



Report

Project	Reading Police Station
Report Title	Outline Fire Strategy
Our Ref	KL10022/R1 Issue 2

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Report No. KL10022/R1
Issue No. Issue 2
Issue Date. 05/05/2026

	Issue 1	Issue 2	Issue 3	Issue 4	Issue 5	Issue 6
Date	25/03/2026	05/05/2026				
By	HA	HA				
Checked	AT	AT				
Approved	BA	AT				

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1.0 INTRODUCTION

1.1 Description of Building

The scheme consists of two blocks of flats with a shared basement level.

The basement contains the car park, ancillary areas, i.e. plant rooms, refuse stores and cycle stores, and a police room. The basement level is accessible via five stairs, some shared with residential blocks above and some independent.

The ground floor contains non-residential units, residential amenity and plant rooms.

Upper floors contain dwelling units only. Block A has access to a communal terrace on Level 01 and Level 06, and Block B has access to a communal roof terrace on Level 12.

Block A is divided into three sections, each of which has a different top floor height above the adjacent ground level.

The height of the blocks is indicated in the table below.

Block		No. of Floors	Depth/Height (m)
Basement		1	5.4
A	1	G + 9	31.3
	2	G + 6	21.8
	3	G + 3	12.1
B		G + 15	48.9

Table 1 – Height of the Scheme

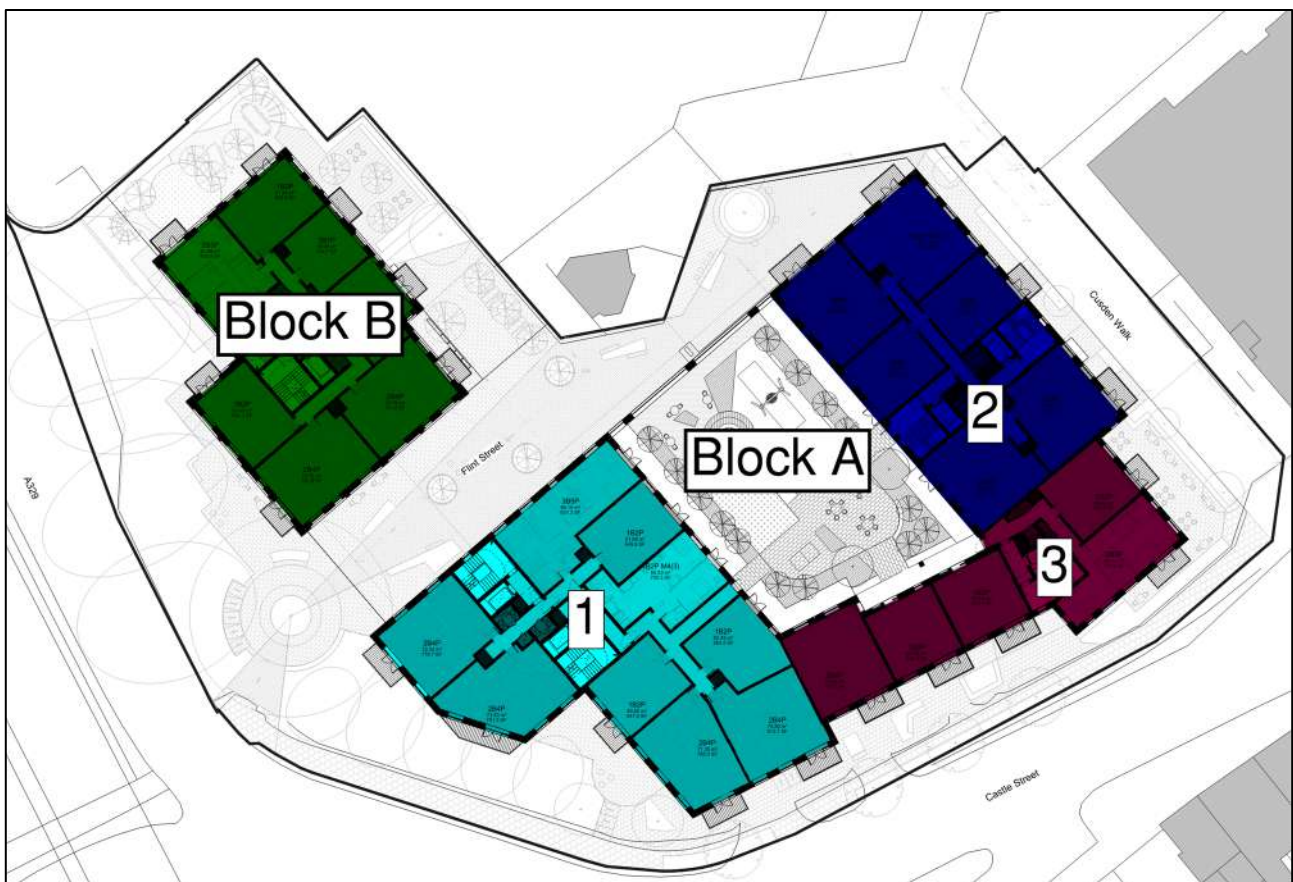


Figure 1 – Blocks Location

1.2 Aim of Report

This report details the fire strategy for the building. The report is not intended for submission to the approving authorities as part of the Building Regulations submission. It has primarily been provided for the readership of the client and design team.

This report addresses life safety only, not property protection.

1.3 Relevant Guidance

The fire strategy described in this report draws from contemporary fire safety guidance including:

- BS 9991:2024 Incorporating Corrigendum No. 1: Fire safety in the design, management and use of residential buildings – Code of practice (for the residential areas) (BS 9991:2024).
- Approved Document B (fire safety) Volume 2: Buildings other than dwellings, 2019 edition incorporating 2020, 2022 and 2025 amendments and forthcoming 2026 and 2029 changes (for the non-residential areas) (ADB Vol. 2).
- The building is classified as a “relevant building” and so the additional prescriptive requirements of Regulation 7(2) will apply.

1.4 Building Safety Act 2022

The Building Safety Act has been in force since the 1st October 2023. The Act sets out a regulatory framework which will cover the planning, design, construction and occupation of buildings. Compliance will be monitored by the Building Safety Regulator (BSR), who are the now the Building Control Authority for Higher Risk Buildings (HRBs).

HRBs are buildings comprising 7 or more storeys or a height of more than 18m above ground level and containing residential (including student) accommodation.

The proposed Block A and Block B buildings both exceed 7 storeys and 18m in height and are therefore considered HRBs.

The design and construction of higher risk buildings need to pass through three specific gateways. These are:

- Gateway one – at the planning application stage
- Gateway two – before building work starts
- Gateway three – when building work is completed.

2.0 ACTIVE FIRE SAFETY SYSTEMS

2.1 Automatic Water Fire Suppression System

In accordance with BS 9991:2024, all buildings higher than 11m above ground should be fitted with sprinklers throughout the building.

The residential apartments and communal areas will be provided with a residential sprinkler system conforming to BS 9991:2024 and BS 9251:2021.

Sprinklers will be provided to the non-residential spaces, designed in accordance with BS EN 12845:2015+A1:2019.

Any communal residential facilities and ancillary areas e.g. bin stores, bike stores and plant, amenity, storage etc. also need to be sprinklered. These areas will be served by the commercial sprinkler system, i.e. one designed in line with BS EN 12845:2015+A1:2019.

2.2 Fire Alarm and Detection System

2.2.1 Apartments

As the apartments are designed as open-plan apartments, they will be provided with Grade D, Category LD1 automatic fire detection and alarm systems in accordance with BS 5839-6:2019+A1:2020.

2.2.2 Communal Corridors

Category L5 automatic smoke detection and alarm systems will be provided in common corridors in accordance with BS 5839-1:2025 to trigger simultaneous evacuation and to activate the corridor/evacuation lift lobby/stair smoke vents.

The fire detection system in the corridors will also be used to raise the alarm in any ancillary and communal spaces, as well as on the communal terraces., if accessible via the corridor in question.

2.2.3 Ancillary Areas and Amenity Spaces

The communal amenity areas and ancillary spaces e.g. amenity spaces, plant rooms, bin stores, cycle stores, etc., will be provided with minimum Category L3 automatic detection and alarm system designed and installed in line with the relevant part of BS 5839-1:2025.

Audible alarms and visual beacons will be provided on the Level 01 terrace in Block A and Level 12 roof terrace in Block B to alert occupants on detection of fire or smoke in the common corridors providing access to the terrace spaces

2.2.4 Non-Residential Areas

The exact uses for the non-residential areas at ground floor level are not presently known. However, it is recommended that they are provided with Category L3 automatic fire detection and alarm system in accordance with BS 5839-1:2025.

2.3 Evacuation Alert System

The proposed development will include student bedroom accommodation at a height greater than 18m and will therefore be provided with an Evacuation Alert System (EAS) designed, installed and commissioned in accordance with BS 8629:2019+A1:2023 to allow firefighters to evacuate the building if deemed necessary. This will not affect the normal evacuation strategy for the building.

2.4 Fire Alarm Panel

The buildings should be provided with a fire alarm control panel, appropriately located for the Fire Service and key staff. One such suitable location is the ground floor close to the main entrance, where it should be easily accessible by the Fire Service and monitored by the management team.

2.5 Emergency Lighting and Signage

Emergency lighting will be provided in accordance with BS 5266-1:2016.

Signs will be provided on common escape routes and in accordance with the recommendations of BS 9991:2024 and BS ISO 3864-1:2011.

Firefighting wayfinding signage will be provided in line with the recommendations of Section 48 of BS 9991:2024.

2.6 Emergency Power Supply

Life safety systems (sprinkler pumps, evacuation lifts, smoke extract systems, fire detection and alarm, etc) will be provided with a secondary back-up power supply in line with the BS 9991:2024 and BS 8519:2020 guidance.

The secondary power shall cover all life safety systems, including:

- Sprinkler pumps
- Firefighters/evacuation lifts
- Smoke ventilation system
- Smoke clearance fans

Detailed design will be confirmed by the specialist.

2.7 Evacuation Lifts

In both buildings, an evacuation lift will be provided associated with each escape stair and a dual-purpose evacuation/firefighting lift will be provided associated with each firefighting stair. The design and operation of the evacuation/dual-purpose lifts should comply with BS EN 81-20:2020 and BS EN 81-76:2025. In line with BS 9991:2024, buildings with a storey at or above 18 m are required to be provided with Class B evacuation lifts. BS EN 81-76 specifies that such lifts shall have car dimensions corresponding to Type 3 or Type 4 in accordance with BS EN 81-70:2021+A1:2022.

The temporary waiting space for an evacuation lift should be provided with an emergency voice communication (EVC) system in accordance with BS 5839-9:2021. As shown in Figure 2, communication points should be at least 500 mm from any wall in accordance with Figure 14 of BS 9991:2024.

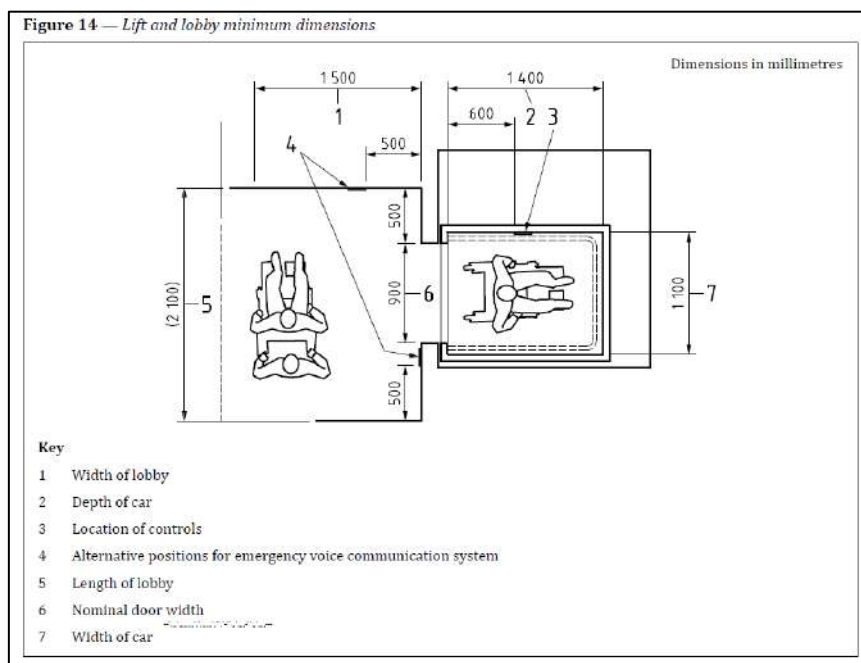


Figure 2 – Lift and lobby minimum dimensions (Extract from BS 9991:2024)

2.8 Smoke Ventilation

2.8.1 Common Corridors and Lift Lobbies

The purpose of the smoke control systems is to extract smoke from the corridor and to minimise or prevent the flow of smoke into the lift lobbies in line with the BS 9991:2024. The evacuation lift lobbies adjacent to the stairs, as well as the corridors leading to these lobbies, will be smoke vented.

To ensure a high level of protection for the stair and lift lobbies, smoke control will be provided to each residential level as follows:

- Each stair should be provided with an AOV at the head of the stair, achieving a minimum aerodynamic free area (Aa) of 0.7m².
- Residential common corridors connecting to the lift lobbies will be provided with mechanical smoke extract shafts.
- Evacuation lift lobbies will be provided with mechanical inlet shafts.
- Smoke vented lobbies should be provided between the amenity accommodation and the stairs/ final exit corridors/ lift lobbies.
- Refuse store lobbies should be provided with a permanent ventilation of at least 0.4m².

Mechanically assisted smoke shafts will typically have a cross-sectional free area of approximately 0.6 – 0.8m² and provide an extract rate of 3 – 5m³/s.

The detailed design of the smoke control systems will be developed in consultation with a specialist supplier.

2.8.2 Car Park

The car park located at the basement level will be accessed via mechanically smoke vented lobbies and will be provided with a smoke and heat ventilation system designed in accordance with BS 7346-7:2013, designed to clear smoke during a fire and after the fire has been suppressed.

2.8.3 Basement

The basement has a floor area in excess of 200m² and is more than 3m in depth. As such, basement areas, apart from the car park as discussed in Section 2.8.2, will need to be provided with smoke clearance system. This can be either via natural or mechanical system, as discussed below.

For natural smoke outlets, they should achieve the following:

- Be not less than 2.5% of the floor area of each space that they serve.
- Be sited at high level, either in the ceiling or in the wall of the space they serve.
- Be as evenly distributed as possible around the perimeter of the building with no less than half the total vent area provided on two opposing walls, with the remaining half provided equally wherever possible, to discharge into the open air outside the building.
- Not be placed where they would prevent the use of escape routes from the building.
- Each compartment should have direct access to venting without having to open doors, etc. into another compartment.

If an outlet terminates at a point that is not readily accessible, it should be kept unobstructed and should be covered only with a non-combustible grille or louvre.

If an outlet terminates in a readily accessible position, it may be covered by a panel that can be manually opened. The position of such covered outlets should be suitably indicated.

The compartments that have external doors or windows do not need additional vents provided that the percentage of floor area recommendations for the natural smoke venting are met.

If a mechanical system is proposed, it will need to achieve the following:

- Provide ten air changes per hour
- Be capable of handling gas temperatures of 300 °C for not less than 60 minutes
- Come into operation automatically either on activation of the sprinkler system or by an automatic fire detection system conforming to BS 5839-1:2013 (at least L3 standard).

- Replacement air should be provided and open automatically, using the same activation method as that for the extract system.
- The system should have an independent power supply which would operate in the event of failure of the main supply.
- The ductwork should be a fire-resisting duct system maintaining at least 75% of the cross-sectional area of the duct. The fire resistance should be not less than 60 minutes or equivalent to the fire resistance rating of any compartment boundary through which it passes, whichever is the greater.
- All wiring associated with the fans should be in accordance with BS 8519.

This will be reviewed in detail as the design develops in the next design stages.

2.9 Routine Inspection and Maintenance of Fire Safety Installations

Fire safety installations shall be maintained in accordance with the relevant British or European standards. An inspection, maintenance and repair manual shall be part of the fire safety manual and incorporated in the building management plan.

3.0 EVACUATION STRATEGY

3.1 Residential

Each apartment should be provided with a self-contained smoke alarm system and should operate a 'stay put' strategy. A fire in an apartment should sound the alarm only in that apartment. There is no link to any other apartment or fire alarm system.

3.2 Ancillary and Amenity Areas

The ancillary and amenity areas will evacuate simultaneously upon detection in any of the common areas of the building or common corridors providing access to the spaces. The detection of a fire within the ancillary and amenity spaces will not trigger evacuation of the residential units.

3.3 Non-Residential

The non-residential units within the building will evacuate independently from each other on a simultaneous evacuation basis, whereby if a fire is detected anywhere in the non-residential unit, all occupants of that unit evacuate at the same time.

4.0 MEANS OF ESCAPE

4.1 Horizontal Means of Escape – Residential

4.1.1 Escape from the Flats

All flats are designed as an open-plan layout, which has no entrance hallways. Therefore, all flats should meet the following, as per Clause 8.5 of BS 9991:

- Grade D, Category LD1 fire detection and alarm system should be provided in flats.
- Sprinklers will be provided within flats.
- The maximum size of the flat will be 16m x 12m.
- The flat will be single storey.
The minimum ceiling height in the dwelling will be 2.25m.

Open kitchens should be provided in accordance with Section 5.6 of BS 9999:2024:

- All cooking apparatus, with a fixed connection to the dwelling's electricity or gas supply, will be located as far away from the escape route as practicable. The edge of the cooking apparatus will be at least 1.8m away from an escape door, a door to an adjoining habitable room or a means of escape route to an escape door.
- All egress routes from habitable rooms to the escape door from the dwelling should be not less than 0.9m in width. No fixed obstructions (such as radiators or cupboards) should be located within 0.9m escape route.
- A gap of 0.3m is provided between the leading edge of the exit door from the space containing the cooking facility and the 1.8m zone from the cooking apparatus, to allow people with mobility impairments to access the door hardware.

The flats meet these requirements, with an indicative arrangement shown in Figure 3.

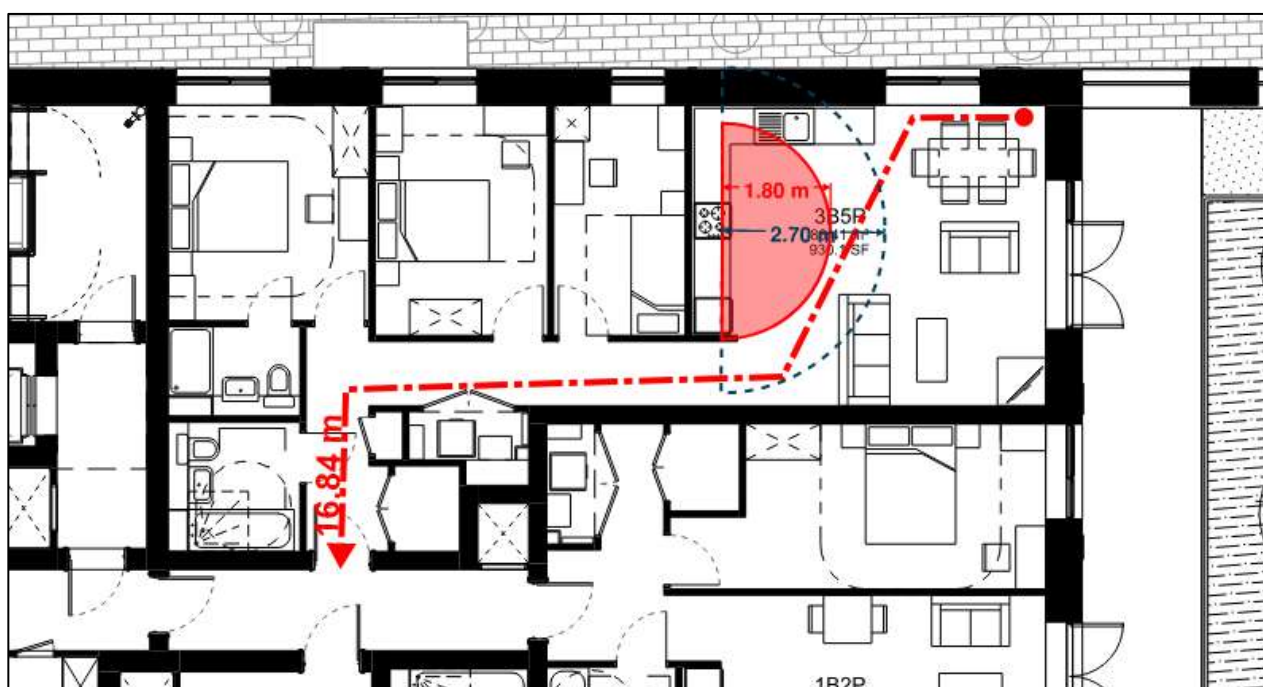


Figure 3 - Cooking Hub Zone

4.1.2 Communal Escape Routes

4.1.2.1 Common Corridors

All flats escape via protected corridors leading to the protected stairs, except for a part of Block A, where flats escape via a deck approach (see Section 4.1.2.2).

Smoke venting will be provided within the common corridors, as discussed in Section 2.8.1.

The BS 9991:2024 guidance recommends that travel distances within the common corridors are limited to the following:

- Within the dead-end corridors – 7.5m in non-smoke vented corridors or up to 15m based on the provision of the sprinkler system and smoke control system within the corridors.
- Where more than one direction of escape is available – 30m in non-smoke vented corridors or up to 45m based on the provision of the sprinkler system and smoke control system within the corridors.

The building will be fitted with sprinklers and the corridors will be provided with a smoke control system. Therefore, where a single direction is provided, the travel distance may be extended from 7.5m to 15m. Where more than one direction is provided, the travel distance may be extended from 30m to 45m.

The maximum travel distance within the lift lobby from the lobby door to the stair entrance should be limited to 7.5m.

The common corridor and evacuation lift lobby arrangement examples for the blocks are shown in Figure 4 - Figure 7 below.

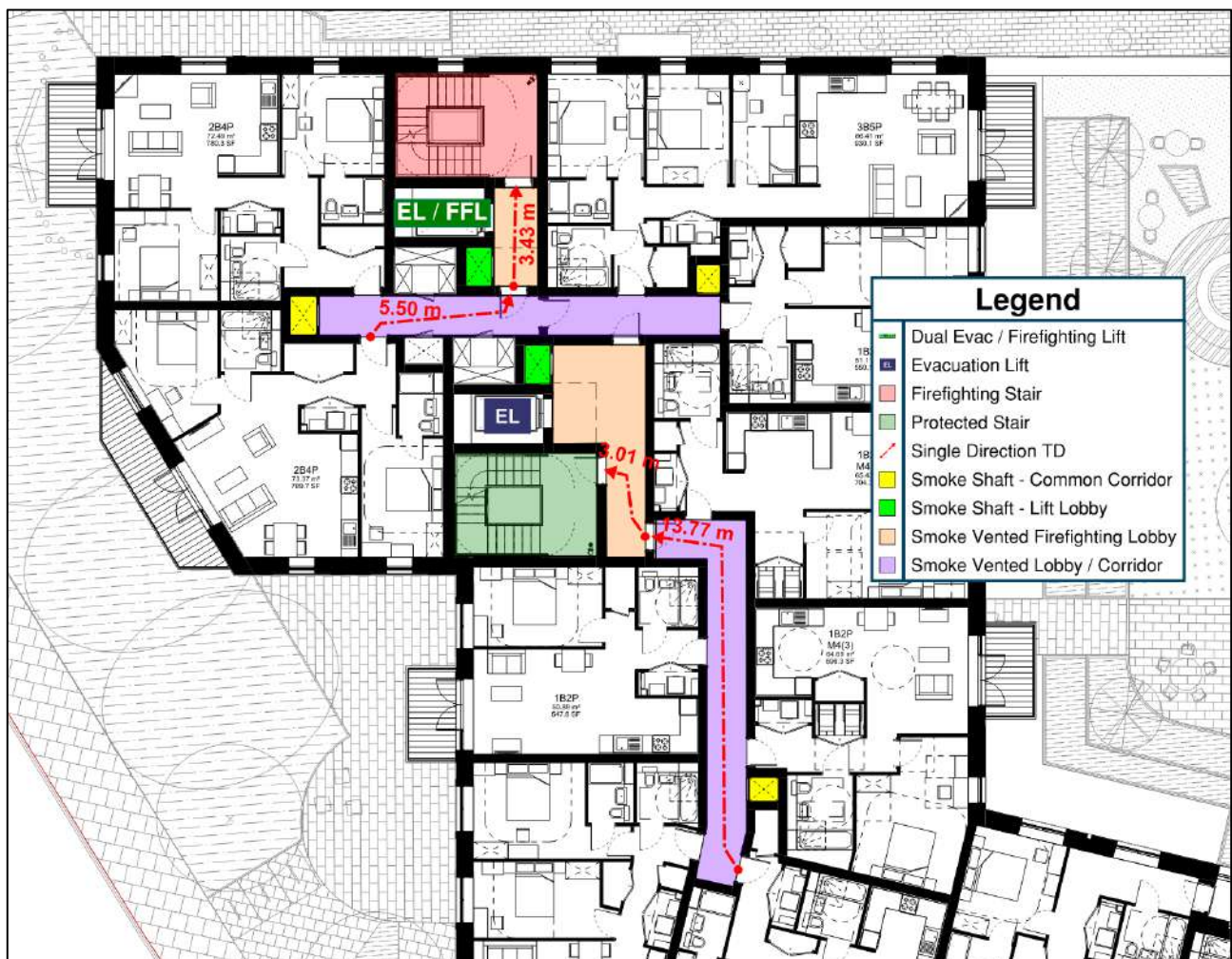


Figure 4 – Travel Distances within the Common Corridors – Block A(1)

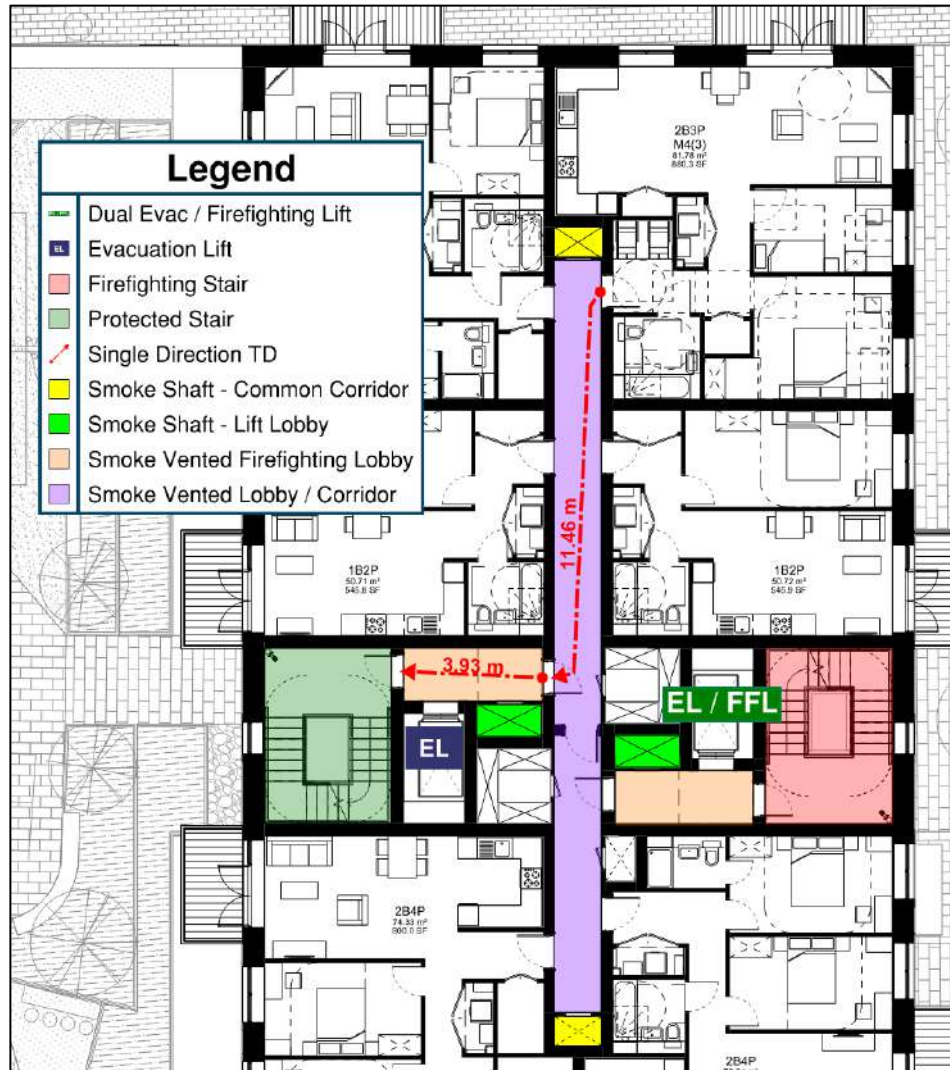


Figure 5 – Travel Distances within the Common Corridor – Block A(2)

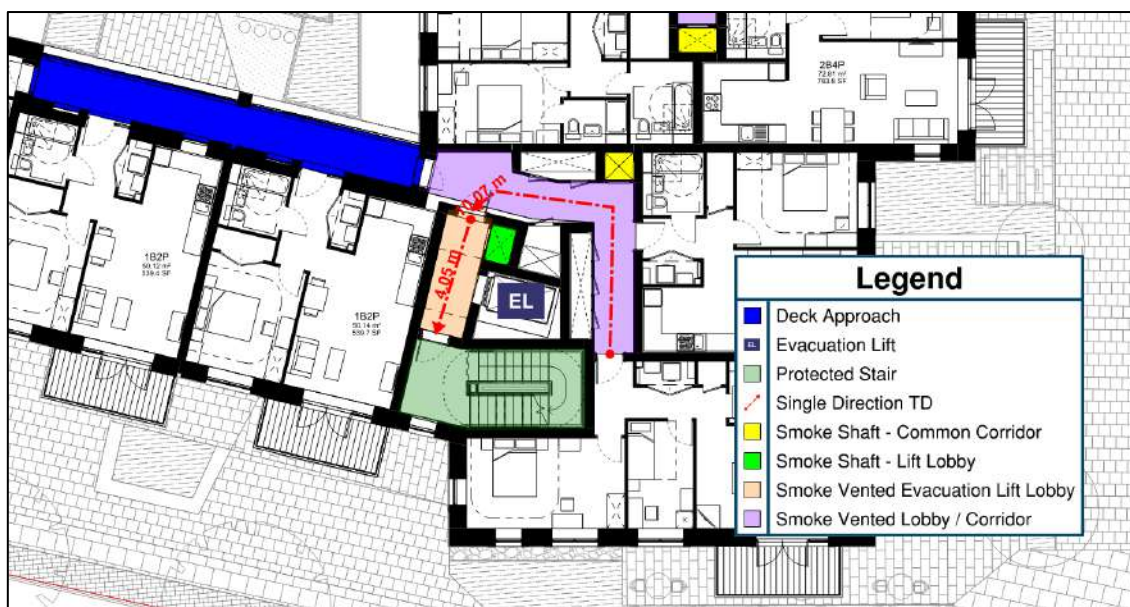


Figure 6 – Travel Distances within the Common Corridor – Block A(3)

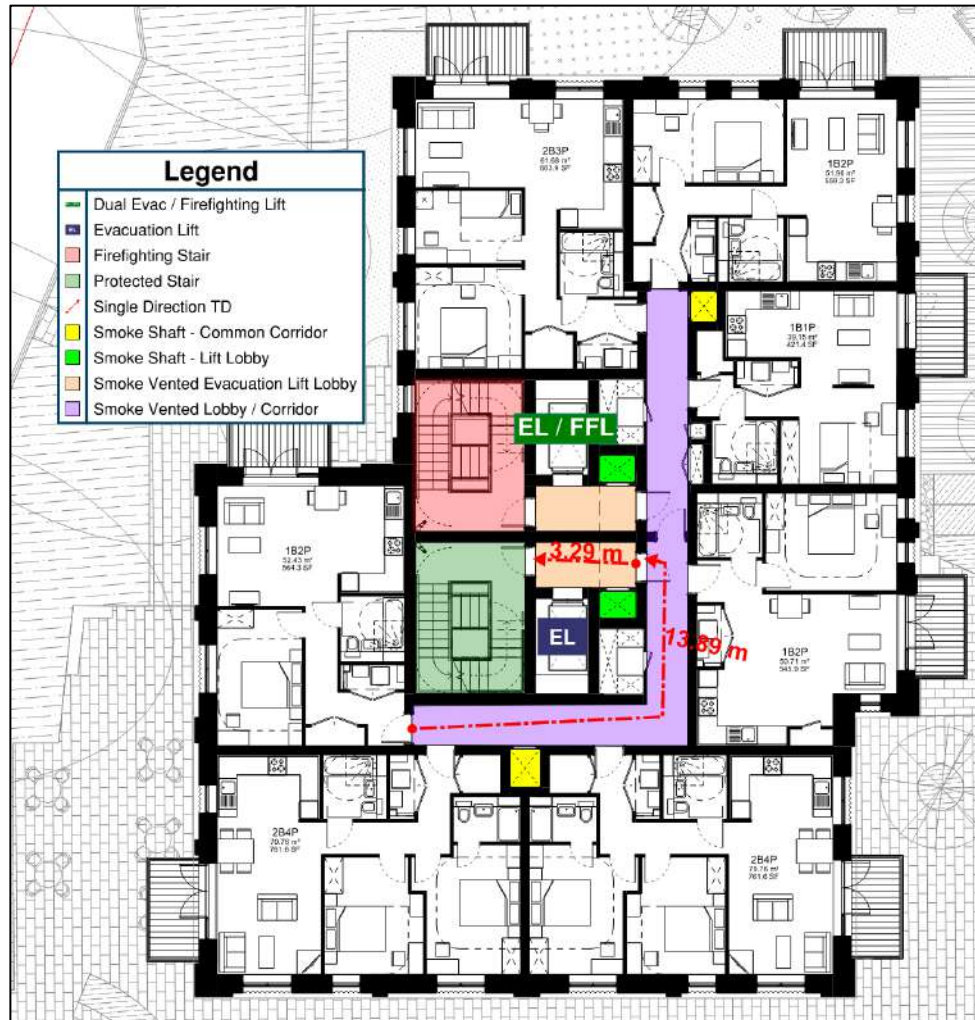


Figure 7 – Travel Distance within the Common Corridor – Block B

4.1.2.2 Deck Approach

Some flats in part of Block A access the stair core via a deck approach, as shown in Figure 8. The following should be met as per BS 9991:2024 guidance:

- The deck construction should have the same fire resistance as the floors within the building. Deck should be constructed from materials classified as A2-s1, d0 or better.
- The walking surface of the deck should be imperforate.
- The sectional profile should be such that any fire plume breaking out of a flat is directed upwards and outward and should be arranged such that smoke does not spread laterally along the deck soffit. Soffits should be flat with no edge downstand or other feature that would obstruct the outwards plume flow.
- The outside wall of the deck, from 1.1 m above the walking surface up to the soffit of the balcony or deck above, should have not less than 50% evenly distributed free vent area. Wherever possible, openings in the outside wall provided for smoke ventilation should coincide with window openings.
- The wall between a dwelling or ancillary area and the deck, up to a minimum of 1.1m above the walking surface, should provide at least EI 30 fire resistance.
- All surfaces of the facing wall, deck soffit and balustrade should be materials classified as A2-s1, d0 or better.
- Doors opening onto the balcony or deck should be self-closing E 30 or FD 30 fire doors.
- The external balustrade should be continuous, with no gaps between adjacent sections or between the balustrade infill and the supports, using infill materials that are imperforate.

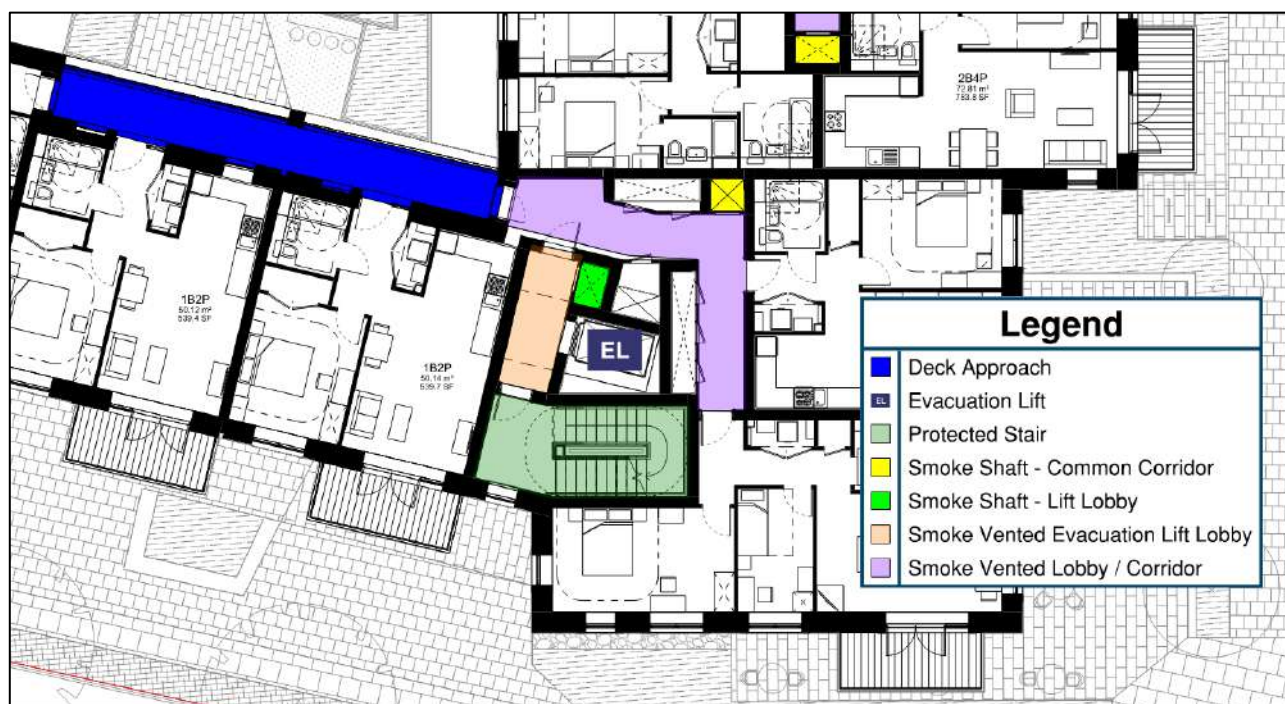


Figure 8 – Deck Approach

4.1.3 Cross-Corridor Fire Doors

Cross-corridor doors will be provided in all corridors that connect two or more stairs.

They will be self-closing fire doors and will be held open with magnetic locks during day-to-day use. In the event of smoke detection within the common corridors, the locks will release automatically, allowing the corridor fire doors to close and preventing the spread of smoke along the corridors.

4.2 Horizontal Means of Escape – Ancillary Areas

4.2.1 Escape Capacity

The majority of the ancillary spaces are currently shown as provided with a single exit or two exits with at least one door opening against the direction of escape. This will limit the occupancy of the spaces to 60 occupants. This is considered sufficient as most of the spaces are plant rooms/storage areas.

The car park is accessed via multiple exits leading into the protected stairs. As the car park is a residential car park limited to 7 spaces, with additional loading/servicing areas, this is considered reasonable.

This will need to be reviewed in detail as design develops further.

4.2.2 Travel Distances

The BS 9991:2024 provides the following recommendations for the travel distances within the residential ancillary areas, as noted in Table 2.

Area	Travel Distance within the Room		Total Maximum Travel Distance	
	Single Direction	Multiple Directions	Single Direction	Multiple Directions
Plant Rooms	9m	18m	18m	45m
Refuse Stores	9m	18m	18m	45m
Stores	9m	18m	18m	45m

Area	Travel Distance within the Room		Total Maximum Travel Distance	
	Single Direction	Multiple Directions	Single Direction	Multiple Directions
Communal Lounges and Common Amenity	18m	45m	18m	45m
Staff Rooms	18m	45m	18m	45m
Car Park	18m	45m	18m	45m
Rooftop Plant	60m	200m	60m	200m

Table 2 – Travel Distance Limit within Ancillary Areas

The available travel distances are indicated in Figure 9.



Figure 9 – Basement Level Travel Distances

The travel distances align with the recommended limits.

4.2.3 Roof Terraces

Block A contains a communal roof terrace on Level 01 and Level 06, and Block B on Level 12, as shown in Figure 10 and Figure 12, respectively. The following should be provided to the terraces:

- The maximum travel distance should not exceed 18m in a single direction, and 45m where alternative exits are provided, according to Clause E.5 of BS 9991:2024. The single-direction escape routes should be to either a stairway or a protected corridor.
- An audible alarm shall be provided throughout the terrace and be sounded upon activation of any fire detection system in the communal spaces in accordance with BS 5839-1.

The travel distances in Block A Level 01 and Block B Level 12 align with the recommended limit, as shown in Figure 10 and Figure 12. However, the travel distance in Block A Level 06 exceeds 18m, as only a single exit is provided.

ded. To meet the limit, an alternative exit should be provided. This will be reviewed in more detail in the next design stages following planning.



Figure 10 – Roof Terrace Travel Distance – Block A Level 01



Figure 11 - Roof Terrace Travel Distance – Block A Level 06

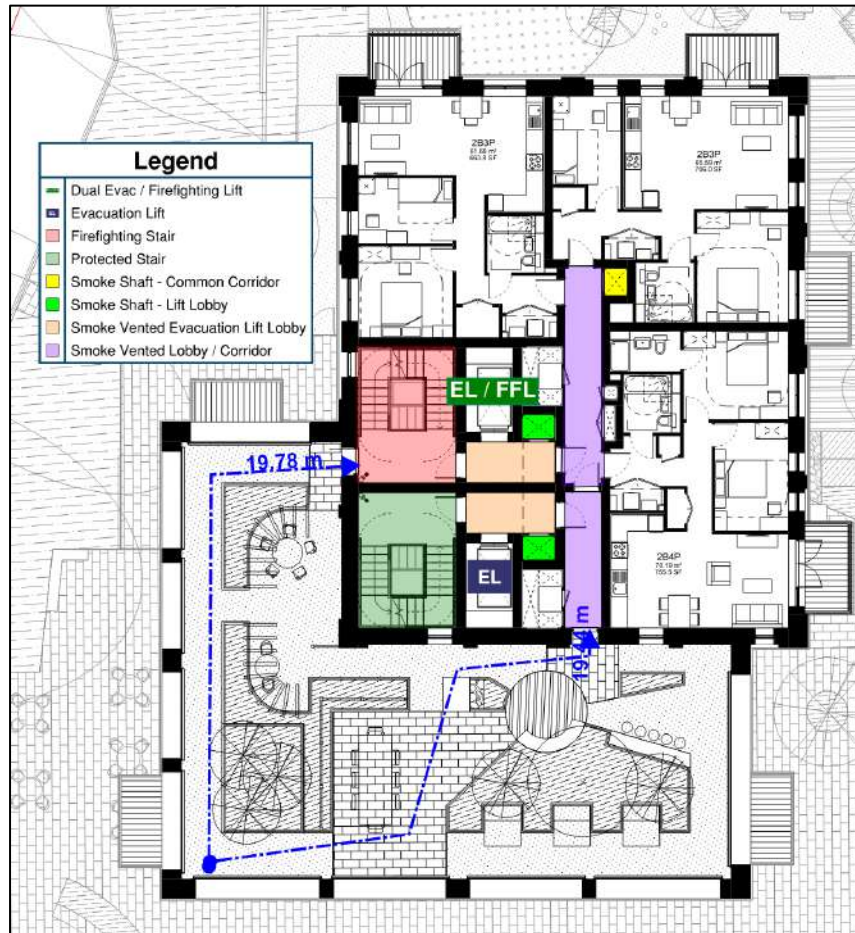


Figure 12 – Roof Terrace Travel Distance – Block B Level 12

4.3 Horizontal Means of Escape – Non-Residential Spaces

4.3.1 Risk Profile

The ground floor contains non-residential spaces, the proposed usage of which is not confirmed yet. It is assumed that those spaces are commercial units.

Occupants in units are expected to be awake but unfamiliar with the building (unit), and the fire growth rate is fast. Therefore, the risk profile is B3 as per BS 9999:2017. However, due to the sprinkler provisions throughout the building, the fire growth rate may be reduced to medium, ending up with B2 risk profile.

4.3.2 Occupancy and Exit Capacity

The building contains non-residential units on the ground floor and there should be no interconnection between the residential and the retail units.

The proposed units are not connected to the residential protected stairs, with connections only provided to the basement stair.

Floor space factor for the shops based on Table 9 of BS 9999:2017 is 2m²/person.

The minimum exit width per person is based on the risk profile and it is 4.1mm/person as per Table 12 of BS 9999:2017. However, the limit may potentially be reduced by 15% due to the enhancement of the fire detection and alarm system. Therefore, the minimum width per person will be 3.485mm/person. This will need to be reviewed as the fit-out of the spaces is developed at the next design stages.

As a worst-case scenario, the largest exit will be discounted, and the rest of the exits should be sufficient to accommodate the estimated occupancy. Furthermore, where exits are against the escape direction, those exits would only accommodate up to 60 occupants, as considered within the assessment.



Figure 13 – Non-residential spaces – Block A

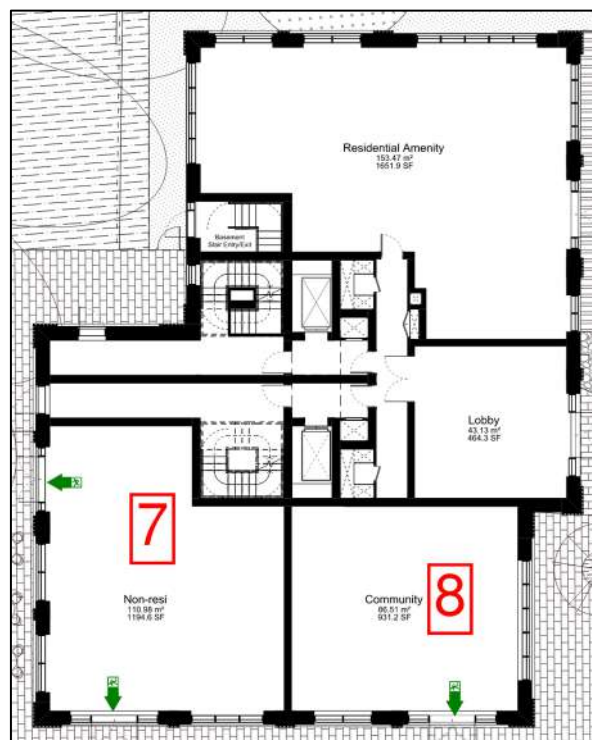


Figure 14 – Non-residential Spaces – Block B

Block	Non-residential Space	Area m ²	Floor Space Factor	Maximum Occupancy	Proposed Exit	Exit Width per Person	Exit Width Required ^[1]
A	1	97.44	2 m ² /person	49	3	3.485 mm/person	850 mm
	2	180.58		91 ^[2]	3		850 mm
	3	641.27		321	5		850 mm
	4	256.86		129 ^[2]	2		850 mm
	5	92.67		46	2		850 mm
	6	115.51		58	3		850 mm
B	7	110.98		53	2		850 mm
	8	86.51		44	1		850 mm

[1] The width is for each exit after discounting the largest exit.
[2] Since one of the exits is against the direction of escape, the maximum occupancy should be limited to 60.

Table 3 – Occupancy and Exit Capacity from Non-Residential Areas

4.3.3 Travel Distance

The travel distance for the non-residential spaces is based on risk profile B2. However, the limit may potentially be increased by 15% due to the enhancement of the fire detection and alarm system. This will need to be reviewed as fit-out of the spaces is developed at the next design stages. Table 4 summarises the travel distance recommendations. This is currently achieved but will need to be reviewed in more detail as the design develops.

Retail unit		Single direction (m)	More than one direction (m)
Maximum travel distance when a minimum fire detection system is provided	Prior to fit-out	13	33
	After fit-out	20	50
Maximum travel distance when the fire detection system is enhanced	Prior to fit-out	14.95	37.95
	After fit-out	23	57.5

Table 4 – Travel Distance - Retail Units

4.4 Stairs and Final Exits

4.4.1 Residential Stairs

According to BS 9991:2024, a building with a top storey height of more than 18m needs to be provided with at least two stairs, at least one of which should be a part of the firefighting shaft. If the floor area of the building exceeds 900m², at least two firefighting shafts will need to be provided.

All buildings within Block A, with exception of Building A5, have top floor height over 18m and are less than 900m² in area. Therefore, each of the buildings will be provided with one firefighting stair and one escape stair. Building A5 will be less than 18m in height and will be served by a single evacuation stair.

Block B contains a floor over 18m above the ground floor, is less than 900m² in area and will be served by one firefighting stair and one escape stair.

The stair provision is shown in Figure 15 - Figure 17 below.

The stairs should be designed in accordance with Section 9 of BS 9991:2024. Each stair should have a minimum clear width of 1m measured between handrails.

4.4.2 Basement Stairs

As per Clause 11.1 of BS 9991:2024, where the building contains a basement level and is provided with multiple stairs, at least one stair should not continue to the basement level.

Not all stairs continue down to the basement in Block A. Furthermore, Block A contains a protected stair (Stair A6) that serves the basement only and terminates on the ground floor. For stairs extending to serve the basement, the flights of stairs serving the basement and upper floors are separate, with individual final escape routes at ground level.

Stair arrangements are shown in Figure 17.



Figure 15 – Stairs Location – Ground Floor Block A

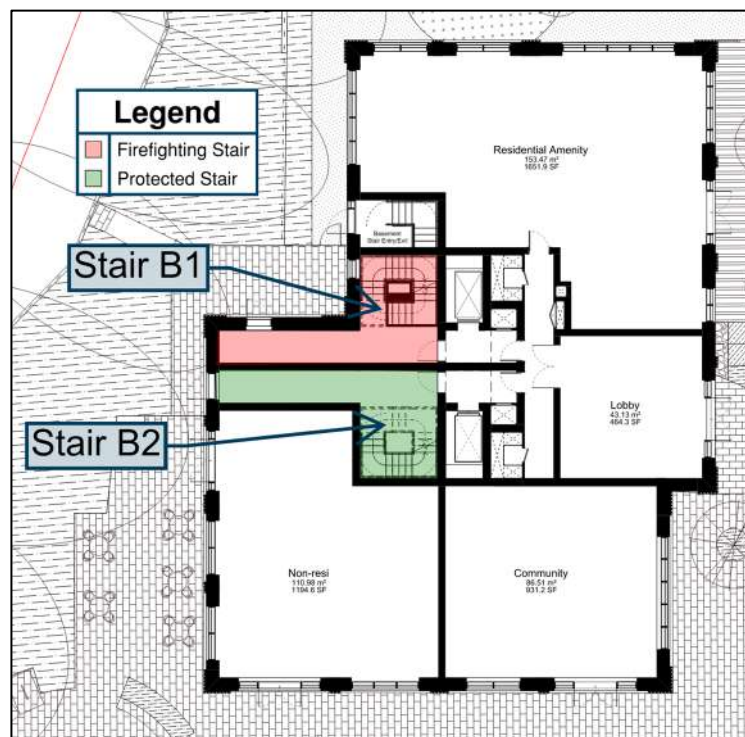


Figure 16 - Stairs Location - Ground Floor Block B

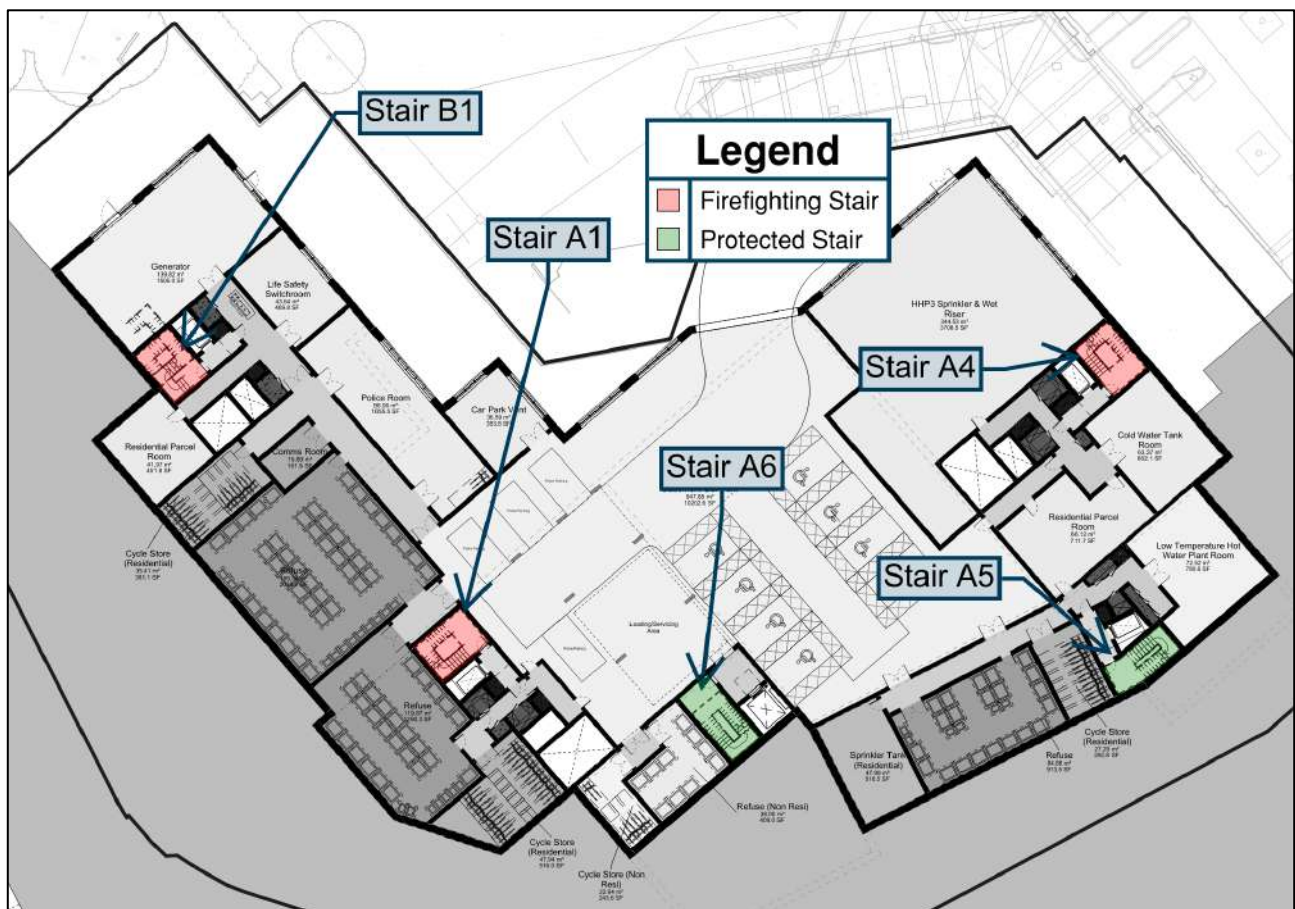


Figure 17 - Stairs Location - Basement Level

4.4.3 Final Exit

Protected stairways and evacuation lifts will discharge to a final exit in accordance with Section 15 of BS 9991:2024, as outlined below:

- All stairs will discharge either directly to the outside or via a fire-rated passageway leading to the outside, without requiring movement through the other core.
- All final exits will have a level threshold and will discharge to level ground, with no steps, ensuring accessibility.
- There will be no ancillary areas (e.g. plant rooms or storage) access directly to the stairs discharge routes.
- The final exit will be clearly visible to users of the stairs, with signage provided where necessary to support wayfinding.
- To meet the recommendations of current guidance, stair final exits and all openings along the final exit route will be at least as wide as the stairs they serve.
- The final exit corridors from the firefighting stairs will be used by occupants escaping the building and firefighters entering the building to conduct firefighting operations. These corridors will be at least as wide as the firefighting stair (1100mm) and increased by an additional 500mm to 1600mm to ensure firefighter access to the building is not obstructed by escaping occupants.

5.0 STRUCTURE AND COMPARTMENTATION

5.1 Element of Structure

According to Table 6 of BS 9991:2024, the element of structure in terms of load-bearing capacity should achieve the following minimum fire resistance:

Block		Depth/Height (m)	Fire Resistance
Basement		5.4	60 minutes
A	1	31.3	120 minutes
	2	21.8	60 minutes
	3	12.1	60 minutes
B		48.9	120 minutes

Table 5 – Structural Fire Resistance Requirements

Where the elements of structure are supporting buildings with different structural fire resistance requirements, the higher of the two requirements should be taken.

5.2 Compartmentation

Compartmentation required is shown in the Table 6. All floors within the building will be designed as compartment floors, including the slabs of the roof terrace spaces.

Feature	Minimum Fire Resistance	Type of Exposure	Fire Door
Compartment floors – Buildings A1, B	REI 120	From underneath	N/A
Compartment floors – Buildings A2, A3	REI 60	From underneath	N/A
Walls separating occupancies	REI 120	Both sides	N/A
Firefighting shaft	REI 120	Both sides	FD60S
Protected stairs – Buildings A1, B	REI 120	Both sides	FD60S
Protected stairs – Buildings A2, A3	REI 60	Both sides	FD30S
Flats	REI 60	Both sides	FD30S
Refuse stores	REI 60	Both sides	FD60
Protected corridors	REI 60	Both sides	FD30S
Protected shafts i.e. service risers, smoke shaft etc. – Buildings A1, B	REI 120	Both sides	FD60S
Protected shafts i.e. service risers, smoke shaft etc. – Buildings A2, A3	REI 60	Both sides	FD30S
Sub-division of corridors	REI 30	Both sides	FD30S
Refuse store lobbies	REI 30	Both sides	FD30S
Parcel rooms, cycle store, residential amenity	REI 30	Both sides	FD30
Plant room and generator room	REI 60	Both sides	FD60
LV or ELV switchrooms, HV switchrooms and transformer room	REI 120	Both sides	FD60
UKPN Substation (including compartment floors)	REI 240	Both sides	FD240S

Table 6 – Minimum Standard of Fire Resistance Rating

5.3 Fire Doors

Table 6 provides the minimum provision of fire doors. The fire doors shall be provided with self-closing devices, so all doors shall be kept closed.

5.4 Internal Linings

Any internal surface finishes (walls or ceilings) will be provided in line with the recommendations of Section 26.1 of BS 9991:2024 as summarised in the Table 7 below.

ROOM	EUROPEAN CLASS
Small rooms up to 4m ² in residential areas and up to 30m ² in non-residential areas	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within dwellings	Class C-s3, d2
Other circulation spaces including the common areas of flats	Class B-s3, d2

Table 7 – Lining Classifications

5.5 Cavity Barriers

Cavity barriers will be provided to sub-divide the cavities to restrict the spread of smoke and flame and will be provided in line with the recommendations of BS 9991:2024 in the following areas.

- Around openings and to close off edges of cavities
- At the junction between an external cavity wall and any wall, floor or door assembly which forms a fire resisting barrier.
- In floor and ceiling void in line with fire resisting partitions where the partitions are not continuous from the finished slab to the underside of the slab above.

Cavity barriers will achieve 30 minutes integrity and 15 minutes insulation.

5.6 Fire Stopping

Fire stopping will be provided to maintain the integrity of compartment walls and floors in accordance with Section 30.4 of BS 9991:2024. Fire stopping elements will achieve the same fire resistance as the wall or floor penetrated.

Where ventilation ductwork systems serve protected escape routes, motorised smoke and fire dampers will be provided that will be activated by local smoke detection.

Ductwork that passes through compartment walls that does not pass through or serve a protected escape route will be provided with one of the following:

- Thermally actuated fire dampers
- Fire-resisting ductwork
- A fire-resisting enclosure around the ductwork
- Motorised smoke and fire dampers with local detection

5.7 Services through Common Corridors or Lobbies

Where services are required to run horizontally through the corridors or lobbies, they will either be enclosed with fire-resisting construction or meet all the following criteria:

- The exposed surface of the material/product used is class B-s3, d2 or better
- The supports and fixings in the cavity are class A1
- Any pipe insulation system is class B-s3, d2 or better

Any electrical wiring in the cavity is laid in metal trays or metal conduit

6.0 EXTERNAL FIRE SPREAD

6.1 External Walls Build-up

As the building exceeds 18m in height, products which form part of the external wall construction should achieve European Class A2-s1, d0 or Class A1, with the exception of sealants, gaskets, doors and windows (including frames); (see regulation 7(3) for the full list of exemptions). Membranes within the external wall will achieve a minimum Class B-s3, d0.

This includes “specified attachments” including balconies, solar panels and solar shading devices attached to the external wall.

6.2 External Fire Spread

The allowable extent of unprotected area to the elevations has been calculated according to the methods outlined BR 187 taking into consideration the provision of sprinklers and buildings’ proximity to the site boundary/ surrounding roads.

Based on the initial assessment, residential areas of the building would not require any fire protection to the external elevations. The external fire spread requirements for the non-residential areas will need to be assessed when the proposed use becomes known.

Detailed assessment will be carried out during the detailed design stage.

6.3 Internal Angles of External Walls

6.3.1 Between Residential Flats

Where the building façade forms an internal angle between two flats of no more than 135 degrees (as shown in the Figure 18 below), the minimum distance between two unprotected areas of the building enclosure will be at least 1m. All areas of the external wall closer than 1m should be REI 60 fire rated.

6.3.2 Elsewhere

The same principle is followed for other locations within the entire building where the internal angle formed by two adjacent fire compartments is no more than 135 degrees:

- Protection of escape routes up to 1.8m distance.
- Protection elsewhere up to 1m distance.
- Protection of firefighting shaft elevations up to 5m distance.

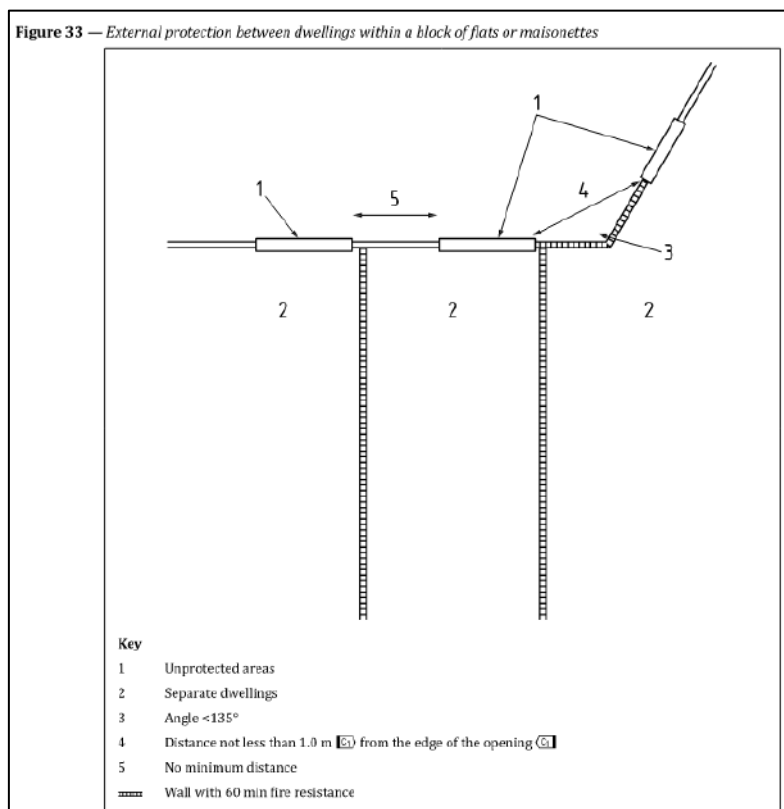


Figure 18 – Internal Angle between Flats – Residential Areas

6.4 Roof Coverings

Roof coverings will be in accordance with BS 9991:2024. Roof coverings will achieve $B_{ROOF}(t_4)$ as they are within 6m of the relevant boundary.

Alternatively, the roof can be a product (and/or materials) defined in Commission Decision 2000/553/EC of 6 September 2000, implementing Council Directive 89/106/EEC, that can be considered to fulfil all of the requirements for the performance characteristic 'external fire performance' without the need for testing, such as 50mm thick gravel or 40/50mm thick cast stone or mineral paving slabs. The final roof materials are subject to further design development and will be in accordance with required standards for fire safety.

Green roofs will be designed in accordance with the recommendations of the GRO Green Roof Code (2021) with respect to fire safety.

6.5 Roof Terraces

The upper surface of the roof terraces will achieve a $B_{ROOF}(t_4)$.

Any parts of the podium where the $B_{ROOF}(t_4)$ classification cannot be achieved, or equivalent performance can be shown through following other design documents or recommendations, such as green roof areas, planters or soft surfaces (e.g. playground areas) will be isolated:

- At least 3m from any vertical building façade above the podium
- At least 0.5m from any rooflights, ventilation openings or other penetrations of the roof.

Roof structures such as pergola's will be erected on slabs of class A1 material which will extend at least 1.2m from the edges of the roof structure.

Planting structures will be constructed from materials achieving class A1.

Green roofs will be designed in accordance with the recommendations of the GRO Green Roof Code (2021) with respect to fire safety.

7.1 Fire Vehicle Access

Vehicle turning facilities will be provided so that the fire vehicle will not have to drive more than 20m in a dead-end condition.



• [How to use the data](#)

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	4.0	17.0

Table 8 – Fire Vehicle Access Route Specification

The fire vehicles will be able to park within 18m and in sight of dry fire main inlets serving the firefighting shafts and Stair A5.

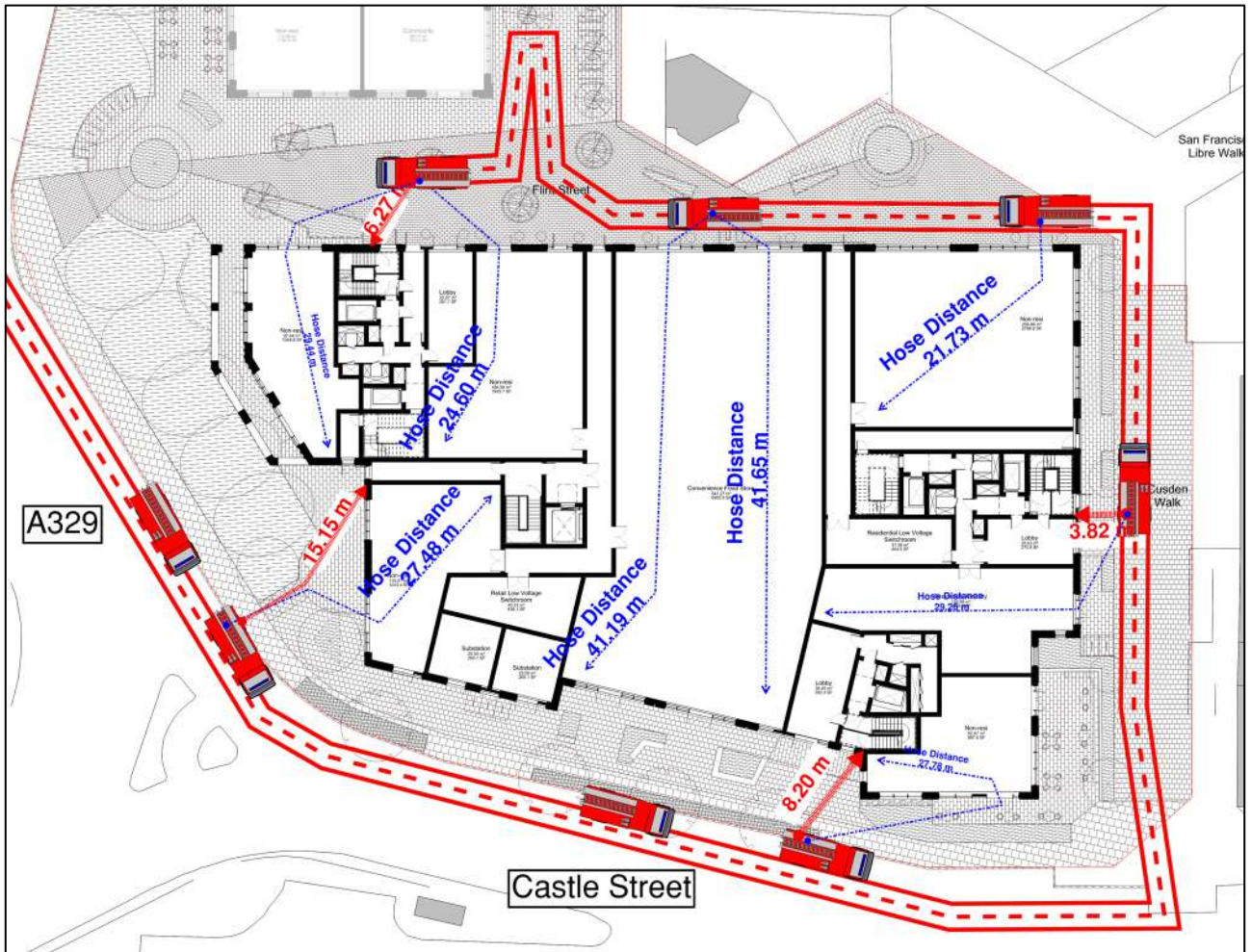


Figure 20 - Fire Vehicle Access – Block A

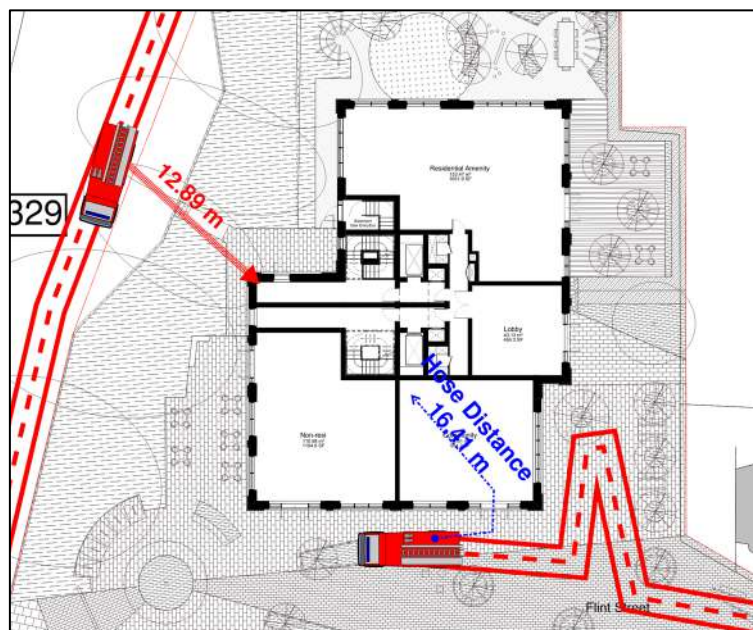


Figure 21 - Fire Vehicle Access - Block B

7.2 Firefighting Facilities

7.3 Fire Mains

The buildings in both blocks contain a storey over 18m above the ground level, with the exception of building A3, which is less than 18m in height. All of the buildings will be less than 900m² in area. Therefore, each of the buildings over 18m in height will be provided with a single firefighting shaft. The following should be provided to the shafts:

- Firefighting lift accessed from a protected smoke vented lobby. The lifts will be located within 7.5m of the entrance to the firefighting stair.
- A dry fire main, with an outlet located within each landing of the stair enclosure.
- Automatically opening vent at the head of the stair achieving at least 0.7m² in aerodynamic free area.

While building A3 will not be provided with a firefighting shaft, the protected stair serving the building will be provided with a dry fire main serving all floor levels.

Furthermore, the basement stair (Stair A6) is not required to be a firefighting shaft, as the stair serves only the basement level and the basement depth is less than 10m.

The maximum hose distance is 60m due to the sprinkler provision. Therefore, all points should be reached within 60m which is achieved.



Figure 22 – Hose Distance from the Outlets – Block A

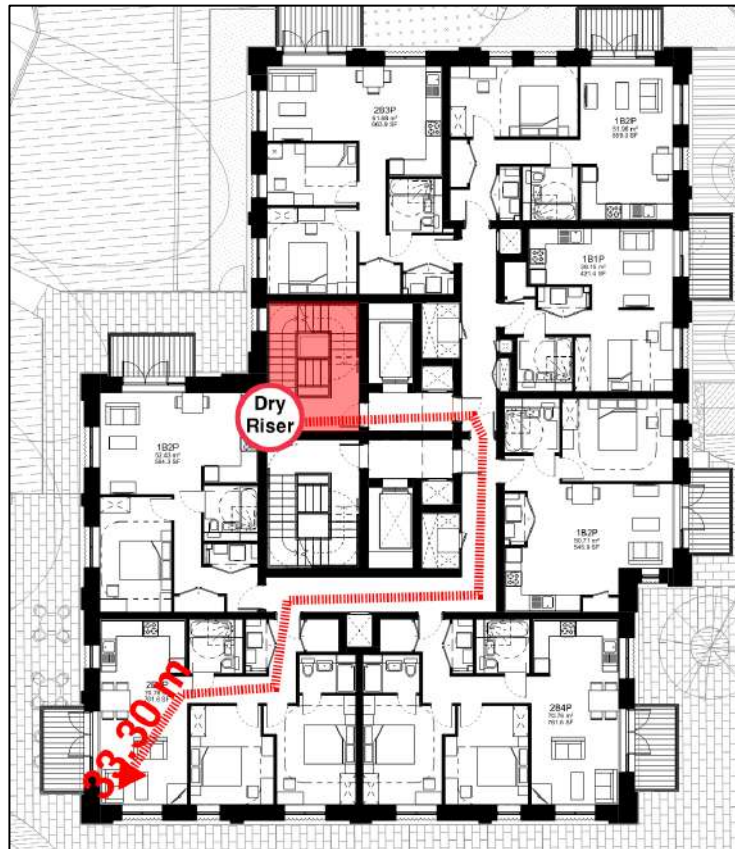


Figure 23 - Hose Distance from the Outlets – Block B

7.4 Hydrants

Existing fire hydrants are provided on Castle Street within 90m of the dry riser inlets, based on the hydrant locations noted around the site using Google Maps. However, the condition of the hydrants should be confirmed by others.



Figure 24 - Hydrants Locations

7.5 Premises Information Box

Secure information box (SIB) will be provided in line with the recommendations of the Clause 48.1 of BS 9991: 2024 guidance and the *Code of Practice for the Provision of Premises Information Boxes in Residential Buildings* published by the Fire Industry Association.

The SIB will be suitably located so that it is readily accessible to the fire and rescue service (FRS) upon arrival. Where 24/7 staffing is provided, such as a concierge or reception desk, the SIB may be located within that area, provided the location allows easy and rapid access by FRS personnel. In such cases, directional signage may be required to assist the FRS, in accordance with industry guidance.

The SIB is intended to securely store vital building information for use by the fire service during an incident. It will meet the following requirements:

- Must be large enough to hold all required information.
- Must be easy to locate and identify by firefighters.
- Must be secure against unauthorised access, yet readily accessible to firefighters.
- Must be weather-protected if located externally.

8.0 FIRE SAFETY MANAGEMENT

8.1 General

Once the building is occupied, it is the responsibility of the management and/or responsible person to ensure that all fire safety systems are tested and maintained to ensure their continuous effectiveness. The management should:

-

- Be aware of all the fire safety features provided and their purpose
- Liaise with and seek the advice of the fire authority

8.2 Staff

Staff should be trained by competent persons. The training should be at regular intervals and should ensure that all staff know what to do if a fire is discovered; the correct response on hearing a fire alarm, and the correct escape procedures from every part of the building.

A management structure should be provided to ensure that in the case of fire staff are aware of their responsibilities, which should be clearly defined. A chain of command should be provided with clear lines of responsibility, authority and accountability.

8.3 Fire Safety Information

Regulation 38 of the Building Regulations in England and Wales sets out to ensure that crucial fire safety information is provided to the responsible person or building owner upon completion of a new building or a significant renovation project.

Regulation 38 stipulates that the person undertaking the construction work must compile and provide fire safety information about the building to the responsible person. The responsible person is typically the building owner or manager who will be in charge of the building's ongoing fire safety management.

The aim of Regulation 38 is to ensure that the person responsible for the building has all the information to enable them to carry out their duties under the Regulator Reform (Fire Safety) Order including all of the following.

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

The purpose of the fire safety manual is to clearly define the nature of the fire safety systems provided for the building. It should include: -

- An explanation of the overall fire safety strategy
- Evacuation procedures
- Design documentation to describe the use of each fire safety system
- Staff roles in the event of a fire: their responsibility, authority and accountability
- A detailed maintenance routine

This fire strategy report will form a key part of the fire safety manual for the building but should be supplemented with other essential fire safety information which is to be handed over to the responsible person when the project is complete or when the building or extension is first occupied. Details of the suggested contents of the fire safety manual are provided in Section 19 of the Approved Document B and Annex H of BS 9999 Code of practice for fire safety in the design management and use of buildings.

The Fire Safety Manual and fire safety information contained within should be reviewed periodically and when any alterations are made to the building. BS 8644-1: *Digital management of fire safety information - design, construction, handover, asset management and emergency response - code of practice* published by the British Standards Institute provides guidance on how to manage fire safety information digitally across the life of a built asset.

8.4 Maintenance and Housekeeping

It is the role of management to ensure that maintenance is carried out in accordance with the relevant British Standards, so that all fire safety systems are operational in the event of a fire. It is also important that good housekeeping practices are followed. The building management should be aware of any hazardous substances or practices within the building, which increase the risk of fire.

8.5 The Regulatory Reform (Fire Safety) Order 2005

This Order places a duty on the 'responsible person' to ensure, 'as far as is reasonably practical' the safety of his employees and to take such general fire precautions as may be reasonably required to ensure that the premises are safe [i.e. for non-employees].

Under the Order, there is a requirement to carry out and continually update an assessment of the risk of fire to people in and around the premises/building, and to assess and maintain the measures to reduce those risks to an acceptable level. Where there are five or more employees, the risk assessment must be recorded.

A Fire Risk Assessment should be carried out:

- On completion of the building fit out, and strictly before first occupation of the building.
- Regularly, particularly where any changes occur such as changes in the use of the building, the number or nature of occupants, or building works.
- We would recommend that a fire risk assessment is carried out at least annually.

Other legal duties include:

- Keeping a record of the Fire Safety Arrangements. These are the preventative and protective measures for the building.
- A person must be nominated for any special role identified in an emergency plan.
- Employees must be consulted about nominations to perform special roles, and about any proposals for improving the fire precautions.
- Other employers in the building must be informed about any significant risks, which might affect the safety of their employees, and there must be co-operation with them in measures to reduce the risk.
- Those having control over the workplace have a responsibility to ensure compliance with the regulations in those parts of the building over which they have control.
- A suitable and readily available method of calling the emergency services must be established.
- Employees are required to co-operate in ensuring that the workplace is safe from fire.

The order also adopts 'Principles of Prevention'. These include:

- Avoiding risks;
- Evaluating the risks which cannot be avoided;
- Combating the risks at source;
- Adapting to technical progress;
- Replacing the dangerous by the non-dangerous or less dangerous [particularly with respect to hazardous substances];
- Developing a coherent overall prevention policy which covers technology, organisation of work and the influence of factors relating to the working environment, and;
- Giving appropriate instructions to employees.

9.0 INFORMATION, LIMITATIONS AND ASSUMPTIONS

The information limitations and assumptions used in the preparation of this report are noted below: -

9.1 Source of Information

This report is based on the following information:

Title	Drawing/Reference no	Date	Rev
Proposed site plan	S_02	24/04/2026	P1
Proposed Basement	SP_01		
Proposed Ground	SP_02		
Proposed Level 01 Plan	SP_03		
Proposed Level 02 Plan	SP_04		
Proposed Level 03 Plan	SP_05		
Proposed Level 04 Plan	SP_06		
Proposed Level 05 Plan	SP_07		
Proposed Level 06 Plan	SP_08		
Proposed Level 07 Plan	SP_09		
Proposed Level 08 Plan	SP_10		
Proposed Level 09 Plan	SP_11		
Proposed Level 10 Plan	SP_12		
Proposed Level 11 Plan	SP_13		
Proposed Level 12 Plan	SP_14		
Proposed Level 13 Plan	SP_15		
Proposed Level 14 Plan	SP_16		
Proposed Level 15 Plan	SP_17		
Proposed Level 16 Plan	SP_18		
Proposed Roof Level	SP_22		
Proposed Block A Sections AA & BB	BA_26		
Proposed Block A Sections EE	BA_28		
Proposed Block A Sections CC & DD	BA_27		
Proposed Block B Sections AA & BB	BB_22		

Table 9 – Information Used in this Report

9.2 Building Regulations

This report considers building regulations, which deal with life safety. Property protection and insurance issues are not addressed in this report. Guidance on property protection and insurance requirements can be found in the document *Approved Document B: Fire Safety (Volume 2) – Buildings other than dwellinghouses Incorporating Insurers' Requirements for Property Protection*, RIBA Publishing 2015.

9.3 Other Limitations

Complying with the recommendations of this report will not guarantee that a fire will not occur.

Unless otherwise described in this report, the fire strategy assumes that the building design, the mechanical and electrical systems, construction methods and materials specifications will comply with current Building Regulations guidance, and relevant British Standards and Codes of Practice. The design of mechanical and electrical systems such as fire alarm and sprinklers is a specialist area. Fire Strategy recommendations are given in this report, however, the design and specifications need to be developed at the appropriate stage in consultation with the specialist designers of these systems.

This report has been prepared for the sole benefit, use and information of S2 Estates and the liability of Jeremy Gardner Associates Limited, its directors and employees in respect of the information contained in the report will not extend to any third party.

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