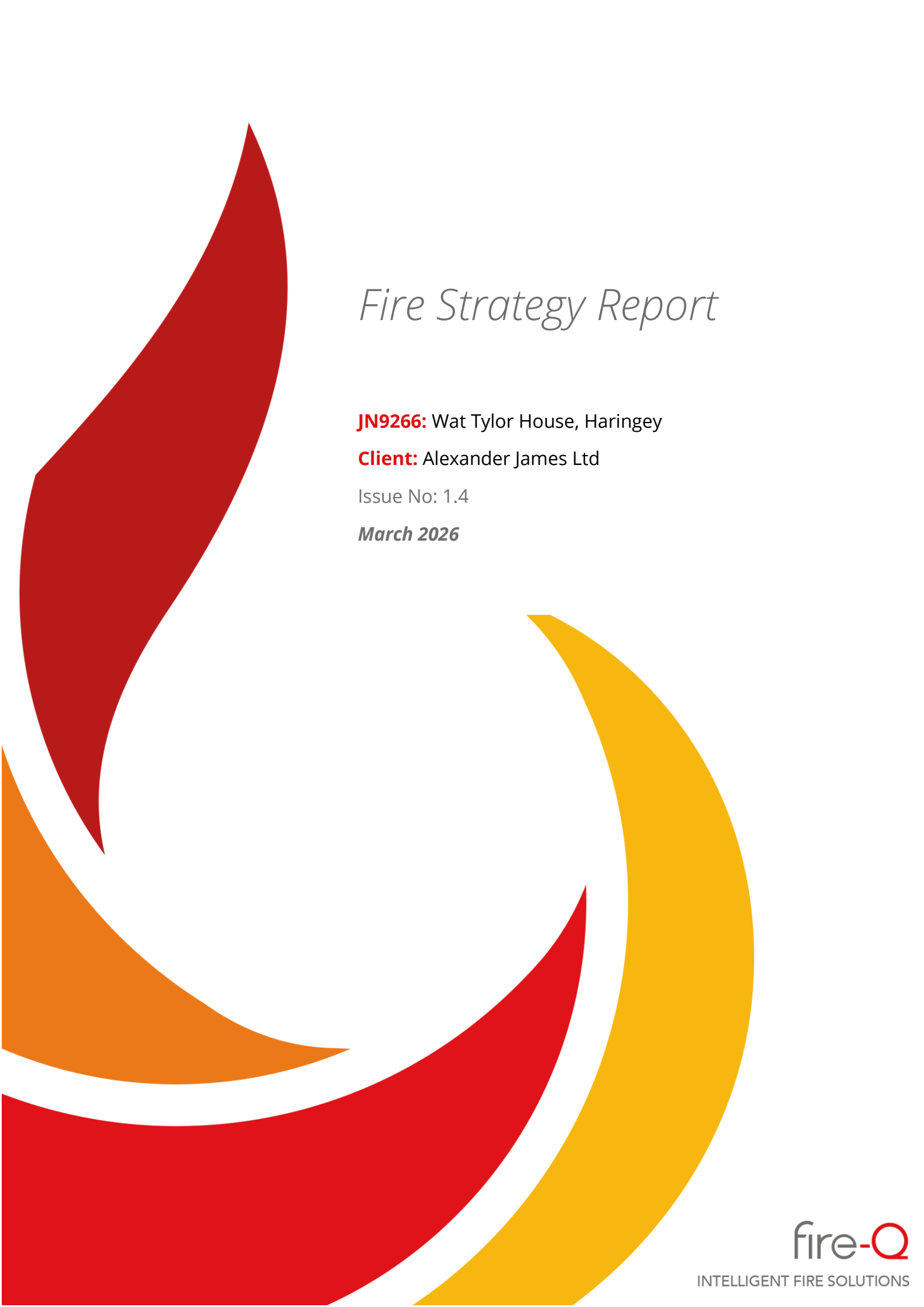




Fire Strategy Report

JN9266: Wat Tylor House, Haringey

Client: Alexander James Ltd

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Quality Check-sheet

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Signature:



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1.3	Amendments to section 2.7	AO	PY	12/02/2026
1.4	Added details for detection, hydrants and UPS	AO	PY	16/03/2026

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1 Introduction

1.1 Background

Fire-Q Ltd (Fire-Q) have been engaged by Alexander James Ltd to review the design of the proposed residential development at Wat Tyler House, Haringey and provide a fire strategy report to support the design. The location of the development is illustrated in Figure 1-1 below.

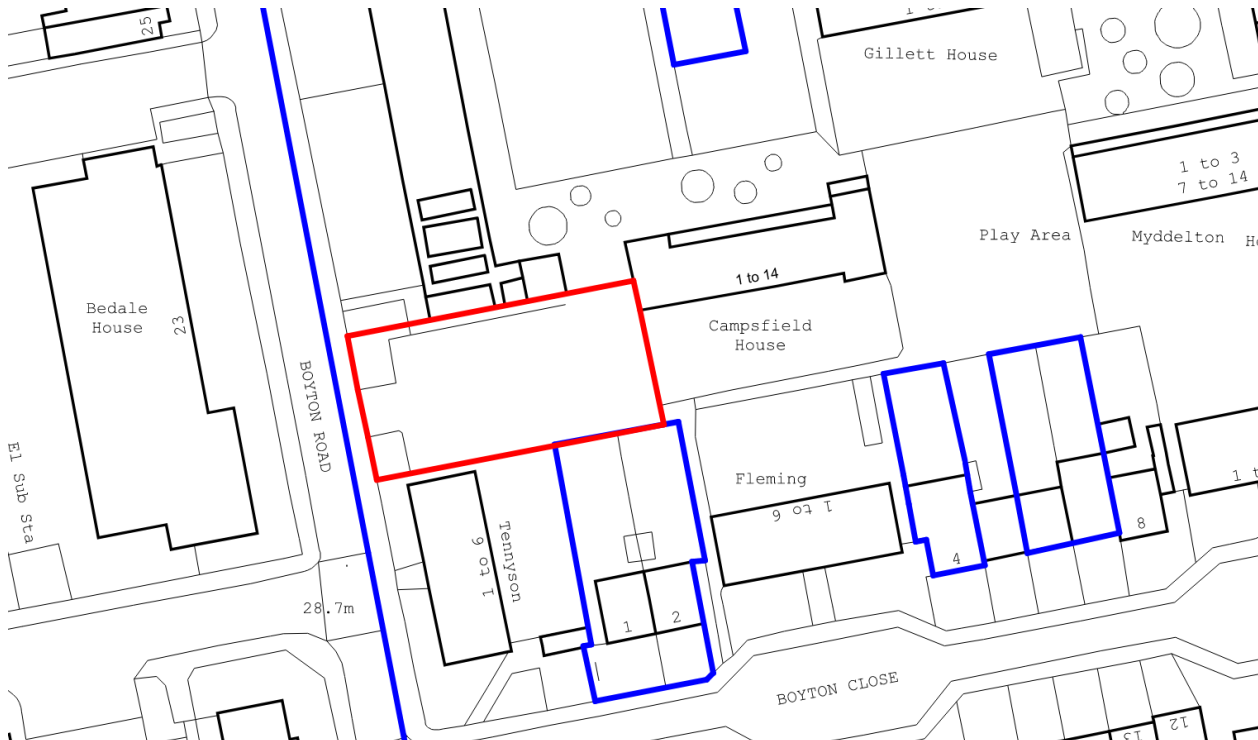


Figure 1-1: Proposed site plan for the development (show in red).

The development consists of a single block of flats with six storeys (ground plus five upper floors), all dedicated to residential apartments, with some ancillary spaces on the ground floor (bike store, bin store and plant room).

The height of the top storey (fifth floor) is 16m from access level. The site is located in Boyton Road, Haringey, adjacent to the existing Wat Tyler House.

1.2 Purpose and Scope

This report is intended to provide a strategy to outline the functional requirements of Part B: Fire Safety to the Building Regulations 2010 (as amended) for the proposed Wat Tyler residential project.

Typically, solutions have been developed based on fire engineering principles and the guidance given in Approved Document B Volume 1 2019 (including amendments).

The designs as proposed within this report are subject to formal approval by Building Control and consultation with other relevant authorities (i.e. local fire brigade). Unless specifically identified within this report, all other elements of the scheme design are assumed to be commensurate with standard guidance.

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The Building Regulations 2010 (as amended) are the primary basis for statutory control of building design in England and Wales. To comply with the Building Regulations the buildings must meet the functional requirements contained in Schedule 1 of Part B of the Regulations. The requirements of the Building Regulations relate to:

- B1 – Means of warning and escape;
- B2 – Internal fire spread (Linings);
- B3 – Internal fire spread (Structure);
- B4 – External fire spread; and
- B5 – Access and facilities for the fire service.

1.3 Applicable Legislation and Guidance

The primary legislation relevant to the project is the Building Act 1984 and its Statutory Instrument 'The Building Regulations'. The principal guidance to the Building Regulations is Approved Document B (AD B) Volume 1.

The Building Safety Act, which received Royal Assent on April 2022, is primarily aimed at High-Risk Buildings (HRBs) and residential buildings with floors above 18m or with at least 7 storeys. The proposed building is not considered as a High Risk Building under the definition of the act nor it is a relevant building for the purpose of Regulation 7(2). T

The Building Safety Act contains other recommendations and requirements for all buildings as well as a general recommendation for enhanced fire safety standards that must be followed from the design to completion and in-use phase of the building. One of the main recommendations is to ensure there is a golden thread of information that can be traced back to scrutinize the design decisions and ensure there is a consistent approach to fire safety.

Once the building is completed and handed over to the client, the Regulatory Reform (Fire Safety) Order 2005 (RRO) becomes the governing legislation. The RRO replaces legislation such as the Fire Precautions (Workplace) Regulations 1997 and the Fire Precautions Act 1971 and imposes the general duty to take relevant fire precautions to ensure the safety of the building users and those in the vicinity. By virtue of the order, the responsible person is required to carry out a risk assessment of the premises which must be suitable and sufficient for the risks and exposure of the occupants to such risks.

The order also places responsibility on the relevant person for the servicing and maintenance of all fire safety systems throughout the life of the building and must give effect to the fire safety arrangements for the building.

1.4 The Construction (Design & Management) Regulations 2015

Projects undertaken within the UK are subject to the requirements of the Construction, Design and Management Regulations (CDM).

This report defines the strategy for meeting the functional and performance requirements for fire safety in the finished building. Where any conclusions or recommendations have been arrived for particular materials, products or forms of construction, these will have been assessed in accordance with CDM Regulation 9 (Duties for Designers). In the event that these involve significant residual risks or health and

safety critical assumptions, this information will be made available to the Principal Designer. Where the architect or other consultants use the standards put forward in this report to specify works, they are understood to be competent in alerting the Client, Principal Designer, Contractor and Building Occupiers of CDM issues.

2 Means of Warning and Escape

2.1 Purpose Group

AD B uses the concept of a purpose group to define the level of risk and the nature of occupants inside a building. In this case, all residential units and areas are considered to be Purpose Group 1, specifically Purpose Group 1(a) (flats).

Whilst some assembly could be expected the common areas these are not dedicated gathering spaces and occupants will only remain there for a short period.

2.2 Building Description

The site contains a single block dedicated to residential apartments. The block is generally oriented east-west and has six storeys (ground floor plus five upper floors), with the top floor at a height of 16m above ground floor level.

The ground floor contains two residential units. The first to fourth floors contain three units each and the fifth (top) floor contains a single unit, for a total of 15.

The ground floor contains a bike store room and a water tank room which are accessed from a common lobby, and a plant room and bin store which are accessed directly from outside.

All apartments are accessed via a single central stair, which is accessed via a lobby provided with smoke ventilation and also contains a lift. The stairs lead directly to the outside at ground floor level.

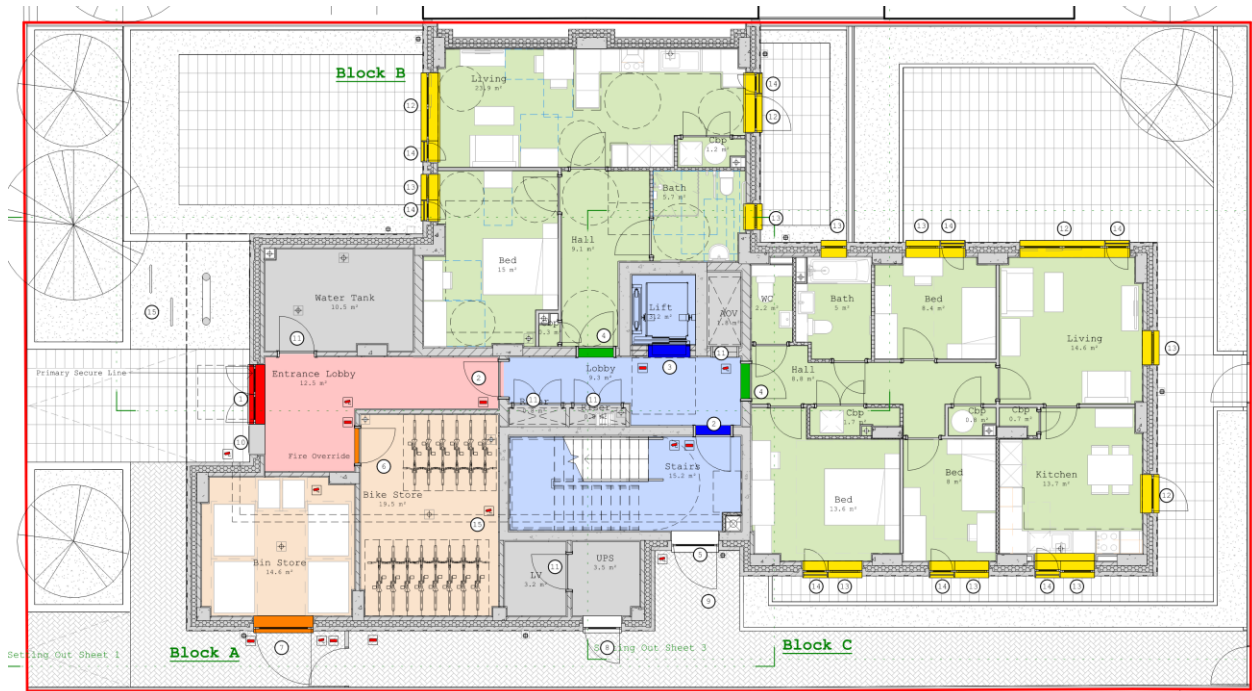


Figure 2-1: General layout plan of the ground floor.

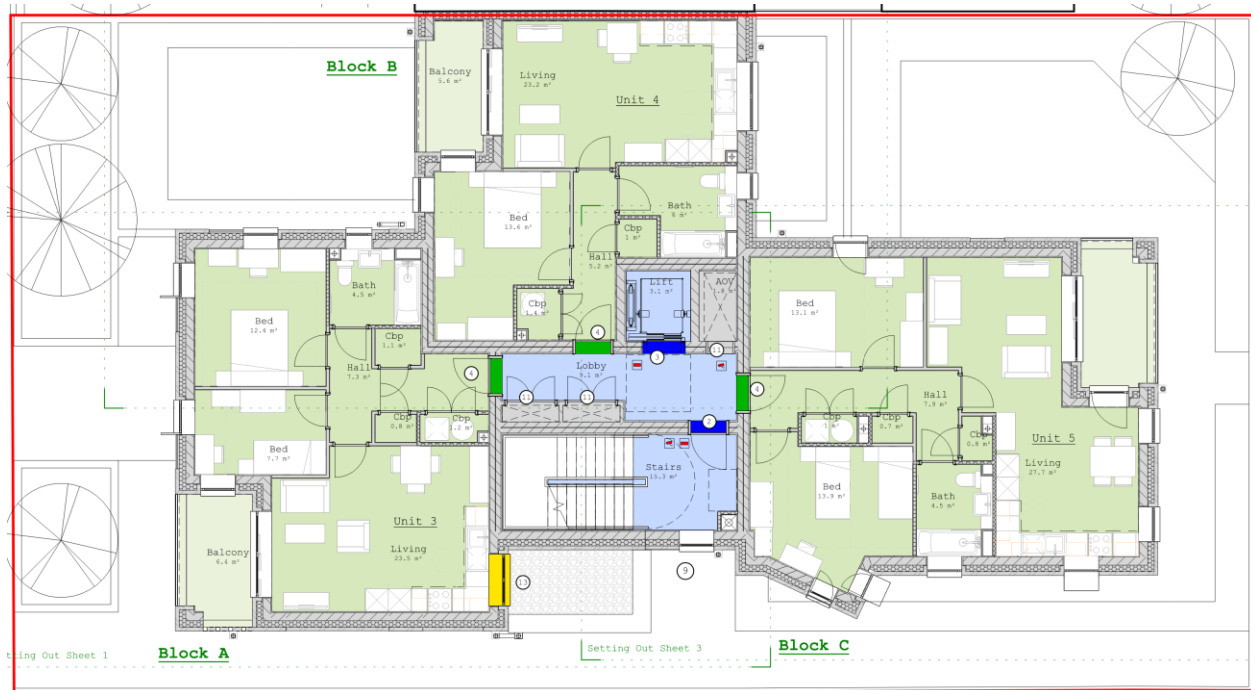


Figure 2-2: General layout plan of the first to fourth floors.

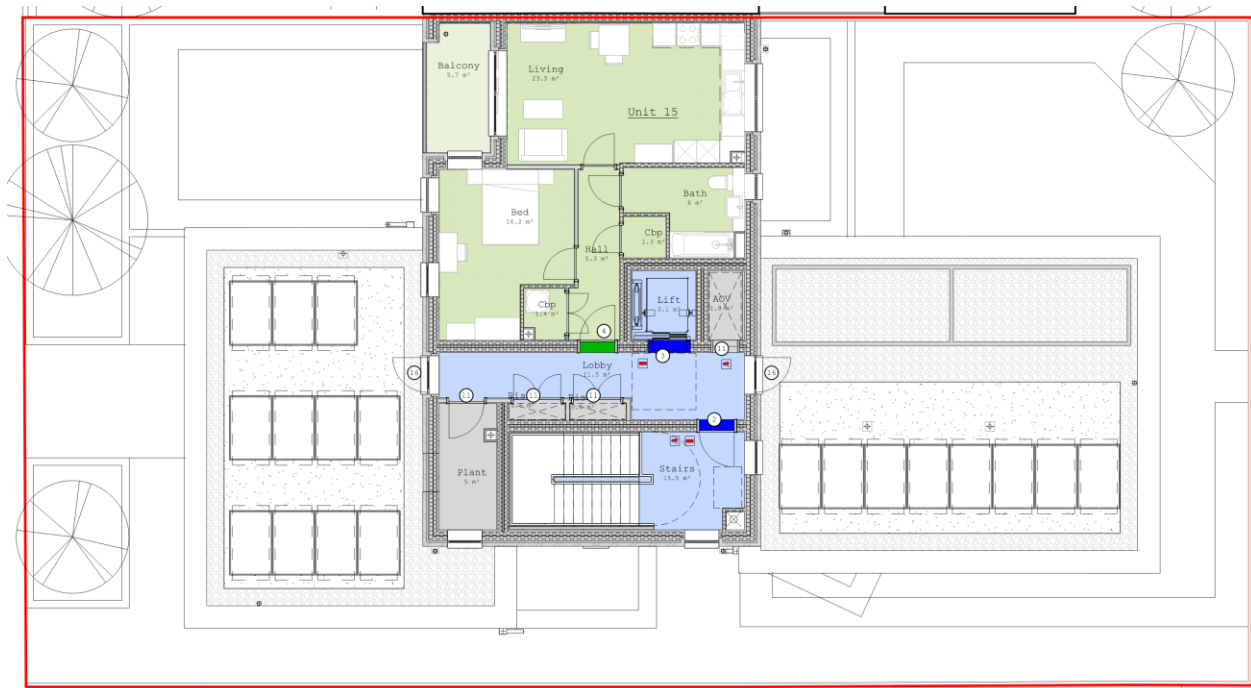


Figure 2-3: General layout plan of the fifth floor.

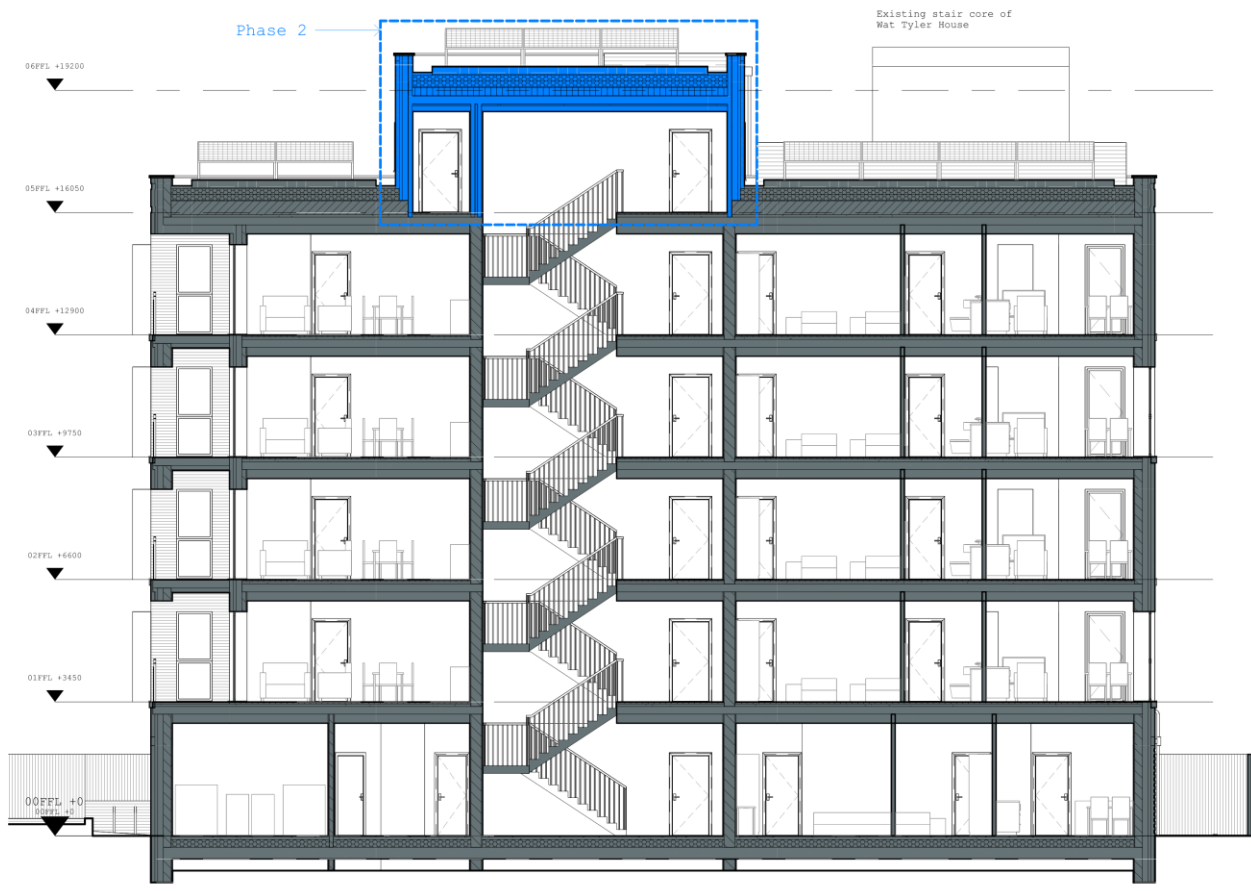


Figure 2-4: Section plan.

2.3 Detection and Alarm

All flats should be provided with automatic detection to at least a Category LD2 Grade D2, in accordance with BS 5839-6. This translates into detectors being provided in the escape route (protected hall), the high-risk rooms (e.g. kitchen) and the principal habitable room (defined in BS 5839-6 as the “habitable room that is normally the most frequently used room for daytime living purposes”).

For Plot 1, an LD1 level detection system will be provided, with detection in every room to ensure occupants are alerted as early as possible. This is a mitigation measure due to the provision of a wheelchair charging point inside the hall, as this is needed to meet the accessibility objectives.

The common spaces for circulation (lobbies & stair) as well as the ancillary rooms and on the ground and fifth floor should be provided with detection in accordance with BS 5839-1 to at least a Category L5. The system covering the common parts should be different and separate from the ones installed inside each apartment.

The detection system covering the common circulation areas is not meant to raise an alarm in any area, only to activate the smoke ventilation systems (AOV) and trigger any other effect such as plant tripping/grounding the lift. The system in the ancillary rooms (ground and fifth floors) should sound the alarm only in the room of origin on first detection.

Due to the evacuation strategy, it is not expected for the systems covering the apartments to be linked to a central location or panel as they will operate independently from each other.

Inside apartments, to ensure that the alarm wakes up sleeping occupants the alarm system should achieve not less than 75dB(A) at every bedhead or if measured at the doorway of each bedroom (with the door open), should be at least 85 dB(A). Any other areas should be provided with means of early warning, and the audibility of the system should achieve 65dB(A) at the most remote part of the dwelling.

The systems installed in the common and ancillary areas should be separate from those inside residential apartments and should contain the following features:

- Be a hard-wired system.
- Be provided with a backup power supply. This is normally achieved with an internal battery backup power supply in the main panel.
- The main panel should be located in an area where it is visible to the fire brigade from the outside of the building without having to enter into an access-controlled area.
- Be programmed to raise an alarm only in the affected zone. It is expected that for detection in the common corridors, lobbies and stair, there be no alarm. Detection in these areas is only intended to operate the smoke ventilation system and provide an alert in the main (and any repeater) panel.
- Common access areas should have sufficient alarm sounders provided to achieve a sound pressure level of not less than 65 dB(A) in all areas, and not greater than 120 dB(A) at any normally accessible point.
- It is only expected for sounders to be provided in the storage rooms (bike store and bin store) and plant rooms and not in the common circulation spaces.

2.3.1 *Evacuation Strategy and Cause & Effect*

The evacuation strategy for the apartments is to 'stay in place', where only the affected unit is evacuated. This, however, does not mean that other occupants should not evacuate if they notice a fire in the building or nearby and can safely evacuate, but that the system will only signal the apartment where the fire originates as each apartment will have a standalone system.

For the stairs, the common corridors and the common lobbies there will be no alarm raised. The devices located in these areas are purely to identify the presence of smoke and trigger the opening of the smoke removal systems.

For the common residential ancillary areas such as the bike store, the refuse store and the plant rooms, the alarm should be raised in the room of origin (detection) on the first signal being received. No other alarm should be raised automatically unless smoke drifts to another space and subsequent detectors are triggered.

The cause and effect for the lift is described in section 2.8.

2.4 **Horizontal Means of Escape**

2.4.1 *Internal layout of flats*

The guidance recommends the travel distance in a single direction in flats be limited to 9m inside a protected hall. Each should be provided with a protected hallway to separate all rooms (except bathrooms) from the hall with 30 minutes fire resisting construction. The travel distances within the hallway are less than 9m. Therefore, the design meets the requirements for travel distance.

The internal layout of all apartments meets the guidance in AD B.

2.4.2 Common Areas of Flats

The guidance notes that for sprinklered buildings, the maximum travel distance in a common lobby is 7.5m to the storey exit in a single direction. The maximum travel distance from the entrance of a flat to the storey exit (i.e. the door to the stair) is less than 7.5m and therefore the design meets the requirements of the guidance.

At ground floor level, the stair discharges directly to the outside and is also provided with an alternative route of egress via the internal lobby to the front of the building. The final exit and external route of escape is discussed in section 2.6.

2.4.3 Residential Ancillary Areas of Flats

The building has two ancillary rooms accessible to residents on the ground floor, namely a cycle store and a bin store. The cycle stores are accessed from the common lobby, whilst the bin store is accessed from the outside (only).

Egress from the rooms is possible in a single direction but the travel distances inside the room are limited to well less than 18m. Therefore, the design meets the requirements of the guidance in AD B.

The small plant rooms on the ground and fifth floor have a very short internal travel distance (less than 5m) to where the common protected lobby is accessed. This meets the requirements of the guidance. The condition of a single stair building having a common ancillary room is discussed in section 2.5.

Egress from the roofs (for maintenance) is directly into the protected lobby and the travel distances on the roof are well within the limits of the guidance. Moreover, since these are areas in the open air the risk for maintenance staff is very low.

2.4.4 Inner Rooms

There are no proposed inner rooms in the development.

2.4.5 Door Fastenings

In general, doors on escape routes should not be fitted with lock, latch, or bolt fastenings, or they should only be fitted with simple fastening devices that can be readily operated from the side of approach by the people escaping. The operation of these fastenings should be readily apparent, without the use of a key and without having to manipulate more than one mechanism.

Where security on final exit doors is an important consideration, panic hardware may be used in accordance with BS EN 1125.

To ensure means of escape are not compromised, any security door fitted on an escape route may be fitted with an electromagnetic locking device, linked to the fire alarm system, to enable a 'fail-safe' opening in the event of power failure or activation of the fire alarm and be provided with break-glass overrides.

It is recommended that doors on common egress routes have a clear width of at least 850mm when measured in accordance with Figure 2-5 below.

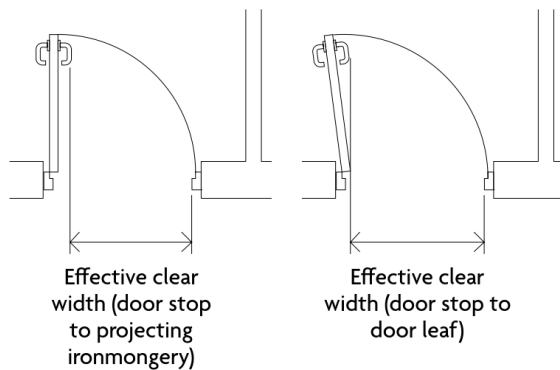


Figure 2-5: Measurement of door width.

2.5 Vertical Means of Escape

The building is provided with a single stair. Given the height of the top floor is less than 18m this is considered acceptable. Moreover, the building is provided with automatic suppression and the stair is provided with smoke ventilation, which significantly reduces the risk of the stair becoming unavailable/blocked in case of fire.

The stair is accessed at all levels via a protected and smoke ventilated lobby, and it discharges directly to the outside at ground floor level.

Whilst there are two ancillary rooms at ground floor level (the bike store room and the tank room) that are accessed from the common ground floor lobby, and it is not allowed under AD B guidance for a single stair building to connect with ancillary accommodation, in this it is considered that the risk is very low due to the following:

- There is double separation between the ancillary rooms and the stair (i.e. one common protected lobby and another protected and smoke ventilated lobby); therefore, three separate doors would need to fail in order for smoke to reach the stair, which is a low probability event.
- The main common lobby adjacent to the stair will be provided with smoke ventilation. Therefore, even in the case of smoke reaching this lobby it would be mostly ventilated.
- The building will be provided with automatic suppression, which will likely extinguish or control the fire in its incipient stage.
- The rooms are bike store and tank store, which are generally considered to have a low risk and low fire load. Moreover, the rooms have a small area (10 and 15 sqm) and therefore will have a low total fire load.

There is a small plant room on the fifth floor lobby. The plant room only contains an isolator and inverter for the photovoltaic system on the roof. Due to its small area and fire load as well as its location accessed from the protected and ventilated lobby this is considered no different to any electrical services normally contained in a common corridor and which are considered acceptable in the guidance.

It is recommended that the stair has a minimum width of 1,100 mm measured between the walls and/or balustrades. Handrails and strings that do not intrude more than 100mm into the stair width can be discounted when measuring stair width.

2.6 Final Exits

The final exit from the stairs is situated on the ground floor. The door from the stairs discharges directly to the outside to one side of the building. There is another door from the stair that leads to the front of the building via the common entrance lobby. The doors from the stair should have a clear width of at least 850mm. This width is considered sufficient given the proposed evacuation strategy and occupancy load for the building.

The final doors should not be provided with any locks or bolts other than those noted in section 2.4.5.

Once outside the building, occupants need to walk through an external walkway to the main (front) entrance. Whilst the route passes in front of a plant room, bike store room and bin store room, it is considered that these elevations can contain unprotected openings (within the limits noted in section 6.2) due to the following:

- There is alternative egress from the stair. In case of a fire in one of these rooms, occupants could take the internal route via the common lobby to the front of the building.
- The evacuation strategy is to defend in place, and so there will be no alarm automatically sounded in the apartments in case of a fire in one of these rooms.
- The building will be provided with automatic suppression, which will likely control or extinguish the fire.

2.7 Means of Escape for Disabled Occupants

The apartments and ancillary areas on ground floor all have level egress to the outside and therefore no further measures are considered required. The only accessible apartment is located on the ground floor.

Whilst AD B does not have any specific requirements for the evacuation of disabled occupants from a residential building with a defend in place evacuation strategy, the London Plan calls for the provision of at least one evacuation lift per core (in buildings where lifts are provided). Therefore, the lift should be designed as an evacuation lift. The details for the lift are given in the following section.

2.8 Lift

The lift should be designed to meet the requirements of all relevant parts of BS EN 81 series.

The lift should be designed as an evacuation lift as part of the requirements under the London Plan.

The evacuation lift design should include the following:

- The lift should be provided with primary and secondary power supplies. The secondary power supply should be either a separately fused circuit fed directly from the main incoming electrical supply to the building, located in a fire protected enclosure, or an independent secondary power supply such as a life safety generator or an uninterruptible power supply.
- In case a separate supply is chosen as a secondary supply (as described above), the lift should have a safety function that, in the event of power failure, moves the lift car automatically to the final exit level and opens the doors to allow passengers to escape, and then removes the lift from service until sufficient power is restored.
- The lift should be identified as a possible egress method for people that need it.
- Standard BS EN 81-76 has not been published at the time of writing of this fire strategy; however, it is expected to include recommendations on “automatic evacuation” functions. In its absence, the lift should operate as follows:

- The lift should be provided for with a switch marked “evacuation lift” and situated adjacent to the lift landing door at the final exit level.
- On operation of the switch or on a signal from the detection system (in the common areas), the lift should isolate all calls and move to the egress level (ground floor) and park with the doors open.
- Once at the egress level and once the doors have opened, the lift should continue to operate and respond only to calls inside the car.

3 Fire Safety Measures

3.1 Automatic Suppression

Due to its height, the building is required to be provided with automatic suppression as a statutory measure. It is proposed for the building to be provided with an automatic sprinkler system. The system should be designed and installed in accordance with BS 9251. As recommended in BS 9251, for a building below 18m, the system Category expected is 2.

It is considered that the common circulation routes (stairs and lobbies as well as entrance corridor) will be fire sterile and therefore do not need to be afforded protection, in line with the guidance in BS 9251. Similarly, the two rooms on the ground floor dedicated to the water tank and the cycle store will have an almost negligible fire load and are separated from the common stair by three levels of fire resisting construction. The water tank room is inherently safe as it will contain mostly non-combustible materials and a large amount of water. The bike store room has space for a maximum of 18 bikes, of which most of the materials are non-combustible (metal parts).

It is considered that the provision of a sprinkler system to a Category 2 is therefore suitable and sufficient for the overall risk profile of the building, as the common routes of escape will be adequately protected. As an enhancement and to ensure a fire in the bike store room is contain, it is recommended that the fire separation of the room is increased to 120 minutes, including an FD120s door.

3.2 Smoke control

To prevent smoke contamination of the common egress routes the following will be provided:

- An automatic opening vent (AOV) with a free area of at least 1.0m^2 is provided from the top of the stair.
- A natural smoke shaft to the stair lobby, with the following characteristics:
- A minimum cross-sectional area of 1.5m^2 and a minimum dimensions of 0.85 in any direction.
- Vents on all floors with a minimum free area of 1m^2 .
- Open at roof level a minimum of 0.5m above any surrounding structure within 2m of it horizontally and .
- Extend at least 2.5m above the ceiling of the top storey served by the shaft.
- Constructed using only A1 materials

If smoke is detected in the common corridors/lobbies, both of the following should occur.

- Simultaneous opening of vents on the storey where the fire is located and at the top of the stair.
- Vents from the corridors or lobbies on all other storeys should remain closed.

3.3 Emergency Lighting

Emergency escape lighting is required to facilitate safe evacuation in the event of lighting failure. Emergency lighting will be designed, installed, and maintained in accordance with the requirements of BS 5266 Pt.1. The following areas are to be fitted with emergency lighting:

- All escape routes including protected stairs enclosures and external escape routes;
- Windowless accommodation, if there is any;
- All toilet accommodation greater than 8m^2 ;

- Plant rooms,
- Refuse room,
- Bike storage room,

3.4 Escape Signage

Exit signs in accordance with BS 5499 Pt. 1 and BS 5499 Pt4 should distinctively and clearly mark exits. In common areas, approved and readable signs should be provided to indicate and identify access to exits, emergency safety features, potential hazards, and features intended for the safety of occupants and where the way to reach an exit is not obvious. Either they should be illuminated or an emergency luminaire should be provided nearby, i.e. within 2m.

3.5 Secondary Power Supplies

There will be various active fire safety systems, namely the smoke ventilation system, sprinkler and evacuation lift.

For these systems, a backup power supply should be provided. In case of the smoke ventilation system, it is feasible that the system is inherently safe and does not need a backup power supply, as it only needs to activate once and it is a low current system. If this is not the case, then a suitable backup power supply should be provided.

For the sprinkler system, as noted in BS 9251, it is allowed to have a single electrical supply for systems in categories 1, 2 and 3. However, the following should be adopted:

- The supply should be installed to minimize the risk of failure by having a separately fused connection taken after the meter and from the supply side of the consumer unit, using approved fire resisting cable.
- Where there are two or more pumps, they should be fused so that the failure of one pump does not cause the failure of the other.
- The supply should be labelled "Supply to sprinkler pump, do not switch off". The label should be clear and unambiguous and placed at or near the supply protective device.

For supply requirements for the lift refer to section 2.8.

The proposed backup power will be provided via a UPS with 43.2A per phase and a running current of 30A per phase for 3 hours. This is sufficient to meet the expected demands of the fire safety systems connected.

4 Internal Fire Spread —Linings

Materials used in the linings of walls and ceilings should comply with the classifications in accordance with the recommendations of AD B, which in this case is the most relevant and up-to-date standard, reproduced below for information. AD B has dropped the use of the national class since its last update as the European classification system offers better coherence and performance.

Table 4-1: Classification of linings for residential areas.

Location	European Class
Small rooms of area not more than 4 m ²	D-s3, d2
Other Rooms. Circulation spaces within a dwelling	C-s3, d2
Circulation spaces including the common areas of blocks of flats	B-s3, d2

Parts of walls in rooms may be of a lower class (but not lower than Class D-s3, d2) provided that the total area of those parts in any one room does not exceed one-half of the floor area of the room, subject to a maximum of 20 m².

This document uses the European classification system for reaction to fire set out in BS EN 13501-1.

5 Internal Fire Spread – Structure

5.1 Fire Resistance of Building Elements

The top occupied floor is over 5m but less than 18m; therefore, the construction elements of the buildings should have a fire resistance of at least 60 minutes and should align with the fire ratings given in Table 5-1 below.

Table 5-1: Minimum fire resistance performances for the building.

Element	Minimum fire resistance (minutes)		
	Loadbearing	Integrity	Insulation
Structural frame, beam or column	60	Not applicable	Not applicable
Loadbearing wall	60	Not applicable	Not applicable
External wall (within 1m of the boundary)	60	60	60
External wall (not within 1m of the boundary, except allowed unprotected areas in section 5)	60	60	15
Compartment wall/floor	60	60	60
Protected shaft	60	60	60
Protected corridor/lobby (Separation from stairs)	30	30	30
Protected corridor/lobby (separation from all other areas)	60	60	60
Service risers	60	60	60
Ancillary accommodation	60	60	60
Cavity barrier	Not applicable	30	15

Note: If a construction element falls into more than one category, the highest fire resistance applies. For example, if the partition of a protected corridor forms part of a compartment wall, a higher level of fire resistance applies.

Structure supporting a roof that performs the function of a floor (e.g. supporting the roof-top plant), supports a roof-top means of escape route, or where the structure is essential for the stability of a fire-rated element of external wall should be provided with 60 minutes structural fire resistance. However, other elements of structure that only support a roof and do not act as a floor do not require fire resistance.

5.2 Compartmentation

Compartmentation should be provided as shown in Table 5-2 below.

Where the roof supports plant or is utilised for the occupants it is considered to perform the function of a floor and will require 60 minute structural fire protection.

Where travel on the roof is possible this is deemed to form part of an escape route and will therefore require a 30 minute minimum fire rating (that part which forms part of the escape route).

Risers/shafts should be enclosed with fire-resisting construction of a standard equivalent to the elements of the structure of the building and the doors thereto should be capable of being locked shut. However, where each floor is continued into the riser shaft so that each floor is separated from the other, the riser need not be enclosed with fire-resisting construction.

Each floor should be a compartment floor. Each flat should be enclosed with compartment walls and floors. The compartment walls/floors should achieve 60-minutes fire resistance.

The service/smoke shafts should be enclosed within a construction of 60-minute fire resistance. The lift/stairs should be enclosed within a protected shaft with 60-minute fire resistance.

Fire-resisting walls should continue to the soffit of the floor slab or through the roof space, or appropriate fire-stopping should be installed adequately.

The ancillary rooms at top and ground floor should be constructed as compartment rooms. For the bike store room on the ground floor, as noted in section 3.1, it is recommended that the fire resistance of the room be increased to 120 minutes, including an FD120s door. This is a significant enhancement from the minimum requirements and it is considered as a suitable mitigation measure in the absence of sprinklers in the bike store room.

Table 5-2: Fire resistance.

Location	Fire rating (mins)	Load bearing / Integrity / Insulation	Method of exposure
Loadbearing and/or elements of structure	60	R	
Floors	60	R E I	From underside
Roof that performs the function of a floor	60	R E I	From underside
Walls separating flats from any other part of the building	60	R E I	Each side separately
Walls separating occupancies / purpose groups	60	R E I	Each side separately
Protected shafts/risers	60	R E I	Each side separately
Protected lobby/corridor (not described elsewhere)	30	R E I	Each side separately
Sub-division of a corridor	30	R E I	Each side separately
Places of special fire hazard	60	R E I	Each side separately
Storage spaces	60	R E I	Each side separately
Protected entrance halls (inside flats)	30	R E I	Each side separately
Cavity barrier	30 15	E I	Each side separately

5.2.1 Fire Separation from Existing Wat Tyler Building

There are existing services in trunking on one of the elevation of Wat Tyler building, which are not part of the site or within the demise of the project and therefore cannot be modified or rerouted. The trunking is considered to pose a risk of either spread (e.g. act as a chimney) or possible ignition (as there is a fire in cables and other elements) and therefore it has been decided to mitigate the risk as much as possible from the side of the new building (that which is part of the project).

A fire rated partition will be constructed using steel framing and non-combustible fire-rated boarding. This way, the existing trunking will be incorporated into the new elevation/external wall but remain fire separated from the new building. Whilst it is considered that the existing building may not meet the current guidance in this regard, the risk is being mitigated as far as practicable from the new building side.

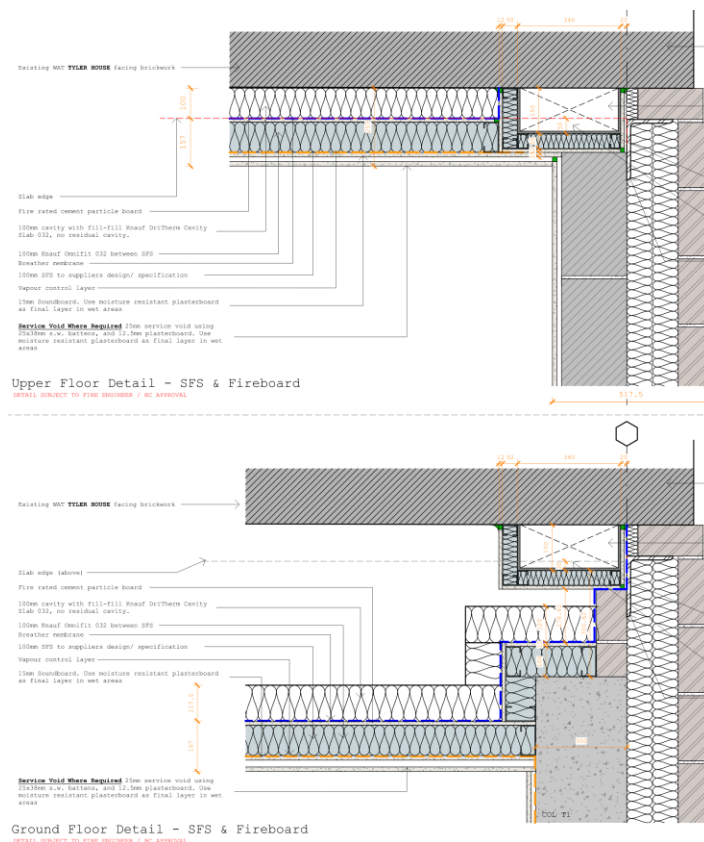


Figure 5-1: Proposed fire separation from existing trunking (ground and upper floor).

5.3 Fire Doors

All fire doors should be fitted with self-closers but the following exceptions are permitted:

- Fire doors to cupboards, which are normally kept locked shut.
- Fire doors within flats (self-closers are still required to the flat entrance door)

Regardless of their location, where a door forms a part of the means of escape for residents or opens to or from an egress route, it should be provided with suitable smoke seals (Suffix 'S').

Self-closing and hold open devices should conform to BS EN 1154 and BS EN 1155 respectively.

Doors forming part of the means of escape from, and within, the building should:

- be fitted only with simple fastenings that can be operated from the escape side of the door without the use of a key;
- be hung clear of any change of floor level;
- be hung so that they do not reduce the effective width of any escape route across a landing;
- if opening into a corridor, be recessed to the full width of the door;
- where hung to swing both ways (double swing), or subdividing corridors, be provided with a minimum of a vision panel;
- open to an angle not less than 90°.

All fire doors other than lift entrance doors should be marked with the appropriate fire safety sign conforming to BS ISO 3864-1 according to whether the door is:

- to be kept closed when not in use;
- to be kept locked when not in use; or
- held open by an automatic release mechanism.

Table 5-3: Recommended fire ratings of doors.

Area	Minimum fire resistance
Protected stair shafts	Half the period of resistance of the wall in which it is fitted with smoke seals (but not less than FD30S)
Flat entrance door	FD 30S
Internal flat doors on protected halls	FD 30
Protected lobby	FD 30S
Fire resisting construction	As per the wall they are fitted into
Part of an escape route	As per the wall they are fitted into with smoke seals
Protected shafts or risers opening onto an escape route. This includes smoke shaft.	Half the period of resistance of the wall in which it is fitted but not less than FD 30S
Lift shafts or protected shafts or risers	Half the period of resistance of the wall in which it is fitted but not less than FD 30
Ancillary accommodation	The same rating as the compartment that it serves
Place of special fire hazard	FD 30s

5.4 Concealed Spaces (Cavities)

Concealed spaces or cavities in the construction of a building provide a ready route for smoke and flame spread. This is particularly so in the case of voids in, above and below the construction of a building, e.g. walls, floors, ceilings and roofs. As any spread is concealed, it presents a greater danger than would a more obvious weakness in the fabric of the building.

The wall build-up will include a fully filled cavity with non-combustible (A1/A2) mineral wool insulation and therefore there will be no empty cavities through which fire or smoke can spread. Therefore, the

design is to provide cavity closers only which are not fire rated. This is considered to meet the functional requirements of the regulations.

5.5 Protection of Penetrations and Fire Stopping

5.5.1 Protection of Openings

Systems should be designed, installed, tested and maintained in full accordance with the relevant BS 476 standard.

Pipes that pass through a compartment wall or compartment floor (unless the pipe is in a protected shaft), or through a cavity barrier, should be in 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;
- 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 internal diameter of the pipe should not be more than the relevant dimension given in Table 10 of AD B (See below). The diameters given in Table 9.1 for pipes of specification (b) used in situation (2) assumes that the pipes are part of an above-ground drainage system and are enclosed as shown in figure 9.1 (of AD B) if they are not, the smaller diameter given for situation (3) should be used.;
- 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 below.

Table 9.1 Maximum nominal internal diameter of pipes passing through a fire-separating element

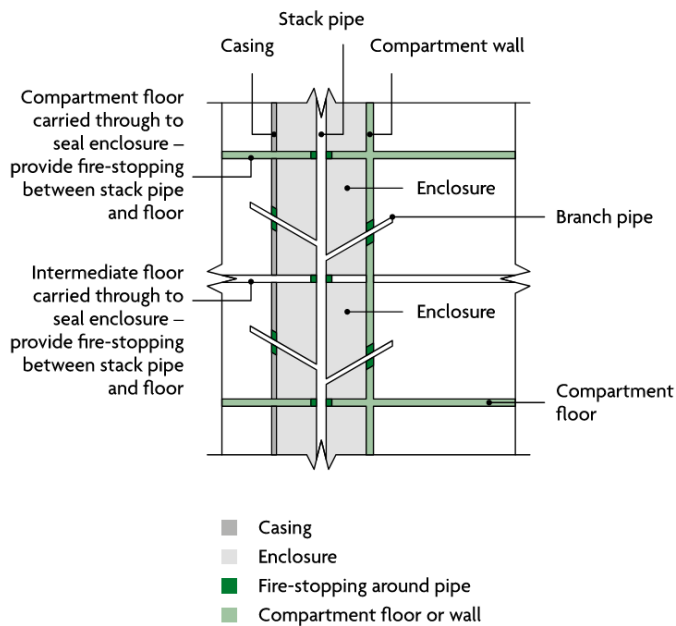
Situation	Pipe material and maximum nominal internal diameter (mm)		
	(a) High melting point metal ⁽¹⁾	(b) Lead, aluminium, aluminium alloy, uPVC, ⁽²⁾ fibre cement	(c) Any other material
1. Structure (but not a wall separating buildings) enclosing a protected shaft that is not a stair or a lift shaft	160	110	40
2. Compartment wall or compartment floor between flats	160	160 (stack pipe) ⁽³⁾ 110 (branch pipe) ⁽³⁾	40
3. Wall separating dwellinghouses	160	160 (stack pipe) ⁽³⁾ 110 (branch pipe) ⁽³⁾	40
4. Wall or floor separating a dwellinghouse from an attached garage	160	110	40
5. Any other situation	160	40	40

NOTES:

1. Any metal (such as cast iron, copper or steel) which, if exposed to a temperature of 800°C, will not soften or fracture to the extent that flame or hot gas will pass through the wall of the pipe.
2. uPVC pipes that comply with either **BS 4514** or **BS 5255**.
3. These diameters are only in relation to pipes that form part of an above-ground drainage system and are enclosed as shown in Diagram 9.1. In other cases, the maximum diameters given for situation 5 apply.

Figure 5-2: Table 10 from AD B

See para 9.4 and Table 9.1

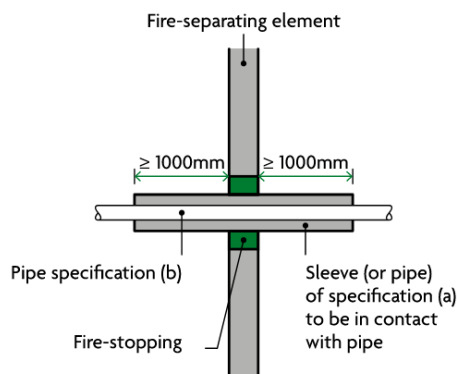


NOTES:

1. The enclosure should meet all of the following conditions.
 - a. Be bounded by a compartment wall or floor, an outside wall, an intermediate floor or a casing (see specification at 2 below).
 - b. Have internal surfaces (except framing members) of class B-s3, d2 or better.
Note: when a classification includes 's3, d2', this means that there is no limit set for smoke production and/or flaming droplets/particles).
 - c. Not have an access panel which opens into a circulation space or bedroom.
 - d. Be used only for drainage or water supply or vent pipes for a drainage system.
2. The casing should meet all the following conditions.
 - a. Be imperforate except for an opening for a pipe or an access panel.
 - b. Not be of sheet metal.
 - c. Not have fire resistance less than E 30 (including any access panel).
3. The opening for a pipe, in either the element of structure or the casing, should be as small as possible and fire-stopped around the pipe.

Diagram 9.1 Enclosure for drainage or water supply pipes

See para 9.5



NOTES:

1. Make the opening in the fire-separating element as small as possible and provide fire-stopping between pipe and fire-separating element.
2. See Table 9.1 for materials specification.
3. The sleeve should be class A1 rated.

Diagram 9.2 Pipes penetrating fire-separating elements

Figure 5-3: Figures 9.1 and 9.2 from AD B

5.5.2 Ventilation Ducts and Dampers

One of the following methods is to be implemented where a ventilation duct passes through a fire resisting element:

- Method 1 – thermally activated fire dampers. This method should not be used for extract ductwork passing through the enclosures of protected escape routes.

- Method 2 - Fire resisting enclosure.
- Method 3 - protection using fire resisting ductwork.
- Method 4 - automatically activated fire and smoke dampers triggered by smoke detectors.

Ductwork and dampers are to be designed and installed in accordance with the relevant guidance.

Any exhaust points should be sited so as not to further jeopardize the building in the event of a fire, i.e. away from final exits, combustible building cladding or roofing materials, and openings into the building.

Ventilation ducts, and their associated plant supplying or extracting air directly to or from a protected escape route, should not also serve other areas. A separate ventilation system should be provided for each protected stairway.

Where ductwork serves more than one flat, smoke detector-operated fire and smoke dampers should be provided where the ductwork enters each dwelling.

Any ductwork passing through a protected stairway, lobby or corridor without an opening into that area should be fire-resisting.

The ductwork enclosure should be imperforate where it passes through the stairway or any protected lobby or protected corridor.

Note: Where possible the routing of ductwork through (not serving) escape routes should be avoided.

Where fire-resisting ductwork is not provided, fire or fire and smoke dampers, should be provided to any duct that passes through fire resisting construction.

Fire dampers should be situated within the thickness of the fire-separating elements and be securely fixed. It is also necessary to ensure that, in a fire, expansion of the ductwork would not push the fire damper through the structure.

Adequate means of access should be provided to allow inspection, testing and maintenance of both the fire damper and its actuating mechanism.

Fire and smoke dampers linked to the fire detection and alarm system should be provided to any ductwork penetrating a protected escape route.

Where a ductwork system serves more than one part of a compartment or fire separated protected escape route, smoke detector operated fire dampers should be provided where ductwork enters each fire separated or smoke-separated section of the escape route.

The provision of dampers is not suitable for extract ductwork serving kitchens. This is due to the likely build-up of grease within the duct which can adversely affect the effectiveness of any dampers.

Note: Fire dampers actuated only by fusible links are not suitable for protecting escape routes. However, an ES classified fire and smoke damper which is activated by a suitable fire detection system may be used.

Note: Fire dampers should be tested to BS EN 1366-2 and be classified to BS EN 13501-3. They should have an E classification equal to, or greater than, 60 minutes. Fire and smoke dampers should also be tested to BS EN 1366-2 and be classified to BS EN 13501-3. They should have an ES classification equal to, or greater than, 60 minutes.

5.6 Resistance to Slab Deflection

Compartment walls should be able to accommodate the predicted deflection of the floor. This should be achieved in one of the two following ways:

- 1) a head detail should be provided between the compartment wall and the floor, which is capable of deforming while maintaining its integrity when exposed to a fire; or
- 2) the design of the compartment wall should be such that it maintains its integrity by resisting the additional vertical load from the floor above when forced to sag under fire conditions.

6 External Fire Spread

6.1 External Walls

6.1.1 Regulation 7(2)

Regulation 7(2) applies to any building with a storey at least 18m above ground level and which contains one or more dwellings. Regulation 7 therefore does not apply to this development and its guidance does not need to be followed. However, the restrictions on the use of combustible materials on the construction of external walls should be noted below.

6.1.2 External Wall Surfaces

The building is classified as residential and is above 11m. Therefore, any insulation product, filler material (excluding gaskets, sealants and similar) etc, used in the construction of an external wall should be Class A2-s1, d0 or better.

Walls that are within 1m of the relevant boundary (i.e. the north elevation) need to achieve a fire resistance of 60 minutes (REI) in both directions. All other walls need to achieve 60 minutes resistance and integrity and 15 minutes insulation from inside the building, with the exception of permitted unprotected openings as detailed in the following section.

6.2 Space Separation

The distances of the proposed building to the relevant boundaries are illustrated in Figure 6-1.

The maximum allowable percentages of unprotected areas (UPA) are calculated using the Enclosing Rectangle Method recommended in BRE Report 187. The results are summarised in Table 6-1.



Figure 6-2: Elevations assessed-2.

Table 6-1As shown in the results, due to the separating distances the north and south elevations require fire resistance, whilst the east and west can be 100% unprotected. The analysis and results shown have been done for the worst case scenarios.

The north elevation that sits on the plot line is considered a boundary wall and is required to have 60 minutes REI in both directions, whilst the south elevations that require fire resistance (i.e. where the allowed unprotected area is not 100%) require 60 minutes resistance and integrity and 15 minutes insulation from the inside only.

For the south elevation, the proposed number and size of unprotected openings (windows and ventilation openings) should be within the maximum indicated in Table 6-1.

For the plant room, bike store and bin store room, the ventilation strategy and the provision of openings on the external wall should be reviewed to ensure it meets the maximum area noted above. Alternatively, intumescent (or other fire protected) louvres/vents should be provided.



Figure 6-1: Elevations assessed-1.



Figure 6-2: Elevations assessed-2.

Table 6-1: Maximum allowable percentage of unprotected area

Elevation	Compartment width (m)	Compartment height (m)	Design distance to the relevant boundary (m)	Allowable Percentage of Unprotected Area	Comments
S1	11	3.4	2.8	100%	
S2	4.2	3.4	1.5	40%	

Elevation	Compartment width (m)	Compartment height (m)	Design distance to the relevant boundary (m)	Allowable Percentage of Unprotected Area	Comments
S3	4.6	3.4	1.5	38%	
S4	11	3.2	2-2.5	84%	
S5	6.6	3.2	1.5	68%	
W1	4.5	3.4	4.2	100%	
W2	5.4	3.4	10.5	100%	
W3	5.9	3.2	4.2	100%	
N1	8.8	3.4	NIL	NIL	Wall sits on plot line and therefore is considered a boundary wall. 60 minutes REI from both sides is required. This is required for all north elevations on the boundary line.
N2	10.5	3.4	5.8	100%	
E1	5.8	3.4	12.9	100%	
E2	8.8	3.4	2.4	100%	

6.3 Roof Coverings

Although the distance between the buildings and the nearest boundary is less than 6m, it is required for the roof covering to be European Class B_{Roof}(t4). If there are any plastic roof lights, the roof covering material surrounding the lights should be of limited combustibility for at least 3m distance.

6.3.1 Roof-Mounted Photovoltaic Panels

The provision of solar panels on the roof (or other external surfaces) is not regulated by the Building Regulations (other than by requiring the roof classification noted in the previous section). Therefore, whilst there are various guidance documents from various third parties and associations, these are only guidelines and it is not a statutory requirement to adopt their recommendations. A developer can adopt some or all of the recommendations in the various guidance documents as part of an integral approach to fire safety, or, if this is required by external stakeholders (e.g. insurers or funders), but it is not considered a requirement to gain Building Control approval.

Any specific requirements for PV installations should be reviewed and discussed with the Building Control Officer and any relevant external stakeholders.

6.4 Re-Entrant Corners

Where a protected stair adjoins an occupied space (apartment or ancillary area) at a corner junction, it is necessary to ensure the risk of fire spread/impact on the stair is mitigated. Therefore, there should be a separating distance of at least 1.8m between an unprotected area of the external wall of the stair and an unprotected area of an external wall in the accommodation.

This can be achieved by having a the sufficient separation or by providing fire resisting materials where needed. In the proposed design, there is a distance of more than 1.8m between windows in the stair and in the accommodation, and so it only needs to be ensured that the external walls meet the fire resistance requirement as described above.

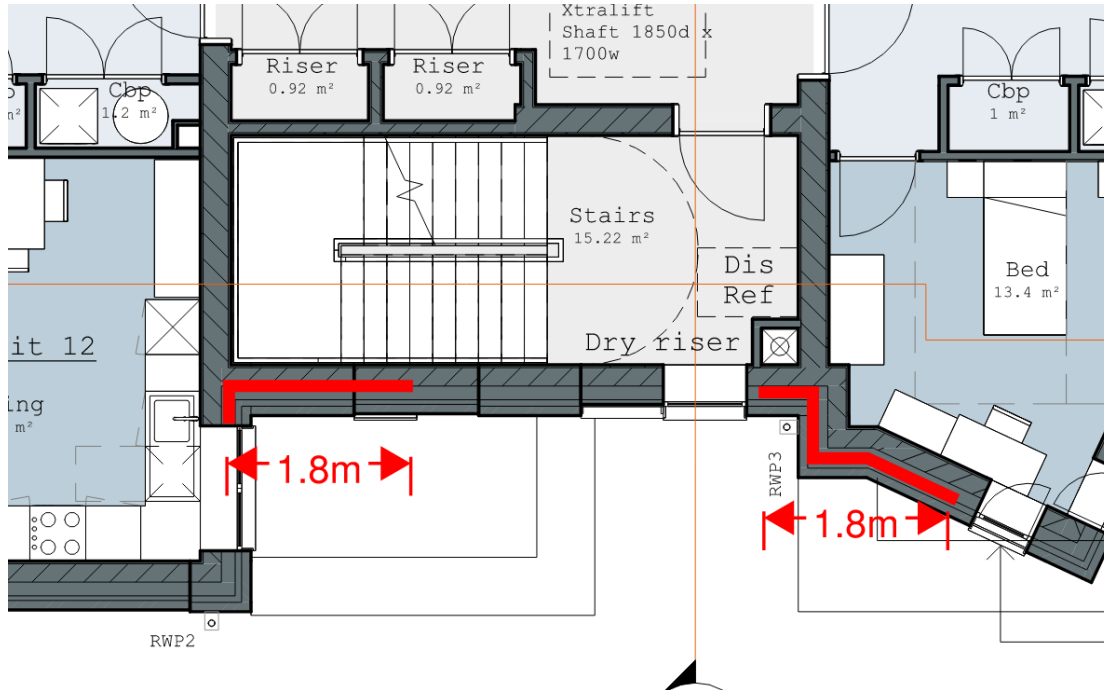


Figure 6-3: Example floor showing required extent of protected external walls regardless of external fire spread calculation allowances.

7 Fire Service Access and Facilities

7.1 Vehicle Access

The closest fire station to the site is Hornsey, which is circa 0.5 miles away from the site and therefore attendance would be expected to occur quickly. The site is accessed via Boyton Road, which is an existing road and therefore expected to meet the requirements of the guidance and be able to carry a fire appliance.

A fire appliance can park directly in front of the building and gain access to the building within 18m of the notional parking location and the dry riser inlet.

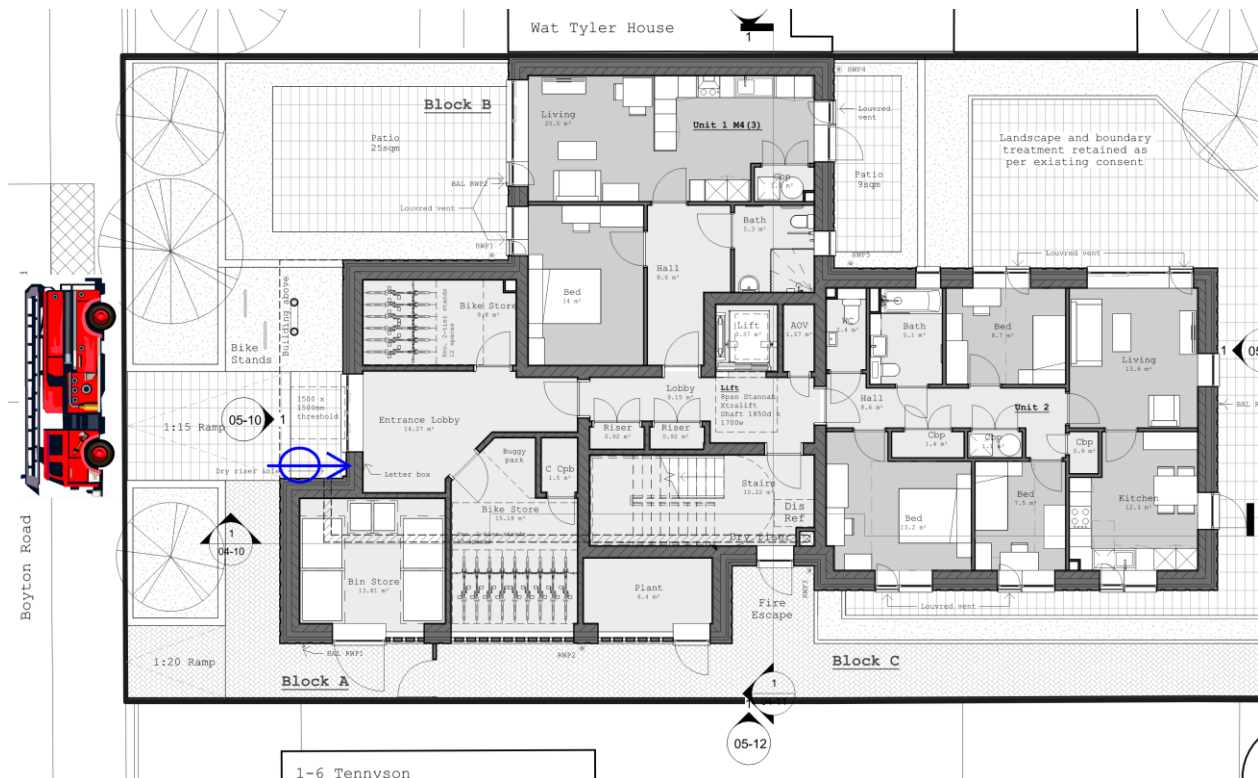


Figure 7-1: Ground floor plan showing the notional parking location of a fire appliance and the location of the dry riser inlet (in blue).

7.2 Dry Main

A fire main will be provided within the stair as it serves all floors and can be readily accessed from the notional parking location. The riser will have outlet connections and valves at every storey. On each level, the hose laying distance from the connection point to the furthest point in flats will be less than 45m.

7.3 Hydrants

It is recommended hydrants are provided within 90m of the entry point to the building (or the notional parking location or the dry riser inlet) and not more than 90m apart. Each fire hydrant should be clearly indicated by a plate, affixed nearby in a conspicuous position, in accordance with B 3251:1976.

The information provided with Thames Water shows sufficient hydrants near the site to meet the requirements of the Regulations. A hydrant plan is shown below.



Figure 7-2: Thames Water hydrant map of the area.

8 Fire Safety Management

8.1 General

This fire safety strategy has been developed based on the assumption that the building will be properly managed. The management regime should be maintained and any variation in that regime should be subject to a suitable fire risk assessment.

The responsible person (could be the owner, occupier or management of the building) should 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. This information should be contained within a handbook which should also address the potential for particular problems arising where residents employ sub-contractors, e.g. for fit-out work.

BS 9991 Annex F contains information that can be given to owners and occupiers of dwellings in residential buildings (including flats) along with examples of fire instruction notices for residential buildings.

Procedures for the management of fire safety should be developed and documented in a fire safety manual. Guidance on fire safety management procedures is given in BS 9999 and a typical fire safety manual might include:

1. Fire safety policy statement
2. Fire safety management structure
3. Coordination with other parties (e.g. in a shared building)
4. Emergency response
5. Evacuation of people with special needs
6. Contingency and salvage plans
7. Emergency responsibilities of designated staff
8. Summary of fire safety strategy and plans for the building
9. Fire risk assessment.
10. Procedures for dissemination of information
11. Selection and control of materials
12. Maintenance and testing of fire safety equipment
13. Routine housekeeping (e.g. removal of combustible waste)
14. Fire safety training
15. Fire drills
16. Decoration, alteration and building work
17. Audit procedures and updating of the manual
18. Fire safety records
19. Restriction for deep fat frying in the bedrooms
20. References.

8.2 Regulatory Reform (Fire Safety) Order 2005

Under the Regulatory Reform (Fire Safety) Order 2005 every owner, occupier or operator of a premises is required to adequately manage the fire safety of the areas under their control. Under this legislation a 'Responsible Person or Persons' is required to be appointed in order that the necessary level of safety can be implemented, with an inherent necessity for competence in the area of fire safety. Within the

Order there is a requirement to undertake and maintain a fire risk assessment. This should assess the fire risk to people within and around the building and the measures and procedures required to maintain fire safety in the building and reduce fire risks to an acceptable level. It is important that the Responsible Person takes on board the information provided in this fire strategy when preparing the fire risk assessment reports accordingly to reflect any changes that may need to be made to current fire safety policies and procedures.

8.3 Fire Safety Information

8.3.1 Regulation 38

Regulation 38 requires that, for building work involving the erection or extension of a relevant building (i.e. a building to which the Regulatory Reform (Fire Safety) Order 2005 applies, or will apply), or the relevant change of use of a building, fire safety information should be given to the responsible person at one of the following times.

1. When the project is complete.
2. When the building or extension is first occupied.

8.3.2 Essential information

Basic information on the location of fire protection measures may be sufficient. An as-built plan of the building should be provided showing all of the following:

1. Escape routes.
2. Location of fire-separating elements (including cavity barriers in walk-in spaces).
3. Fire doorsets, fire doorsets fitted with a self-closing device and other doors equipped with relevant hardware.
4. Locations of fire and/or smoke detector heads, alarm call points, detection/alarm control boxes, alarm sounders, fire safety signage, emergency lighting, fire extinguishers, dry or wet fire mains and other firefighting equipment, and hydrants outside the building.
5. Any smoke control systems, or ventilation systems with a smoke control function, including mode of operation and control systems.
6. Any high risk areas (e.g. plant room).

Details should be provided of all of the following.

1. Specifications of fire safety equipment provided, including routine maintenance schedules.
2. Any assumptions regarding the management of the building in the design of the fire safety arrangements.
3. Any provision enabling the evacuation of disabled people, which can be used when designing personal emergency evacuation plans.

9 References

- (1) Building Regulations 2010, HMSO.
- (2) Approved Document B – Fire Safety, Communities & Local Government, 2019
- (3) BS 9999. Code of practice for fire safety in the design, management and use of buildings. 2017.
- (4) BS 5839-1:2025 Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises
- (5) BS 5839-6. Fire detection and alarm systems for buildings - Code of practice for the design, installation, commissioning and maintenance of fire detection and fire alarm systems in domestic premises, 2013.
- (6) BS EN 54: Part 11. Fire detection and alarm systems for buildings. Specification for manual call points, 2001.
- (7) BS 8629:2019 - Code of practice for the design, installation, commissioning and maintenance of evacuation alert systems for use by fire and rescue services in buildings containing flats.
- (8) BS 3251. Specification. Indicator plates for fire hydrants and emergency water supplies, 1976.
- (9) BS 5266. Emergency lighting: Part 1: Code of practice for the emergency lighting of premises, 2005.
- (10) BS ISO EN 7010. Graphical symbols – Safety colours and safety signs – Registered safety signs, 2012.
- (11) BS 5499-4. Safety signs. Code of practice for escape route signing, 2013
- (12) BS 476. Fire tests on building materials and structures. Part 7. Method of test to determine the classification of the surface spread of flame of products, 1997.
- (13) BS EN 13501: Fire classification of construction products and building elements. Part 1. Classification using test data from reaction to fire tests, 2002.