetail?pid=000000000030369483

[ii] Fire Safety (England) Regulations 2022 UK Statutory Instruments 2022 No. 547; Published in 2022 by HM Government – available at https://www.legislation.gov.uk/uksi/2022/547/made

[iv] The Building (Higher-Risk Buildings Procedures) (England) Regulations 2023 https://www.legislation.gov.uk/uksi/2023/909/contents/made

[v] BS 9991:2015 – Fire safety in the design, management and use of residential buildings – Code of practice; Published in 2015 by The British Standards Institute https://shop.bsigroup.com/ProductDetail?pid=000000000030357099

[vi] BS 9997:2019 - Fire risk management systems. Requirements with guidance for use; Published in 2019 by The British Standards Institute https://shop.bsigroup.com/ProductDetail?pid=000000000030369483

[vii] Building Safety Act 2022 - UK Public General Acts2022 c. 30; Published in 2022 by HM Government – available at https://www.legislation.gov.uk/ukpga/2022/30/contents/enacted

[viii]Building Safety Act 2022 - UK Public General Acts2022 c. 30; Published in 2022 by HM Government – available at https://www.legislation.gov.uk/ukpga/2022/30/contents/enacted

[ix] BS 5839-1:2017 - Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises; Published in 2017 by The British Standards Institute https://shop.bsigroup.com/ProductDetail?pid=000000000030373864

[xii] BS 7273-4:2015+A1:2021 Bundle - Code of practice for the operation of fire protection measures. Actuation of release mechanisms for doors; Published in 2021 by The British Standards Institute https://shop.bsigroup.com/ProductDetail?pid=000000000030433709

[xiii] BS 7273-4:2015+A1:2021 Bundle - Code of practice for the operation of fire protection measures. Actuation of release mechanisms for doors; Published in 2021 by The British Standards Institute https://shop.bsigroup.com/ProductDetail?pid=000000000030433709

[xv] BS 7671:2018+A2:2022 - Requirements for Electrical Installations. IET Wiring Regulations; Published in 2022 by The British Standards Institute https://knowledge.bsigroup.com/products/requirements-for-electrical-installations-iet-wiring-regulations-3/standard

[xvi] BS 9990:2015 - Non automatic fire-fighting systems in buildings. Code of practice; Published in 2015 by The British Standards Institute https://shop.bsigroup.com/ProductDetail/?pid=000000000030301828

[xvii] BS 5266-1:2016 - Emergency Lighting. Code of practice for the emergency lighting of premises; Published in 2016 by The British Standards Institute https://shop.bsigroup.com/ProductDetail/?pid=000000000030331554

[xviii] BS 9999:2017 – Fire safety in the design, management and use of buildings – Code of practice; Published in 2017 by The British Standards Institute https://shop.bsigroup.com/ProductDetail?pid=000000000030357099

[xix] BS 8519:2020 - Selection and installation of fire-resistant power and control cable systems for life safety, fire-fighting and other critical applications. Code of practice - Published in June 2020 by The British Standards Institute https://standardsdevelopment.bsigroup.com/projects/2018-01364#/section

[xx] BS 7671:2018+A2:2022 - Requirements for Electrical Installations. IET Wiring Regulations; Published in 2022 by The British Standards Institute https://knowledge.bsigroup.com/products/requirements-for-electrical-installations-iet-wiring-regulations-3/standard

[xxi] BS 7671:2018+A2:2022 - Requirements for Electrical Installations. IET Wiring Regulations; Published in 2022 by The British Standards Institute https://knowledge.bsigroup.com/products/requirements-for-electrical-installations-iet-wiring-regulations-3/standard