Retrospective Fire Safety Strategy Report

The Habitat

Woolpack Lane
Nottingham
NG1 1GH/ NG1 1GJ/ NG1 1GU

Date: 25/11/2024

Reference Number: MAF/024/458

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Project Information

Client	Clermont Management Limited
Building Name	The Habitat
Address	Woolpack Lane, Nottingham, NG1 1GH/ NG1 1GJ/ NG1 1GU
Property Type	Residential block of flats
Reference Number	MAF/024/458

Quality Control

Version		Date	Prepared by	Reviewed by
Draft	01	25/11/2024	NKK	HH
Final	02	03/12/2024	NKK	HH

Role	Name and Role	Professional Qualifications & Memberships
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1. Executive Summary

MAF Associates has been appointed by Clermont Management Limited ('the Client') to produce the Retrospective Fire Strategy Report for The Habitat building located in Woolpack Lane, Nottingham.

The Habitat Building is an existing residential development. Based on the referred documents on the client's website, it is best understood that building was constructed circa 2000.

Therefore, at the time of construction, the applicable regulations were The Building Regulations 2000. Henceforth, it is assumed that the guidance document adopted during construction was Approved Document B, 2000 edition, referred to here as ADB. This document serves as the foundation for the retrospective fire strategy report.

The purpose of the report is to demonstrate the route to achieve the functional requirements of Part B (Fire Safety) of Schedule 1 of the relevant Building Regulations for the existing fire safety provisions within the residential part of The Habitat building, and to highlight any existing non-compliant issues. It is worth noting that non-compliant issues within the report refer to the items that deviate from best practice standard guidance and where fire engineered solutions might have been provided and approved by the approving authorities at the time of design and construction.

Fire Safety Design Element	Description
Purpose Group	In accordance with Approved Document B (ADB), the residential section falls under Purpose Group 1(a) – flats and the car park come under 7(b)
Evaluation Philosophy	The recommended evacuation plan for the building is 'stay-put' strategy, but it is understood that the building currently operates temporary simultaneous evacuation.
Fire Detection and Alarm System	The Habitat building is equipped with a fire detection and alarm system that meets the requirements of BS 5839-6:2004, with a Grade D1 Category LD3 system installed according to the Fire Risk Assessment from 25 Jan 2023.
Means of Escape	The assessment found that travel distances in the building **deviates from the recommendations in the ADB.** These issues require necessary actions to meet the fire safety standards.
Smoke Ventilation System	The Habitat building have a natural ventilation throughout with building.
Fire Mains	The dry riser outlets are installed within the firefighting shaft.

Emergency Lighting	Emergency lighting should be provided in accordance with BS 5266 Part 1.
Exit Signage	Exit signage should be installed in accordance with BS 5499.
Fire Compartmentation	Fire resistance should be in accordance with Table A1 and A2 of ADB.
Fire Suppression System	No sprinkler system is provided for this building. It was not the requirement at the time of construction in ADB to provide sprinkler systems for a building at the height of the Habitat building.
Structural Fire Protection	The building is primarily of traditional type construction with masonry external walls. Given the generally non-combustible and robust nature of the structural frame's build type, the load-bearing elements of the structure are expected to be acceptable.
External walls	The client has commissioned MAF Associates to conduct a fire risk assessment of the external wall system as per PAS 79 in 2021. As a result, the external wall of the building has been remediated based on the information provided, particularly the spandrels and the balcony decks. The overall risk of the external walls of the building is not known after the remediation. It is expected the building to be assessed to understand the fire risk to comply with the Regulatory Reform (Fire Safety) Order 2005 as amended by Fire Safety Act 2021. It is recommended the external walls of the building should be assessed based on PAS9980:2022.
Secondary power supplies	The secondary power supply was not able to be confirmed during the visual site visit by the MAF team.

Table 1: The fire safety elements of the building

Based on the provided document and the MAF team's non-intrusive site visit, the building with the proposed/implemented fire safety measures should follow the building regulation fire safety requirement apart of the points recommended below. However, if any details in this report are found to be inaccurate the report should be updated accordingly.

The following points are recommended to enhance fire safety in the building as they do not follow the building guidance at the time of construction nor the current guidance to comply with the building regulations:

- The building currently operates on temporary simultaneous evacuation as a fire safety measure due to external walls' fire spread risks. The building should go back to stay put policy as soon as the required remediation is completed.
- Travelling distance from flats are more than the recommended distance from ADB. This issue should be addressed by conducting further assessments or studies.
- All three stairs in the Habitat building continue to the basement for both blocks and two of them are the only means of escape. This does not directly follow the ADB. This issue should be addressed by conducting further assessments or studies.
- During our site visit, we could not confirm the AOV for stair 3, which is recommended to be checked and included in the building Fire Risk Assessment.
- No compartmentation survey nor fire door survey is provided to MAF Associate team. It is recommended to conduct these relevant fire safety survey.
- The client has commissioned MAF Associates to conduct a fire risk assessment of the external wall system as per PAS 79 in 2021. It is current industry standard to conduct FRAEW report according to PAS9980:2022 to fire risk assess the external walls of the building to comply with the Regulatory Reform (Fire Safety) Order 2005 as amended by Fire Safety Act 2021. Therefore, it is recommended that a Fire risk appraisal For the External Wall (FRAEW) should be conducted as per PAS9980:2022.

In case of any changes in the fire safety measures in the building, this report should be updated.

2. Introduction

2.1. Basis of review

MAF Associates have been appointed by Clermont Management Limited to develop a Retrospective Fire Strategy Report for The Habitat building, Nottingham.

The Habitat Building is an existing residential development. Based on the referred documents on the client's website, it is best understood that building was constructed circa 2000.

Therefore, at the time of construction, the applicable regulations were The Building Regulations 2000. Henceforth, it is assumed that the guidance document adopted during construction was Approved Document B, 2000 edition. This document forms the basis for this retrospective fire strategy report. Where specific evidence of the original design is unavailable, it is assumed that the building was designed in accordance with the version of Approved Document B applicable at the time of construction.

The purpose of the report is to demonstrate the route to achieve the functional requirements of Part B (Fire Safety) of Schedule 1 of the relevant Building Regulations for the existing fire safety provisions within the Habitat building, and to highlight any existing non-compliant issues or if any potential risks. It is worth noting that non-compliant issues within the report refer to the items that deviate from best practice standard guidance and where fire engineered solutions might have been provided and approved by the approving authorities at the time of design and construction. Where guidance other than ADB Volume 2000 edition, is referenced in the report, it will be clearly stated.

The scope of the report does not cover aspects such as property protection, insurance requirements, property valuation, or business continuity planning and only covers the residential section of the building.

2.2. Building Description

The Habitat building, located on Woolpack Lane in Nottingham, is an eight-floor residential development. Its construction is characterized by a steel and concrete frame with infilled clay brick walls. The building features a flat roof and includes a car park that spans three floors.

The height from the ground floor level to the topmost habitable floor is found to be 19.2m as per the previous external wall fire risk assessment.

The Habitat building is a modern residential development located in central Nottingham, consisting of a ground floor and seven upper levels. It features three stair cores, with two interlinked stairways providing alternative escape routes, and one standalone stairway. The building includes a lower-ground car park and a podium-level courtyard.

Fire service access to the site is well facilitated via Woolpack Lane, and a dry riser system is installed in the firefighting stairways to support emergency response efforts.

The Habitat building consists of two blocks, A and B, which are connected only at the basement level. Block A, accessible via Woolpack Lane and Maidan Lane, is equipped with two escape stairways. Block B, accessed solely from Woolpack Lane, has one escape stairway.

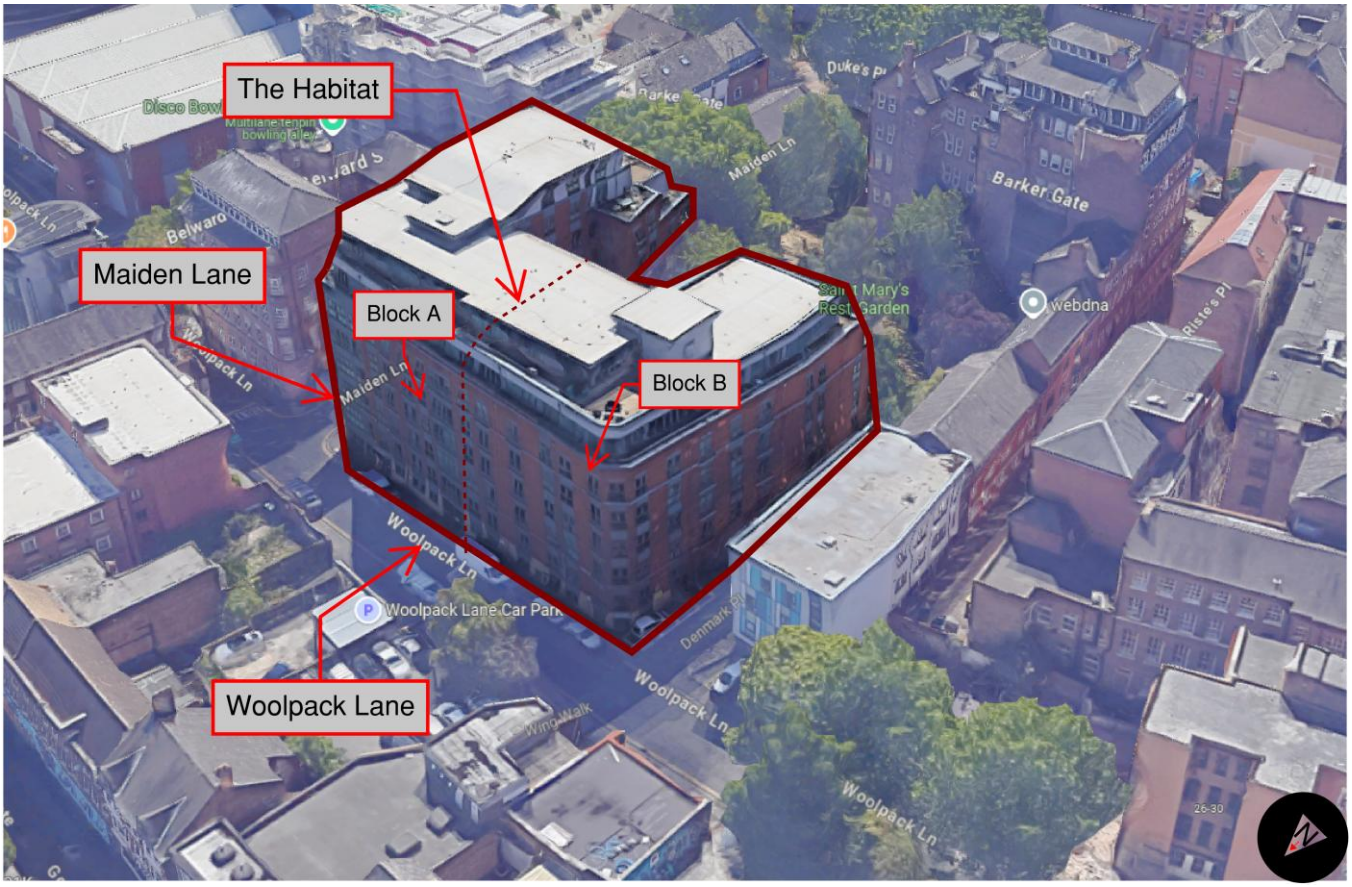


Figure 1: 3D Site view extracted from Google Earth

2.3. Purpose Group

The Retrospective Fire Safety Strategy report has been developed to outline the fire safety approach for the residential section of the Habitat building. In accordance with Approved Document B (ADB), the residential section falls under Purpose Group 1(a) – flats and the car park come under 7(b). This classification serves as the basis for assessing the fire safety measures within the building and determining compliance with the applicable fire safety regulations.

2.4. Referenced Documents

This report is prepared based on the documents below as provided by the client. We do not accept liability for the accuracy or completeness of any documents. If any details of the documents below are found to be incorrect, this report should be reviewed accordingly.

Ref	Document Title	Document Author/ Organisation	Document Date
1	Habitat FRA June 24	Gary P Tibbs	25/01/2023
2	Fire Risk Assessment of the external walls	Michael A Fox	10/05/2021
3	Habitat building Layouts	-	-

Table 2: Provided and used documents

Building regulations and guidance shall be considered and consulted in conjunction with this report, including the following:

- The Building Regulations 2000
- The Regulatory Reform (Fire Safety) Order 2005
- Fire Safety Act (2021)
- Building Safety Act (2022)
- Approved Document B
- BS9999 and BS9991
- BS5588 Part 1 :1990
- Any other standards mentioned in this report and/or applied to the building.

MAF team performed a non-intrusive site visit on 19/09/2024 to understand the building and to walk along the escape routes and the layouts used are provided in the Appendix A – Scaled Drawings/Floor Plans.

3. Legislation and Guidance Documents

3.1. Building Regulations

By considering the date of construction, it is expected that the building would have been subject to approval under the Building Regulations 2000 which require that the design and construction comply with the functional requirements as shown below:

- B1 – Means of escape
- B2 – Internal fire spread – linings
- B3 – Internal fire spread – structure
- B4 – External fire spread – roofs
- B5 – Access and facilities for the fire service

In order to demonstrate compliance with these functional requirements B1 to B5, it is conventional to base the design on standard fire safety design documents. Variations to the guidance given in those documents are permitted, as long as they can be demonstrated to have still met the functional requirements shown above.

This report has based the design of the building on Approved Document B 2000 edition amended 2002, and the relevant British Standards.

In situations where the building design varies from the guidance in that document they have been highlighted.

This report describes the main fire safety issues relating to the building. In any areas that are not mentioned in this report, the design should comply with the relevant documents mentioned above.

3.2. Regulatory Reform (Fire Safety) Order 2005

The Fire Precautions Act, Fire Precautions (Workplace) Regulations and other selected fire safety legislation have been repealed and replaced by the Regulatory Reform (Fire Safety) Order (FSO) which came into force on 1st April 2006.

The Building Regulations continue to apply to new buildings and extensions but virtually all buildings (except dwellings) are also subject to the FSO when they are occupied. It is a requirement of the legislation that the responsible person (owner/occupier) carries out a fire risk assessment, and where more than 5 people are employed, this assessment should be written and available for inspection by the fire authority if requested. Responsibility for complying with the FSO rests with the responsible person. Any risk assessments should pay particular attention to those at special risk, such as mobility impaired persons and those with special needs and must include consideration of any dangerous substances likely to be on the premises.

Fire Safety Act 2021:

The Fire Safety Act 2021, which was made law on the 29th of April 2021, extends the duties on “responsible persons” for multi-occupancy residential buildings under the Regulatory Reform (Fire Safety) Order 2005,

clarifying that the RRO applies to the external walls and any common parts (including all doors between the domestic premises and common parts) of any building containing two or more sets of domestic premises. The reference to the external wall includes doors and windows within the external wall as well as attachments, including cladding and balconies.

The Fire Safety (England) Regulations 2022, requires the following:

In all multi-occupied residential buildings, the regulations require responsible persons to provide residents with fire safety instructions and information on the importance of fire doors. The regulations apply to existing buildings, and requirements for new buildings may be different.

The information to be provided by responsible persons to the building occupants includes:

- Fire doors should be shut when not in use.
- Residents or their guests should not tamper with self-closing devices on fire doors.
- Residents should report any fault with, or damage to, fire doors immediately to the Responsible Person.

3.3. Building Safety Act 2022

The Building Safety Act 2022 received Royal Assent in April 2022, and the secondary legislation is also introduced to support the transition for the Act to be enforced. The Act applies to all building including higher-risk buildings defined as high-rise residential buildings (including student accommodation), hospitals and care homes that are at least 18 metres or seven storeys high. All occupied higher-risk residential buildings will be required to have an Accountable Person, who will be legally responsible for ensuring that the fire and structural safety of their building(s) are being properly managed. A 'golden thread' of documents and information to be provided once construction is complete.

The Habitat building falls under the above described **'higher risk'** building as defined by the Building Safety Act 2022.

4. B1 – Means of Warning and Escape

Schedule 1 of the Building Regulations requires the following functional requirements to be met in respect of B1, Means of warning and escape:

“

The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire, and appropriate means of escape in case of fire from the building to a place of safety outside the building capable of being safely and effectively used at all material times

”

4.1. Fire Detection and Alarm systems

According to ADB, all block of flats should be provided with a fire detection and fire alarm system in accordance with relevant recommendations of BS 5839-6:2004 to at least a Grade D Category LD3 standard. The smoke alarms should be mains-operated and conform to BS 5446-1:1990 with a secondary power supplies as described on clause 13 of BS 5839-6:1995.

According to the Fire Risk Assessment (FRA) conducted on 25 Jan 2023, The Habitat building is equipped with a Category LD3 standard fire detection system in accordance with BS 5839-6.

Additionally, all the flats accessed during the FRA, have additional smoke alarm systems installed. The category of these fire alarms is not yet confirmed. It is assumed these changes were implemented to support the change of the evacuation strategy to ‘temporary simultaneous’.

The change to simultaneous evacuation is considered to be a temporary measure to reduce the fire risk until required actions/remediations will be performed.

The fire detection system activates the Automatic Opening Vents (AOVs). A control panel is located at the main entrance, complemented by manual call points throughout the building. A zone chart has been provided to assist in the management of the fire safety system.

4.1.1.Car Park

During our site visit, it was observed that the car parks are equipped with smoke alarms on all floors, with sounders installed in the basement only, see Section 4.6.5.

4.2. Evacuation Strategy

Originally, The Habitat building operated under a 'Stay Put/Defend in Place' evacuation strategy, in line with the recommendations of Approved Document B (ADB). This strategy is recommended for residential buildings due to the high level of compartmentation, which typically ensures that fires remain contained within the dwelling of origin, with a low likelihood of spreading to other areas.

However, in the recent FRA, it was observed that the evacuation strategy has changed to temporary simultaneous strategy.

It is assumed that the shift from a 'Stay Put/Defend in Place' strategy to a simultaneous evacuation strategy in The Habitat building likely reflects concerns identified in the recent Fire Risk Assessment of the external walls.

The change to simultaneous evacuation is considered to be a temporary measure to reduce the fire risk until required actions/remediations will be performed.

The building should go back to its original design (stay put evacuation strategy) when the required remediations are completed. In this case, this report should be required to be updated.

4.3. Basements

ADB recommends that a single stairway building with a habitable floor in the basement should either provide:

- An external door or window suitable for egress from the basement.
- A protected stairway leading from the basements to a final exit.

It is our understanding that the Habitat building does not have any habitable rooms in the basements.

4.4. Means of Escape – Flats

ADB requires the travel distance from all the habitable rooms to the flat entrance to be less than 9m as illustrated in Figure 2.

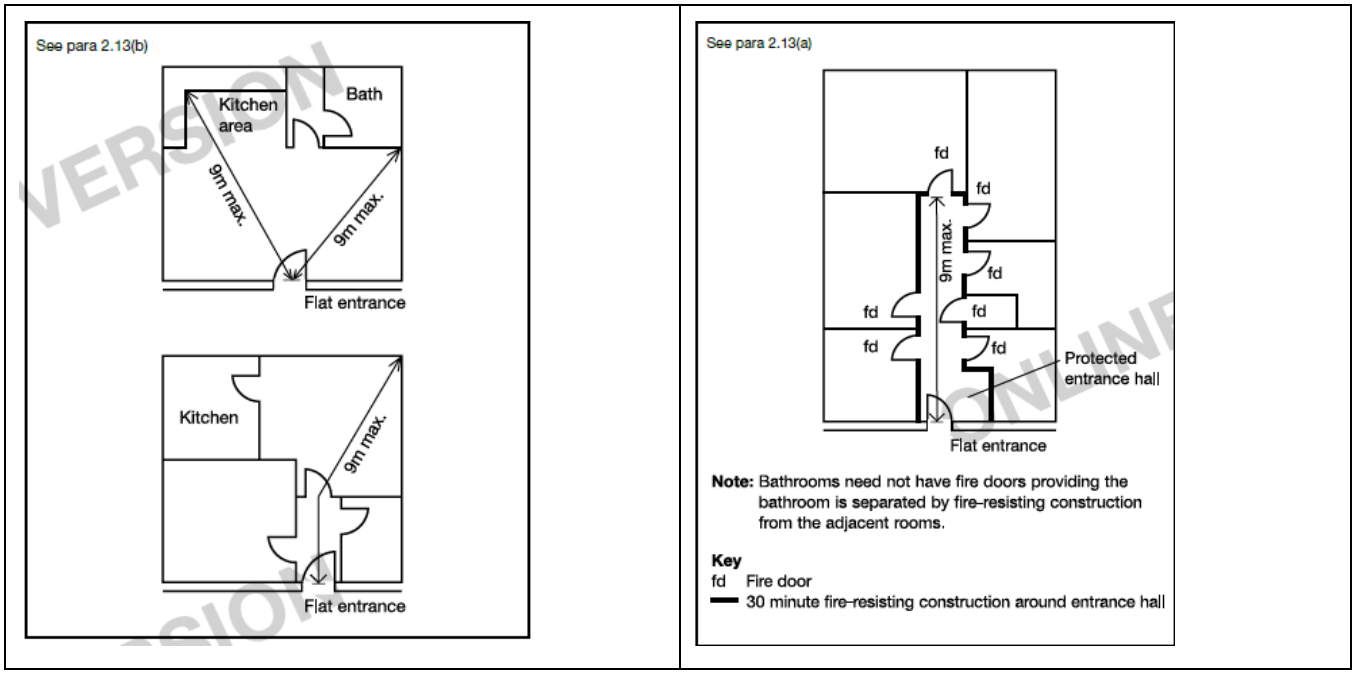


Figure 2: Travel distance from the habitable room to the flat exit

Since the internal layouts of the flats were not provided. Therefore, MAF Associates cannot comment on the travel distances within the individual flats. However, it is assumed that the travel distances comply

with the relevant recommendations, as the building has already obtained the necessary approvals and signoffs from the relevant authorities.

4.4.1.Flats with maisonettes

ADB recommends that the flats with maisonettes should be served by a protected stairway which should either:

- Extend to final exits.
- Gives access to at least two escape routes at the ground level, each delivering to a final exit and separated from each other by fire-resisting construction and self-closing fire doors (see Figure 3).

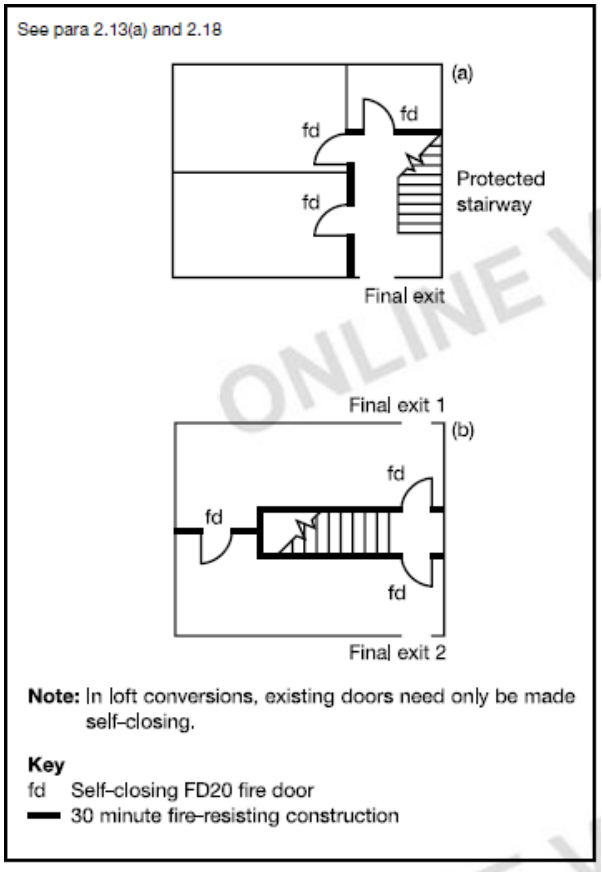


Figure 3: Means of escape from a maisonette flat

4.5. Means of Escape – Communal Areas

ADB recommends a maximum travel distance of 30m for flats served with more than one direction of escape and 7.5m for single direction as illustrated by Figure 4.

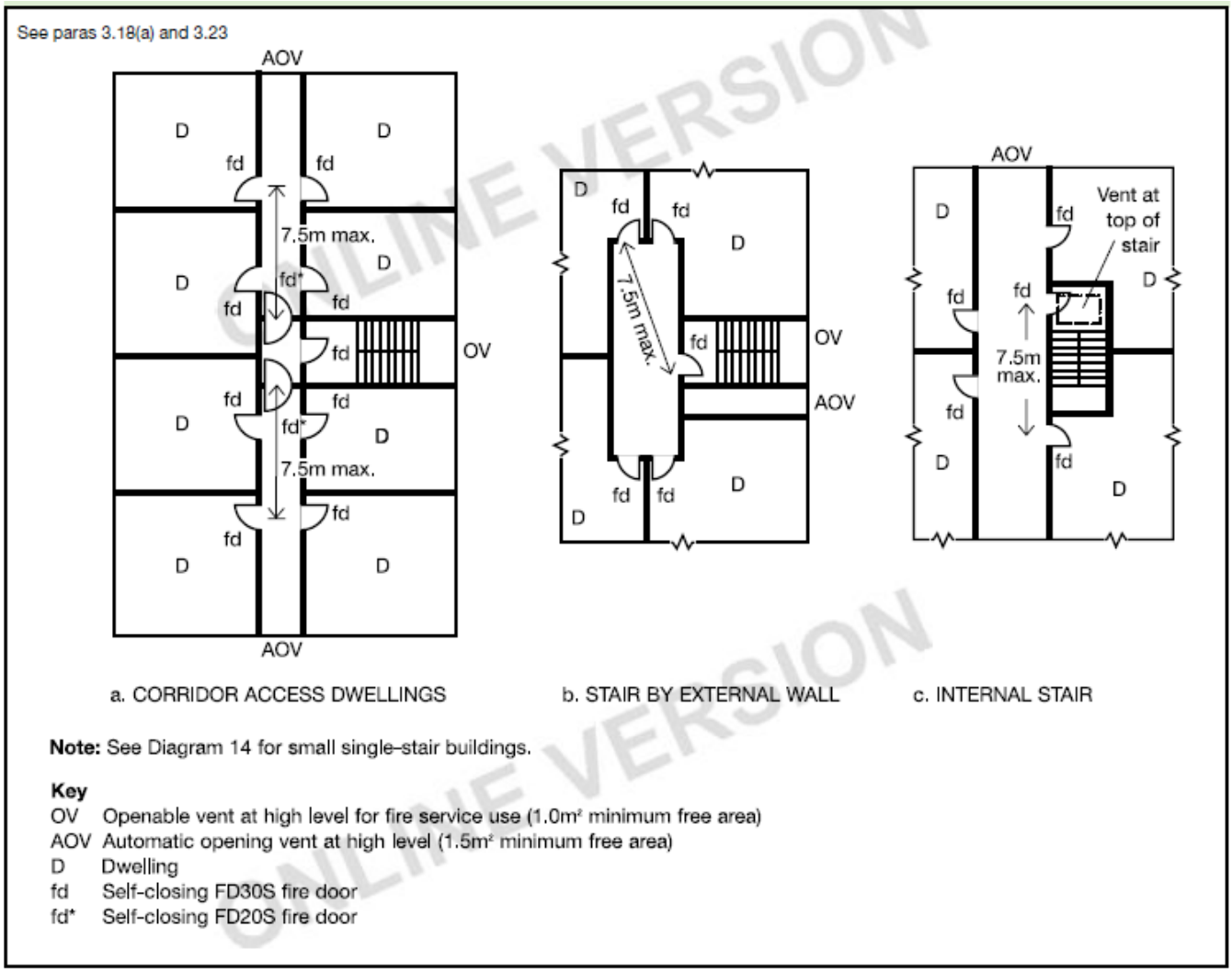


Figure 4: Travel distance in the common areas for single stair buildings.

Based on the provided documents, it is understood that the travel **distances from several flats to the protected stair do not comply with the recommendations** set out in Approved Document B (ADB), see Table 3.

These extended travel distance will be count as a deviation from the guidance. No compensation fire safety measures are provided in the building for this purpose.

Floor/ Block		Flat number
2nd	Block B	94
		93
		90

		89
3rd	Block B	102
		103
		99
4th	Block B	112
		111
		108
5th	Block B	120
		121
		117
6th	Block B	128
		129
		126
7th	Block B	132
	Block A	78
		79

Table 3: Flats with travel distance deivations

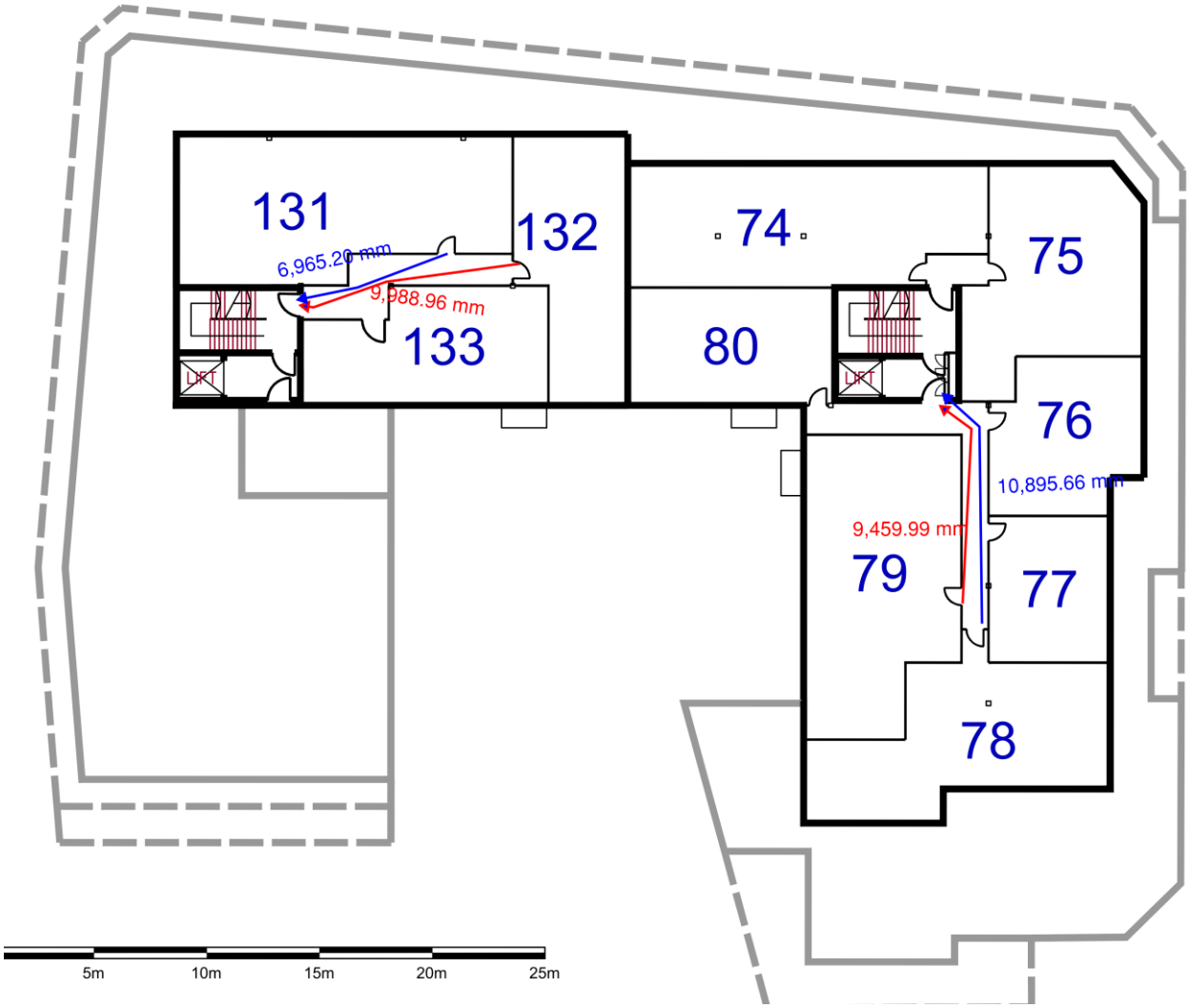


Figure 5: Travel distance on Seventh floor.

4.5.1.Number of escape routes

ADB recommends that a dwelling served by a single escape stair is acceptable if those dwellings are situated in the same storey, served by a single common stair and:

- Every dwelling is separated from the common stairs by a protected lobby or a common corridor
- The travel distance does not exceed 7.5m in one direction.

Block B has only one escape route and is considered as a single stair. As discussed in the previous section, the travel distance from **several flats in Block B exceeds the recommendations**. This issue needs to be addressed.

ADB also recommends that a storage or other ancillary accommodation should not be located within, or entered from, any part of the protected lobby/corridor of a common escape route.

4.5.2.Ventilation

ADB recommends that the common corridor/lobbies should be ventilated to protect the common stair and control smoke. It can be achieved either by natural or mechanical ventilation. In a single stair building

and in any dead-end corridors, the common corridor or lobby should be ventilated by a AOVs, triggered by the automatic smoke detection located in the ventilated space. The ventilator should have a free area of at least 1.5m^2 and should be fitted with a manual overdrive.

The smoke ventilation system should be tested and serviced in accordance with the recommendations of BS 9999.

It's our understanding that a natural ventilation is provided and AOVs are located at the common corridor on all floors which are activated by detector heads and manual activation points. These provisions are considered to be sufficient.

4.5.3.Sub-division of the common corridors

ADB recommends that a common corridor that connects two or more storey exits, and the dead-end portion of a common corridor should be subdivided by a self-closing fire door and AOVs provided as illustrated in Figure 6 and Figure 4.

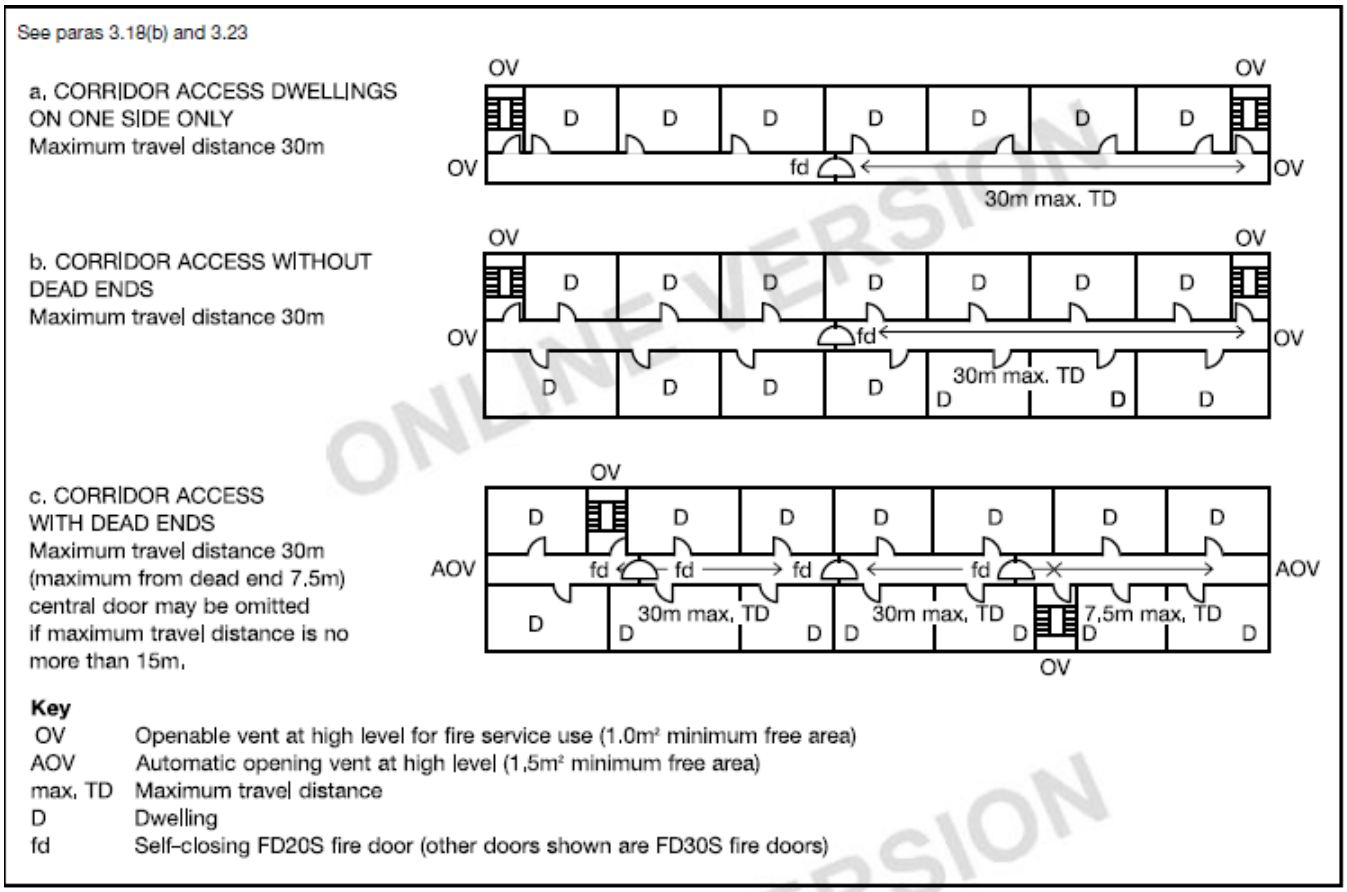


Figure 6: Corridors and dead ends.

4.6. Common Stairs

The Habitat building is equipped with three protected common stair cores and two lift cores, which are classified as a firefighting lift (see Figure 7). These protected stair cores provide secure escape routes during a fire.

Block A consists of two escape stairs located on its north and south elevations, along with a single lift shaft. Stair 1 does not serve the seventh floor, while the other stair provides access to all floors, including the basement.

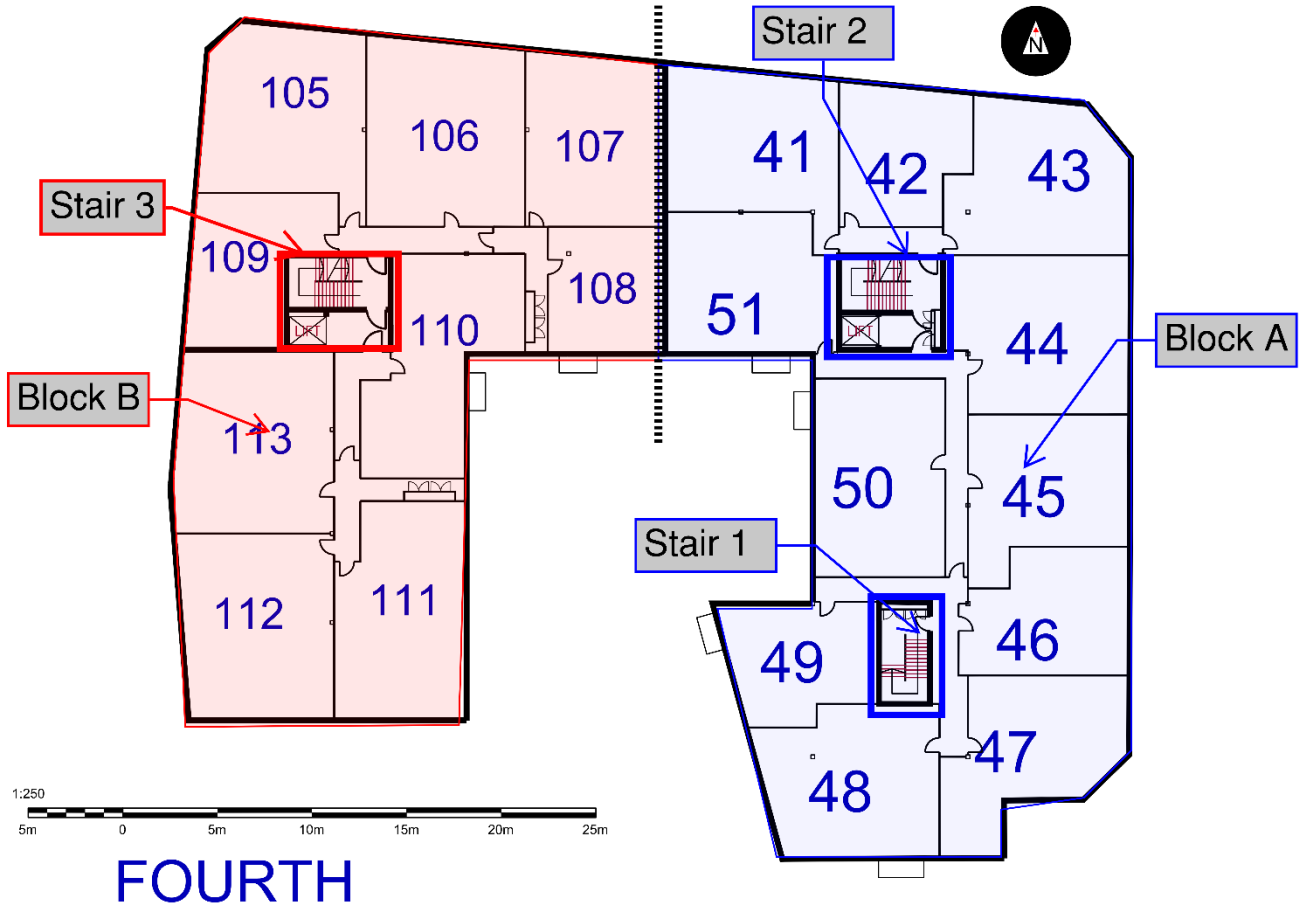


Figure 7: Common stairs

Block B consists of a single common escape stair along with a lift that serves all floors, including the basement.

4.6.1.Width of the stairs

It is understood that ADB does not mention specific exit widths requirements for means of escape for flats. ADB recommends the stair width to be acceptable for everyday use, but the firefighting stair should be at least 1100mm wide.

According to the provided documents, the stair widths were measured at more than 1100mm, which meets the required recommendations.

4.6.2.Protection of common stairs

ADB recommends every common stair should be enclosed in a fire resisting enclosure as per the Table A1 and A2 of ADB. See Section 6.2 for more information.

4.6.3.Lift

The Habitat building consist of two fire lift shafts, see Section 8.1. regarding firefighting lifts.

4.6.4.Exits from protected stairs.

ADB recommends that every protected stairway should discharge:

a) Directly to a final exit; or
b) By way of a protected exit passageway to a final exit.

The escape stairs in the Habitat building leads directly to a final exit through a protected escape route.

4.6.5.Basement stairs

ADB recommends that **if an escape stairs forms part of the only escape route from an upper storey of the building or a part of the building then, the escape stair should not continue to the basement**. Similarly**, if there are more than one stair then, only one stair needs to be terminated at the ground level** and other stairs can connect to the basement provided there is a protected corridor/lobby between the stairs and the accommodation.

Additionally, ADB recommends that if a stair serves an enclosed car park or a place of special fire hazard, the lobby or corridor should have not less than 0.4m^2 permanent ventilation or be protected from the ingress of smoke by a mechanical smoke control system.

The Habitat Building have three stairs, in which two stairs serve Block A and one stair serves Block B. And all three stairs serve the basement. This arrangement does **not comply with the recommendations of ADB** as Stair 3 in Block B and Stair 2 in Block A (at seventh floor) only provide one escape route.

These deviations from the ADB might have been justified by the following reasons:

- The basement in the habitat building is used as a carpark only and there are no habitable rooms in the basement.
- The basement is provided with a call points, smoke alarms and sounders for fire evacuation and detection.
- The basement provides alternative means of escape to the exit via the ramp (see Figure 8).

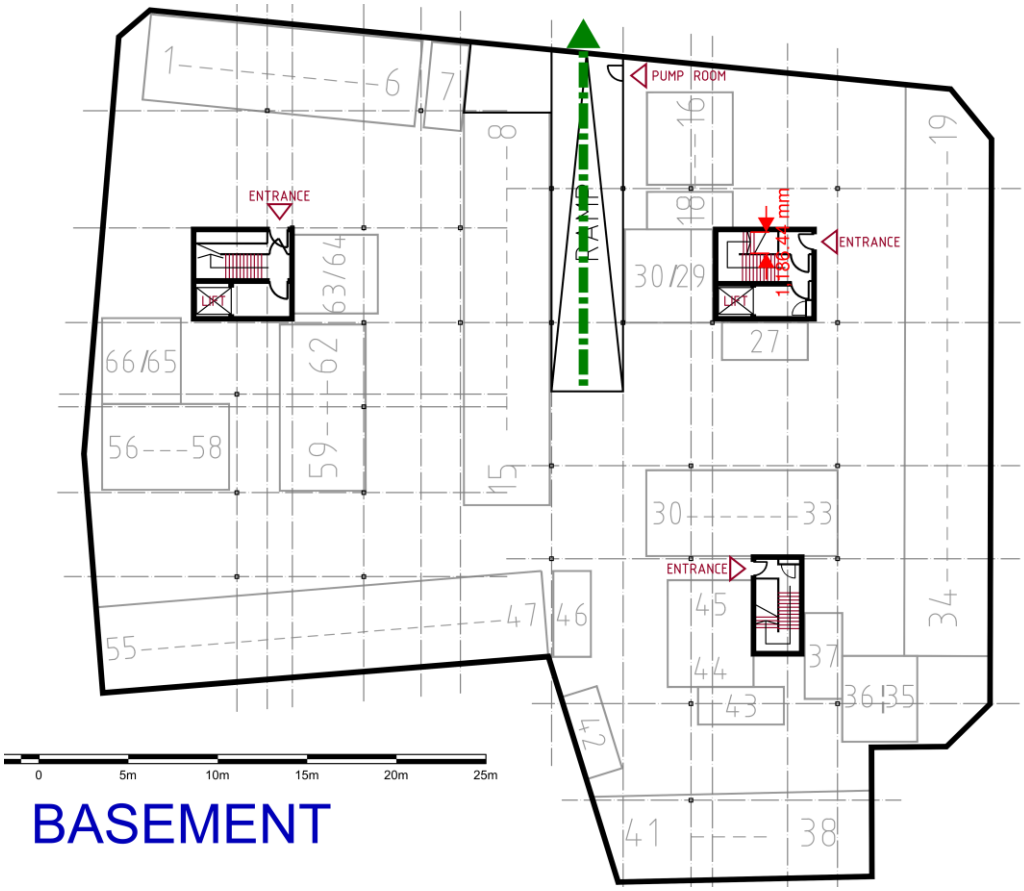


*Figure 8: Basement means of escape (in **green**)*

4.7. Car park

ADB recommends that all relevant guidance on the requirements B1 and B5 should apply to the car parks. All material used in the construction of the building, compartment or separated part should be non-combustible, except for:

- Any surface finish applied to a floor/roof of the car park: or
    - Within any adjoining building, compartment or separated part of the structure enclosing the car park.
- Any fire door.

The habitat building consist of a car park spanning three storeys: basement, ground and first floor. The car parks on the different storeys are separated and have their own entrance and exits.

According to ADB, a car park is classified as an open sided when,

- There are no basement storeys.
- Each storey is naturally ventilated by permanent openings at each level, having vent area no less than 1/20 of the floor area at that level, in which 1/40 area should be equally provided between the two opposing walls.
- If the building is also used for any other purpose and the part forming the car park is separated.

Hence, the car park on the basement and ground floor **are not classified as an open sided car park**.

ADB recommends that when a non-open-sided car park is provided with natural ventilations. It should comply with below recommendations and as outlined in Approved Document F:

- Each storey should be ventilated by a permanent opening having aggregate vent area no less than 1/40 of the floor area at that level, with half (1/80) of this area provided between two opposing walls.

Alternatively

- A smoke vents at the ceiling can be used, provided they have an aggregate area of permanent opening no less than 1/40 of the floor area and are arranged to provide a through draught.

4.7.1.Travel distance

ADB recommends the travel distance of the car park (Purpose group 7b) should not exceeds 25m in single direction and 45m in more than one direction.

All the car parks in the Habitat building have more than one direction of escape and the travel distance in the car parks complies with these recommendations.

4.8. Smoke ventilation system

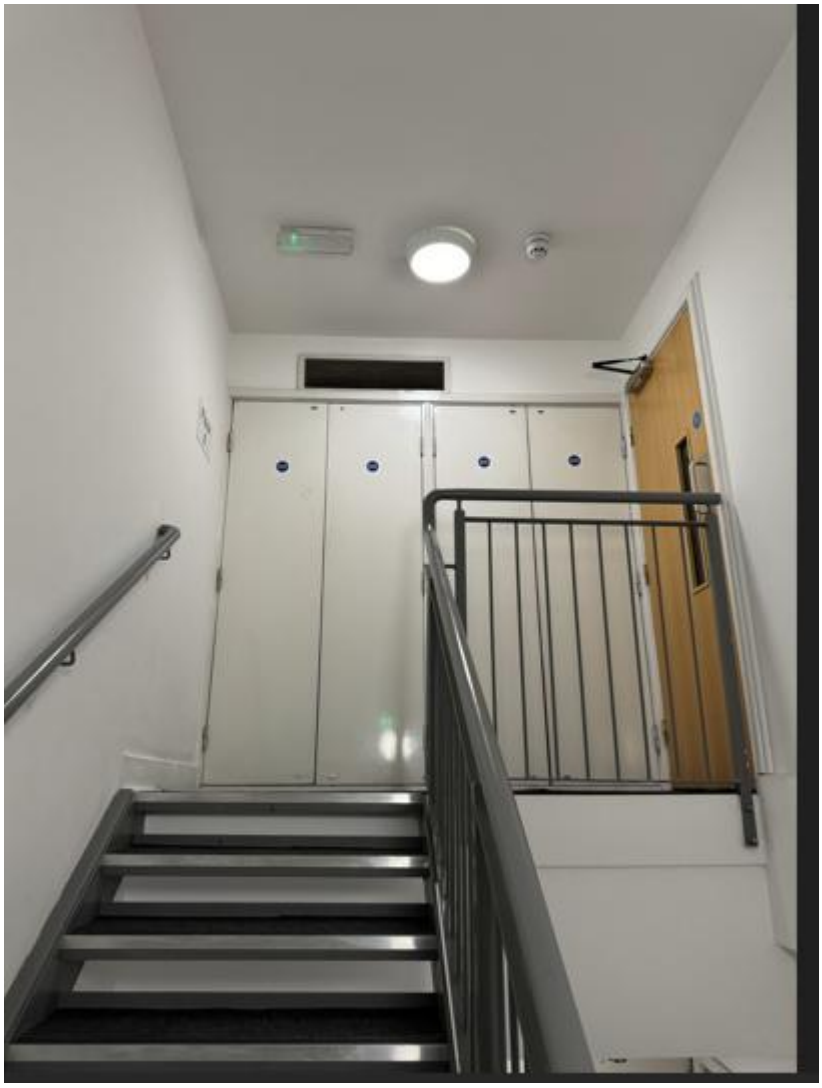
The Habitat building is provided with a natural ventilation system throughout.

4.8.1.Corridors

To protect firefighting/escape stairs from smoke ingress, building is provided with corridor AOVs on each floor level. It is expected that AOV openings are achieving minimum requirements of 1.5m^2 opening and each smoke vents are provided with override switch on each level next to it.

4.8.2.AOV at the Head of the Stairs

The Stair 2 and Stair 3 are provided with AOVs at the head of the stairs or at the high level of stair enclosure on highest occupied floor level. And it is expected that AOV openings are achieving minimum requirements of 1m^2 opening at the head of the stair. **During our site visit, we could not confirm the AOV for stair 3, which is recommended to be checked and included in the building Fire Risk Assessment.**



4.8.3. Car park

The car park is ventilated by natural ventilation through external wall, see section 4.7 for more details.

The permanent opening for the natural ventilation should meets the minimum required area described in Table 4 below.

Car park level (Type)	Floor area (m^2)	Required opening area as per ADB	Required area between the opposing walls
Basement (non-open sided)	1764.91m^2	44.11m^2	22.058m^2
Ground (non-open sided)	711.8m^2	17.79m^2	8.897m^2
First (open sided)	324.41m^2	16.22m^2	8.11m^2

Table 4:Open areas required for the natural ventilation.

4.9. Evacuation of persons with restricted mobility

There is no requirement in Building Regulations to provide specific evacuation measures i.e., refuge spaces for mobility impaired persons in residential blocks. This is on the basis that a high degree of robust fire compartmentation in the building and mobility-impaired persons should be able to gain assistance from neighbouring residents.

In all cases, persons with mobility impairment should be able to reach the internally protected stairway as a place of relative safety and then they should be evacuated by the fire brigade.

The management should ensure that a bespoke Personal Emergency Evacuation Plan (PEEP) is developed in collaboration with the individual requiring assistance. PEEPs should be developed in accordance with current regulations and standards, including the Fire Safety Order 2005, which mandates that building managers or responsible persons ensure the safe evacuation of all occupants, including those with disabilities. Additional guidance is provided by the HM Government Fire Safety Risk Assessment guides and BS 9999, which outline best practices for fire safety planning, including PEEPs. The Equality Act 2010 also requires reasonable adjustments for disabled individuals, while the National Fire Chiefs Council (NFCC) offers specific advice on creating effective PEEPs.

4.10. Emergency lighting and signage

Table 9 of ADB recommends escape lights to be provides in all common escape routes in accordance with BS 5266-1. The lighting on the escape stairs should be on a separate power circuit from that supplying any other part of the escape route.

All the escape routes should be installed with adequately sized emergency exit signs complying with the Health and Safety Regulations 1996 and BS 5499-1.

A reasonable standard of an emergency lighting and signage has been installed throughout the premises as per the Fire risk assessment report.

4.11. Refuse chutes and storage

ADB recommend the refuse chutes and storage to be separated from the other parts of the building with a fire resisting construction and should be constructed in accordance with BS 5906.

These rooms should be approached either directly from the open air or by way a way of protected lobby with not than 0.2m^2 of permanent ventilation.

It is our understanding from the provided documents that the refuse hoppers are located on ground floor car park and the first-floor open car park.

5. B2 – Internal Fire Spread – Linings

Schedule 1 of the Building Regulations requires the following functional requirements to be met in respect of B2, Internal fire spread (linings):

"

(1) To inhibit the spread of fire within the building the internal linings shall-

(a) adequately resist the spread of flame over their surfaces; and

(b) have, if ignited, a rate of heat release which is reasonable in the circumstances.

(2) In this paragraph 'internal linings' means the materials lining any partition, wall, ceiling or other internal structure.

"

To inhibit the spread of fire within the building the internal linings shall adequately resist the spread of flame over their surfaces; and have, if ignited, either a rate of heat release or a rate of fire growth, which is reasonable in the circumstances. An internal lining refers to any product or material applied to the surface of partitions, walls, ceilings, or other internal structures. To comply with Building Regulations, internal linings must effectively resist the spread of flames across their surfaces. Furthermore, in the event of ignition, they should minimize the rate of heat release and slow the progression of fire growth.

5.1. Material Classifications

To inhibit the spread of fire within the building, surface finishes should not comprise of materials that might contribute to the surface spread of flame and/or fire or adversely affect the means of preventing such propagation. The classification of lining materials should be in accordance with the guidance in ADB and shown in Table 5 below:

Location	National Class	European class
Small rooms of area not more than $4m^2$ in residential building or $30m^2$ in non-residential building	3	D-s3, d2
Other rooms	1	C-s3, d2
Other circulation spaces with dwellings		
Other circulation spaces, including the common areas of flats and maisonettes	0	B-s3, d2

Note

1) Following the Grenfell Tower tragedy, the National Classification system has been replaced and is no longer deemed acceptable under current Building Regulations.

Table 5: Classification of linings

6. B3 – Internal Fire Spread – Structure

Schedule 1 of the Building Regulations requires the following functional requirements to be met in respect of B3, Internal fire spread (structure):

“

(1) The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period.

(2) A wall common to two or more buildings shall be designed and constructed so that it adequately resists the spread of fire between those buildings. For the purposes of this sub-paragraph a house in a terrace and a semi-detached house are each to be treated as a separate building.

(3) Where reasonably necessary to inhibit the spread of fire within the building, measures shall be taken, to an extent appropriate to the size and intended use of the building, comprising either or both of the following—

(a) sub-division of the building with fire-resisting construction;

(b) installation of suitable automatic fire suppression systems.

(4) The building shall be designed and constructed so that the unseen spread of fire and smoke within concealed spaces in its structure and fabric is inhibited

”

6.1. Load bearing elements of structure

The Habitat building exceeds 18 meters in height and features compartmentation to separate different occupancies. In accordance with Table A2 of Approved Document B (ADB), the loadbearing elements of the structure, including the frame and loadbearing walls, must provide a minimum fire resistance of 90 minutes. This ensures that the loadbearing elements can maintain their structural integrity for at least 90 minutes when exposed to fire on either side separately. This level of fire resistance is crucial for maintaining the safety of occupants and supporting the overall fire strategy for the building.

6.2. Fire Resisting Construction and Compartmentation

The fire resistance performance of compartment walls and floors (or any other parts of the building which are required to prevent fire spread) should be not less than that specified in *Table 7* when tested in accordance with the relevant part of BS 476: Parts 20 to 24 or classified in accordance with BS EN 13501 Parts 2, 3 or 4. Any items not highlighted in Table 4 should be provided in accordance with Approved Document B.

The building is considered to be above 18m, so the required fire resistance for each element is shown in the below *Table 6*.

Element	Fire Resistance Rating Note 1, 2, 3	Fire Door Note 4
Floors	REI 90 Minutes Note 5	N/A
Compartment walls separating flats	REI 60 minutes	FD30S
Protected flat entrance hall	REI 30 minutes	FD30
Protected shaft (service)	REI 90 Minutes	FD60S (Keep locked shut)
Protected corridor/lobby	REI 60 Minutes	FD 30S
External walls	See Section 7 of this report	

Notes

1) Loadbearing walls, for load-bearing capacity, integrity and insulation from either side.
2) Non-load-bearing walls and partitions, for integrity and insulation from either side.
3) Floors, for load-bearing capacity, integrity and insulation with respect to exposure of the underside only.
4) Fire doors for integrity from either side, with the exception of doors to lift enclosure where performance is in respect of exposure of the landing side only.
5) Reduced to 30 minutes for any floors within the maisonette, but not if the floor contributes to the support of the building.

Table 6: Fire compartmentation and fire resistance requirements

6.2.1.Sprinklers

The Habitat building is an existing building, and at the time of its construction, a sprinkler system was not required according to the guidance within ADB. However, following the recent updates to ADB, incorporating the 2020 and 2022 amendments, buildings over 11m are now required to be fitted with a sprinkler system within the individual flats throughout the building in accordance with BS 9251.

As per the FRA, the habitat building has a residential sprinkler installed within some of the flats/ apartments and there is no detailed information regarding the design, installation or the maintenance of these sprinklers.

6.2.2.Fire Doors

Fire door rating should be in accordance with *Table 6*. Any fire doors should be fitted with self-closing fire doors, so they return to the closed position, except for internal doors within dwellings, cupboards and doors into service risers which are kept locked shut. Fire doors should be capable of demonstrating compliance with the relevant standard when tested as a completely installed assembly. It is a requirement

that the manufacturers have the fire doors assessed by a test procedure as specified in BS 476 Part 22 or BS EN 1634. *Figure 9* depicts the door components.

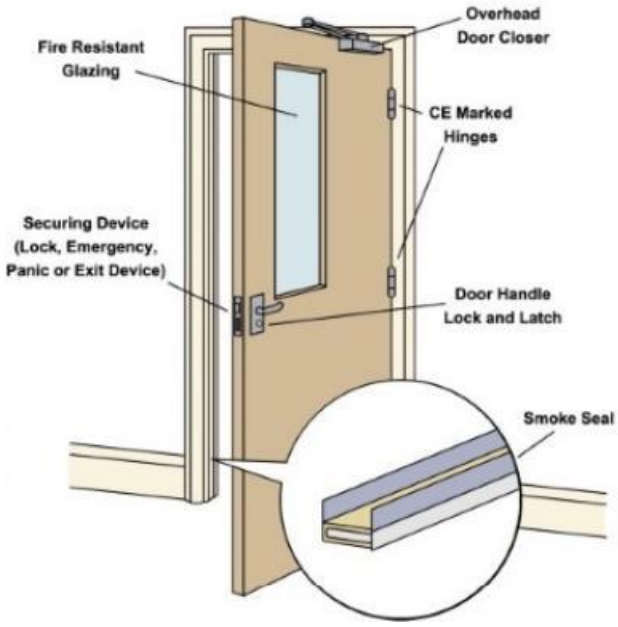


Figure 9 – Fire door components

Magnetic hold-open devices should be employed on doors in common areas where such doors are expected to be rendered ineffective by occupants – i.e., by being wedged open or continuously overused. These should be linked to the fire alarm system/local automatic smoke detection so that the doors are released to the closed position in the event of a fire.

The management of the habitat Building should ensure regular maintenance of all fire doors as part of their fire safety management responsibilities.

6.3. Protection of Openings and Fire-Stopping

All service risers/ducts required to achieve the same level of fire resistance as the element through which they pass.

Any openings for services that breach compartment/firewalls need to be fire-stopped unless protected throughout their entire length with fire-resisting material. This is to prevent the passage of fire and assist in retarding the movement of smoke.

ADB recommends that the pipes which pass through a fire-separating elements should meet the appropriate provisions as follows:

- **Proprietary Seals** – Provide a proprietary sealing system which has been shown by tests to maintain the fire resistance of the wall, floor, or cavity barrier.
- **Restricted Pipe Diameter** – Where a proprietary sealing system is not used, fire stopping may be used around the pipe, keeping the opening as small as possible. The nominal internal diameter

of the pipe should not be more than the relevant dimension given in Table 14 of ADB (see *Table 7* below).

- **Sleeving** – A pipe of lead, aluminium, aluminium alloy, fibre-cement, or uPVC, with a maximum nominal internal diameter of 160mm, may be used with a sleeving of non-combustible pipe. The opening in the structure should be as small as possible and provide fire stopping between the pipe and the structure. The sleeve should extend no less than 1000mm on either side of the structure (see Diagram 37 of ADB).

Situation	Pipe Material and Maximum Nominal Internal Diameter		
	(a)	(b)	(c)
	Non-combustible material	Lead, aluminium, uPVC, aluminium alloy, fibre cement	Any other material
Structure (but not a wall separating buildings) enclosing a protected shaft which is not a stairway or lift shaft	160 mm	110mm	40mm
Compartment wall or compartment floor between flats	160 mm	160 mm (stack pipe) 110 mm (branch pipe)	40 mm
Any other situation	160 mm	40mm	40 mm

Table 7: Maximum nominal internal diameter of pipes passing through a compartment wall/floor

A suitable fire stopping product which is UKCA/CE marked, third party certified, and tested for the intended application by a UKAS accredited organisation shall be used to fire stop any penetrations through compartment floors and fire-resistant constructions.

The 2023 FRA identified several incorrectly fire-stopped penetrations in the basement car park area, which required remediation. According to Appendix B of the FRA, these areas have since been remediated.

6.4. Cavity Barriers

Cavity barriers must be installed in all cavities/voids to prevent the potential for extensive unseen fire spread within these areas. Cavity barriers should be installed in accordance with Table 13 of ADB.

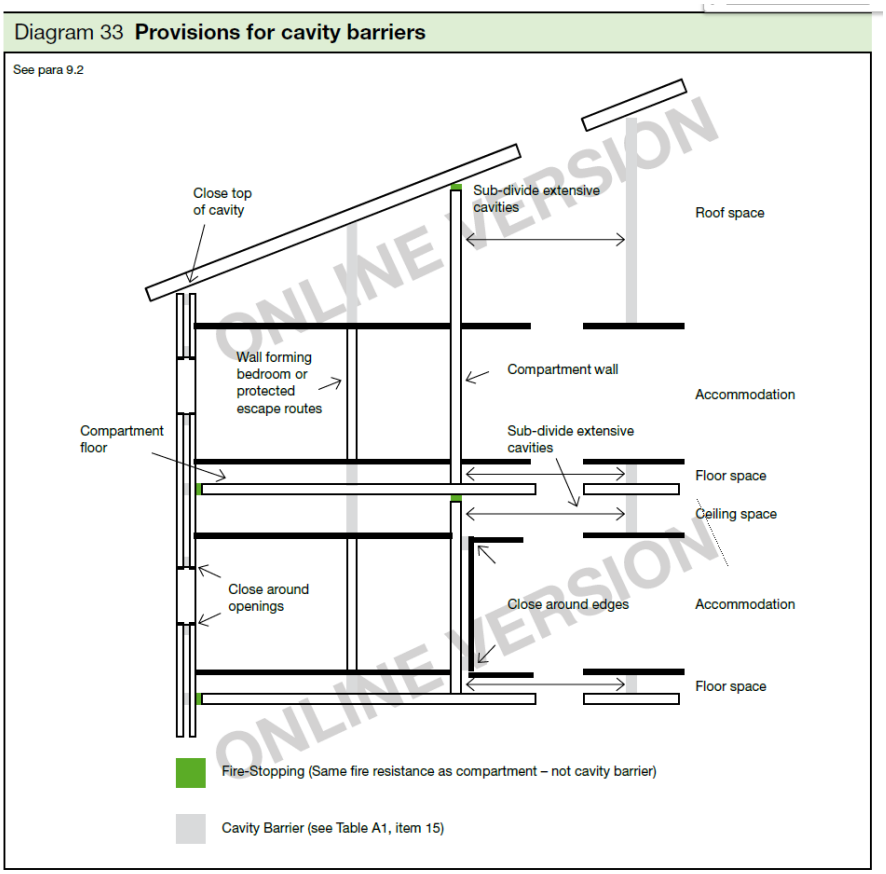


Figure 10: Cavity barrier provisions as per ADB

The key areas that should be provided with cavity barriers are as follows:

- At the junction between a cavity wall and every compartment floor, compartment wall, or other wall or door assembly that forms a fire-resisting barrier.
- In protected escape routes, above and below any fire-resisting construction that is not carried full storey height.
- At the edges of any external wall cavities (including around openings, i.e., windows).

According to the Fire risk assessment of external wall (PAS 79) conducted by MAF Associates on 08/06/2021, it was observed that the cavities in the rear elevation and at floor levels does satisfy the Section B3 of the ADB.

7. B4 – External Fire Spread

Schedule 1 of the Building Regulations requires the following functional requirements to be met in respect of B4, External Fire Spread:

“

(1) The external walls of the building shall adequately resist the spread of a fire over the walls and from one building to another having regard to the height, use and position of the building.

(2) The roof of the building shall adequately resist the spread of fire over the roof and from one building to another, having regard to the use and position of the building.

”

7.1. External Wall construction

The external envelope of a building should not provide the medium for fire spread if it is likely to be a risk to health or safety. The use of combustible materials in the cladding system and extensive cavities may present such a risk.

7.1.1.Definition of External Wall and Specified Attachments

The external wall of a building includes the following:

- Anything located within any space forms part of the wall.
- Any decoration or other finish applied to any external (but not internal) surface forming part of the wall.
- Any windows and doors in the wall.
- Any part of a roof pitched at an angle of more than 70 degrees to the horizontal if that part of the roof adjoins a space within the building to which persons have access but are not accessible only to carry out repairs or maintenance.

Specified attachment means:

- A balcony is attached to an external wall.
- Inset balcony.
- A device for reducing heat gain within a building by deflecting sunlight which is attached to an external wall.
- A solar panel is attached to an external wall.

According to the Fire risk assessment of external wall (PAS 79:2020) conducted by MAF Associates on 08/06/2021. The balconies and Spandrel panels were considered to be remediated.

The remediation works for the spandrels and the balconies were completed in 2023.

Works carried out for the external walls were:

- Replacing the combustible spandrel panel insulation with A1 rated insulation along with new A2 rated board and fire breaks.
- Replaced the combustible construction of the balcony decking with A2 rated aluminium board.

7.1.2.Fire risk appraisal of the external walls - FRAEW (PAS 9980:2022)

The Grenfell Tower fire in June 2017 highlighted the need to inspect the building façade. In the aftermath of the disaster, there has been a focus on inspecting the façade of multi-occupancy buildings, particularly those deemed to be high-rise. The Government convened the Expert Panel to review the building regulations. The Expert Panel has subsequently issued advice notes through the Ministry of Housing Communities and Local Government (MHCLG) giving guidance on how the building regulations should be interpreted. This has retrospectively impacted many buildings built before the advice notes were issued. PAS9980:2022, Fire risk appraisal of external wall construction and cladding of existing blocks of flats - Code of Practice. was published in early 2022 and is now the recognised methodology for assessing the external walls of buildings.

The client has commissioned MAF Associates to conduct a fire risk assessment of the external wall system as per PAS 79 in 2021. As a result, the external wall of the building has been remediated based on the information provided, particularly the spandrels and the balcony decks. The overall risk of the external walls of the building is not known after the remediation.

It is current industry standard to conduct FRAEW report according to PAS9980:2022 to fire risk assess the external walls of the building to comply with the Regulatory Reform (Fire Safety) Order 2005 as amended by Fire Safety Act 2021. Therefore, it is recommended that a Fire risk appraisal For the External Wall (FRAEW) should be conducted as per PAS 9980:2022.

7.2. Fire spread to neighbouring buildings (Space separation)

Buildings must maintain the minimum separation distance from the site boundary to protect itself and adjacent buildings against external fire spread. A building that is located less than the required separation distance from the site boundary will be required to be provided with mitigation measures to prevent fire spread such as fire rated external walls.

ADB recommends that if the wall is 1000mm or more from relevant boundary, a reduced standard of fire resistance is required in most cases and the walls only need fire resistance from inside.

Existing arrangements

ADB recommends that for external walls 1000mm or more from the relevant boundary will meet the provision of space separation if:

- The extent of unprotected area (see Section 7.3) calculated does not exceed the recommend value and the rest of the wall (if any) should be fire resisting, but only from the inside of the building.

The recommended values are calculated by the provisions detailed in BRE Report (BRE 187) External fire spread: Building separation and boundary distance.

MAF Associates where not provided with any elevation drawings at the time of this report. Elevation drawings are essential for calculating external fire spread according to BRE 187 guidance. These drawings provide a detailed view of the building's façade, showing the placement of windows, doors, external walls, balconies, and other features critical for assessing fire spread potential.

Since the building is an existing building, it is considered that the building complies with requirements to do not lead fire spread to the neighbouring buildings.

7.3. Unprotected Areas

Any part of an external wall which has less fire resistance than the appropriate amount given in Table A2, Appendix B of ADB is considered to be an unprotected area.

Small, unprotected areas in an otherwise protected area of a wall are considered to pose a negligible risk of fire spread and may be disregarded. *Figure 11* shows the constraints that apply to the placing of such areas in relation to each other and to lines of compartmentation inside the building. These constraints vary according to the size of each unprotected area.

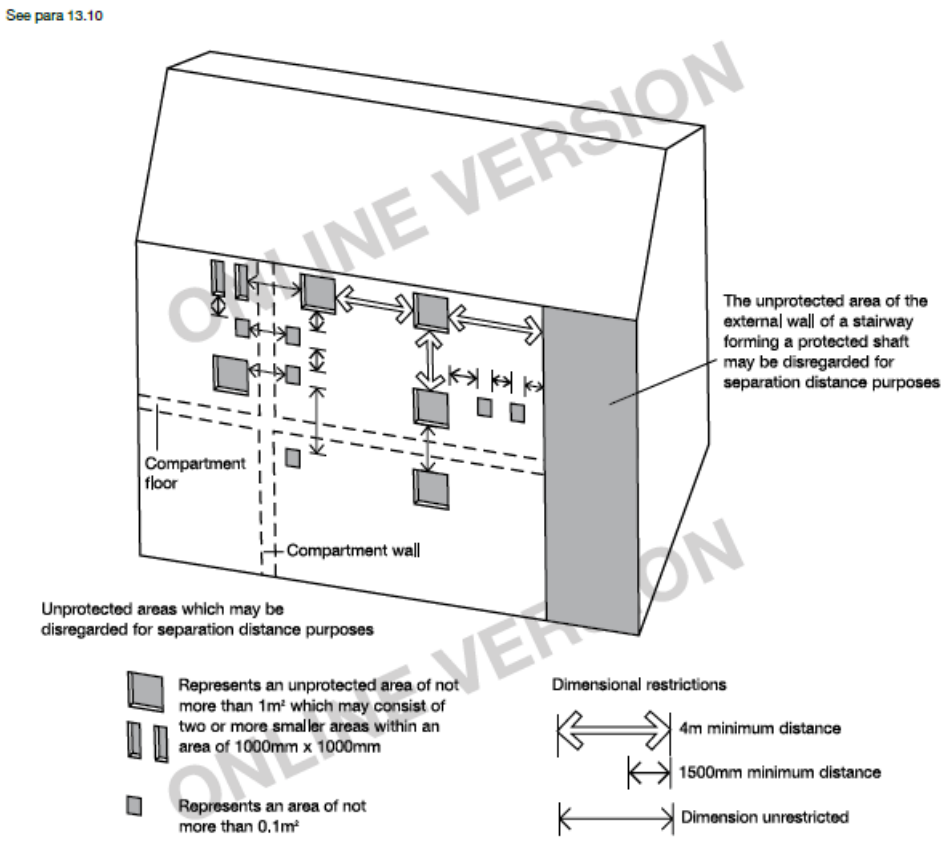


Figure 11 – Unprotected areas which may be disregarded in assessing the separation distance from the boundary (Diagram 44 of ADB)

7.4. External Roof Construction

7.4.1.Roof Coverings

Roof coverings should achieve the classification requirements set out in **Error! Reference source not found.** of this report.

Designation of Covering of Roof or Part of Roof		Minimum Distance from any Point to the Relevant Boundary			
European Class	National Class	Less than 6 m	At least 6m	At least 12m	At least 20m
$B_{ROOF\ (t4)}$	AA, AB or AC	Acceptable	Acceptable	Acceptable	Acceptable
$C_{ROOF\ (t4)}$	BA, BB or BC	Not Acceptable	Acceptable	Acceptable	Acceptable
$D_{ROOF\ (t4)}$	CA, CB or CC	Not Acceptable	Acceptable (1)(2)	Acceptable (1)	Acceptable
$E_{ROOF\ (t4)}$	AD, BD or CD	Not Acceptable	Acceptable (2)	Acceptable	Acceptable
$F_{ROOF\ (t4)}$	DA, DB, DC or DD	Not Acceptable	Not Acceptable	Not Acceptable	Acceptable (2)

Notes

1) Not acceptable on any of the following cases
   a. Houses in terrace of three or more houses
   b. Buildings with a volume of more than 1500m^3.
   c. Industrial, storage or other non-residential Purpose group
2) Acceptable on buildings not listed in note (1), if part of the roof is no more than 3m2 in the area and is at least 1.5m from any similar part, with the roof between the parts covered with a material of limited combustibility.

Table 8: Limitations of roof coverings as per Table 16 of ADB.

8. B5 – Access and Facilities for Fire Service

Schedule 1 of the Building Regulations requires the following functional requirements to be met in respect of B5, Access and facilities for the fire service:

“

(1) The building shall be designed and constructed so as to provide reasonable facilities to assist firefighters in the protection of life.

(2) Reasonable provision shall be made within the site of the building to enable fire appliances to gain access to the building.

”

In order to extinguish a fire within this building it is important that the fire service can gain access to the premises and from there into the building. This section deals with the various facilities intended to aid the fire service access to the building and in fighting a fire in the building.

8.1. Fire appliance access

For a building provided with dry fire mains, the vehicle access for the pumping appliance should be within 18m of a riser inlet. The inlet should also be visible from the appliance.

The access route for fire service appliances is required to conform to the size and load requirements set out in Table 21 of ADB (see below).

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 9: Typical fire service vehicle access route specification as per ADB.

Access is also required to prevent a fire service vehicle from needing to reverse more than 20m to manoeuvre. To comply with this requirement appropriate turning circles and/or hammerhead turns is required to be provided if necessary.

The fire service access is provided via Woolpack Lane. It is understood to be less than 18m away from the fire inlet mains.

8.1.1.Firefighting shaft

ADB recommends that the buildings above 18m in height should have a firefighting shaft in accordance with BS 5588-5:1991 (as illustrated in the Figure 12). The firefighting shaft should be located such that every part of the storey is less than **60m from the fire mains outlet.** The firefighting shaft should have a

fire resistance of REI 120 minutes (when exposed to side remote from the shaft), see Figure 13 below for reference.

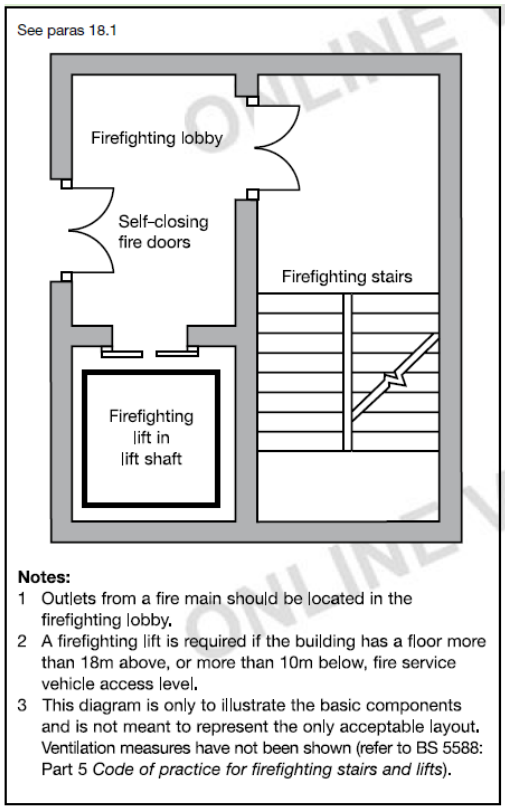


Figure 12: Components of a firefighting shaft

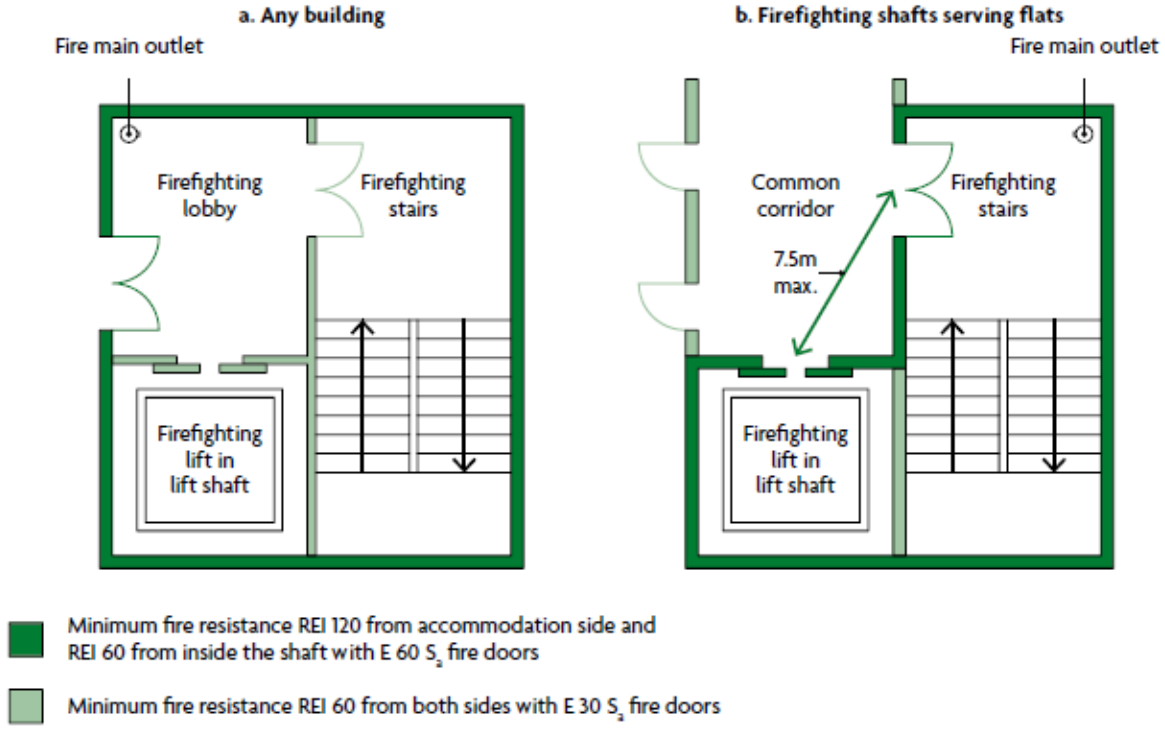


Figure 13: Fire resistance of firefighting shaft as per ADB V1 2019

ADB also recommends that the firefighting lift can open directly into the protected corridor/lobby provided that the firefighting lift landing door is no more than 7.5m from the firefighting stair (see Figure 13).

It is understood that the Block A and Block B of Habitat building have one firefighting shaft each.

8.1.2.Fire mains

ADB recommend the fire mains to be provided within the firefighting shaft.

The dry risers in the Habitat building are located in both block of the building and are within the firefighting lift lobby with distance less than 60m from the farthest flat.

8.2. Hydrants

ADB does not recommends any provision regarding the location of the hydrants.

Meanwhile the current ADB (ADB V1 2019 edition with 2020 and 2022 amendments) recommends a hydrant to be provided within 90m from the fire main's inlet.

It is assumed that an operable hydrant is located within 90m of the building.

9. Current Building Regulations and Guidance

The latest regulations are the Building Regulations 2010 with modifications by the building (Amendment) Regulations 2018. Even though the building was constructed and converted using the guidance applicable at the time, it is important to discuss and review the most recent changes to the Building Regulations to ensure a full understanding of the fire safety risks at hand and to ensure life safety is always the highest priority.

The most significant revision made under the Building (Amendment) Regulations 2018 is for buildings classified as “Relevant buildings”, Regulation 7(2) (and other modified Regulations) applies additional criteria on the combustibility of materials within the external walls. “Relevant building” is defined as a building with a storey greater than 18m in height (excluding roof-top plant areas and storeys consisting solely of plant rooms) and contains one or more dwellings, an institution or a room for residential purposes (excluding rooms in hostels, hotels or boarding houses).

On the basis that the residential building discussed herein has a top story height greater than 18m, this building would be defined as a “Relevant building” and the additional requirements needed under Regulation 7(2) would be needed if the building is constructed now. However, the building is an existing building and compliance with the building regulation is not retrospective.

10. Fire Safety Management

The Building Regulations require that where work involves the erection or extension of a relevant building or relevant changes of use of a building, fire safety information such as this fire strategy document be brought to the attention of building management and incorporated into the fire risk assessment that will be carried out post-occupation under the Regulatory Reform (Fire Safety) Order together with staff training, maintenance of fire safety systems and documentation. A detailed record should be provided of the fire strategy and procedures for operating and maintaining any fire protection measures. Records should include:

- Fire safety strategy (including design assumptions);
- Means of escape for mobile and mobility impaired persons;
- Escape strategy;
- Muster points;
- All passive fire safety measures e.g. compartmentation, cavity barriers, fire doorsets, duct dampers, fire shutters;
- Fire/smoke detectors, alarm call points, detection/alarm control boxes, alarm sounders, emergency communication systems, CCTV, fire safety signage, emergency lighting, fire extinguishers, fire mains and other firefighting equipment;
- Other interior facilities for the fire and rescue service;
- Emergency control rooms;
- Locations of hydrants outside the building;
- Other exterior facilities for the fire and rescue service;
- Active fire safety measures such as sprinkler system design, smoke control system or heating, ventilation and air conditioning systems with a smoke control function design, including mode of operation and control systems;
- High risk areas and particular hazards;
- As built drawings;
- Specifications of any fire safety equipment (including operational details, manuals, software, system zoning and routine inspection, testing and maintenance schedule);
- Records of commissioning tests; and
- Other details appropriate for the building

10.1. Management Co-ordination and Responsibility

It is crucial to adopt a comprehensive approach when addressing the requirements of the fire management strategy for the building. Overall control should rest with the building owners/ landlords or building managers, who must ensure that the responsible person for each tenancy is fully informed of their roles and responsibilities. This includes, but is not limited to:

- Adequate numbers of trained staff.
- Adequate internal procedures relating to fire safety.

- Adequate training.
- Awareness of actions taken within the building in the event of a fire.
- Responsibility to advise building management on changes to items which may affect fire and life safety (occupancy numbers, vulnerable people, increased hazards etc.).
- The corridor area should be fire sterile.
- The final escape corridor should be kept fire sterile.

It is recommended that a fire manual be included in the building documentation pack, containing all necessary fire safety information. Additionally, more robust fire safety management is needed within the premises, emphasizing improved communication and collaboration with residents, letting agents, and flat leaseholders. This approach aims to ensure that the general fire precautions outlined in the original design are maintained and not compromised.

10.1.1.Responsible Person

A Responsible Person is a role under The Regulatory Reform (Fire Safety) Order 2005. In some buildings an AP or PAP will also be the Responsible Person. Where this is not the case, building safety information must be shared across these roles and any information shared must meet data protection requirements.

An Accountable Person (AP) is an individual or organization that owns or has a legal obligation to repair any common parts of the building. The AP is responsible for ensuring the fire safety and maintenance of those areas. Meanwhile, the Principal Accountable Person (PAP) must be one clearly identifiable AP for the building.

The Responsible person for The Habitat building is **'Art Dembsky' of Clermont Management.**

11. Limitations

It should be noted that this is not a risk assessment as described within the Regulatory Reform (Fire Safety) Order. This report is not a survey report. The guidance used in this retrospective fire strategy report is ADB 2000 edition, as amended in 2002.

MAF Associates has not reviewed any areas of development other than those identified in our report. We offer no comment on the adequacy or otherwise of any other aspects of the development (whether related to fire safety or any other issue) and any absence of comment on such issues should not be regarded as any form of approval.

It is important to note that the advice contained within this report should not be used for buildings other than that named in the title.

MAF Associates have not been provided with any technical data sheets, fire test data or test certificates confirming the fire performance and fire resistance rating for any of the installed wall and roof systems inspected as part of our survey.

Whilst every care is taken to interpret the Acts, Regulations and Approved Codes of Practice, these can only be authoritatively interpreted by Courts of Law.

12. Appendix A – Scaled Drawings/Floor Plans

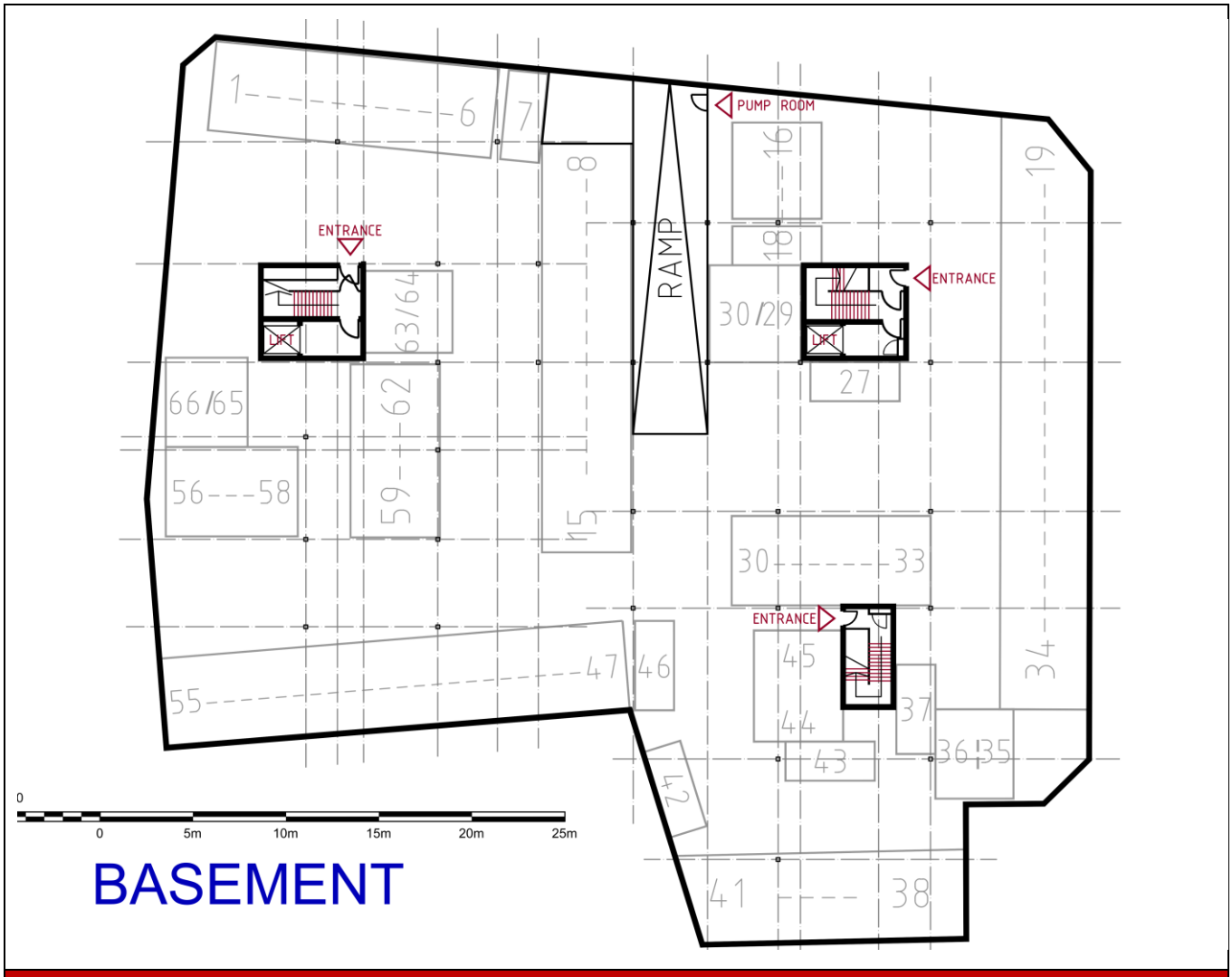


Fig A1: Basement

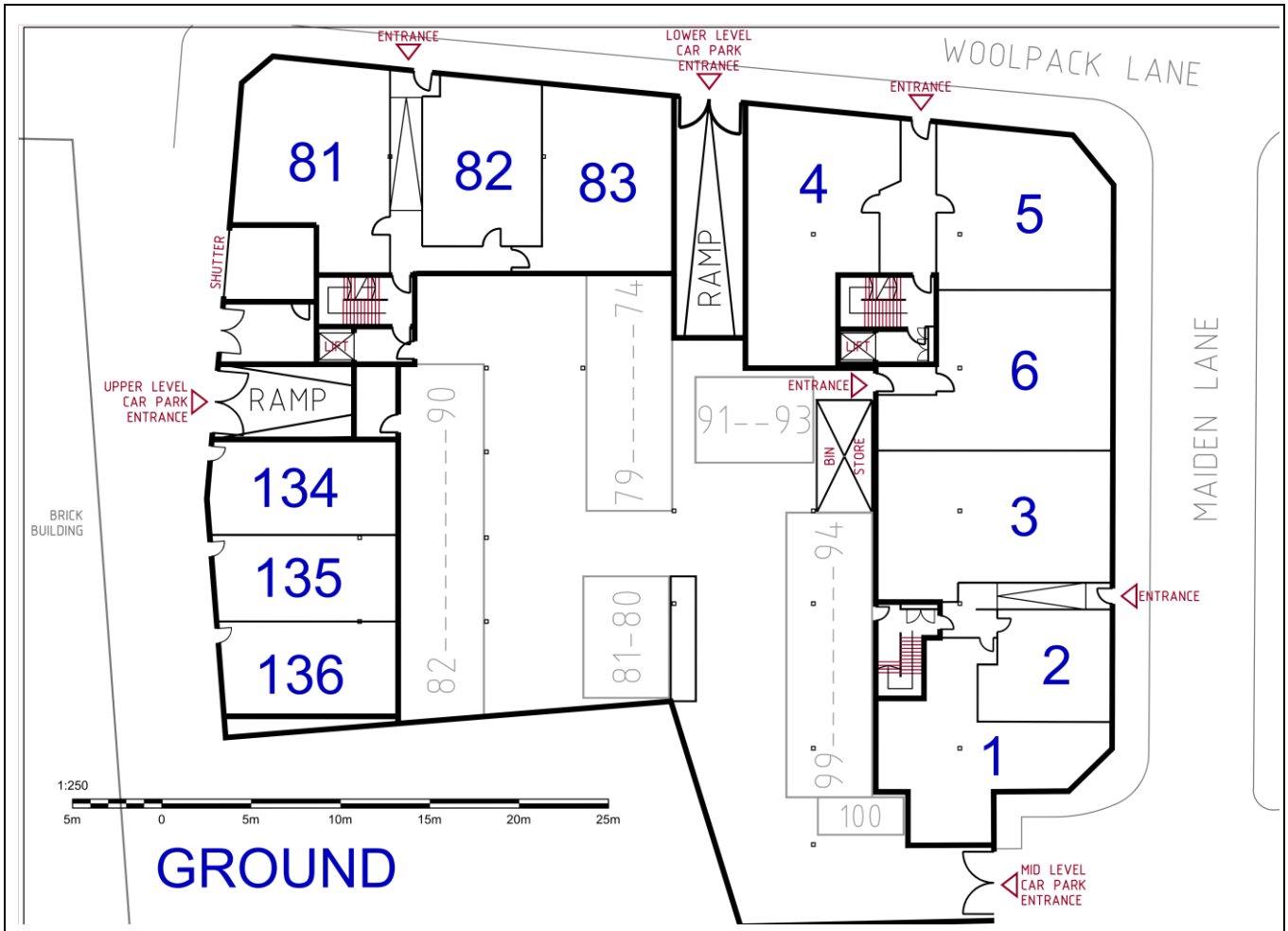


Fig A2: Ground layout

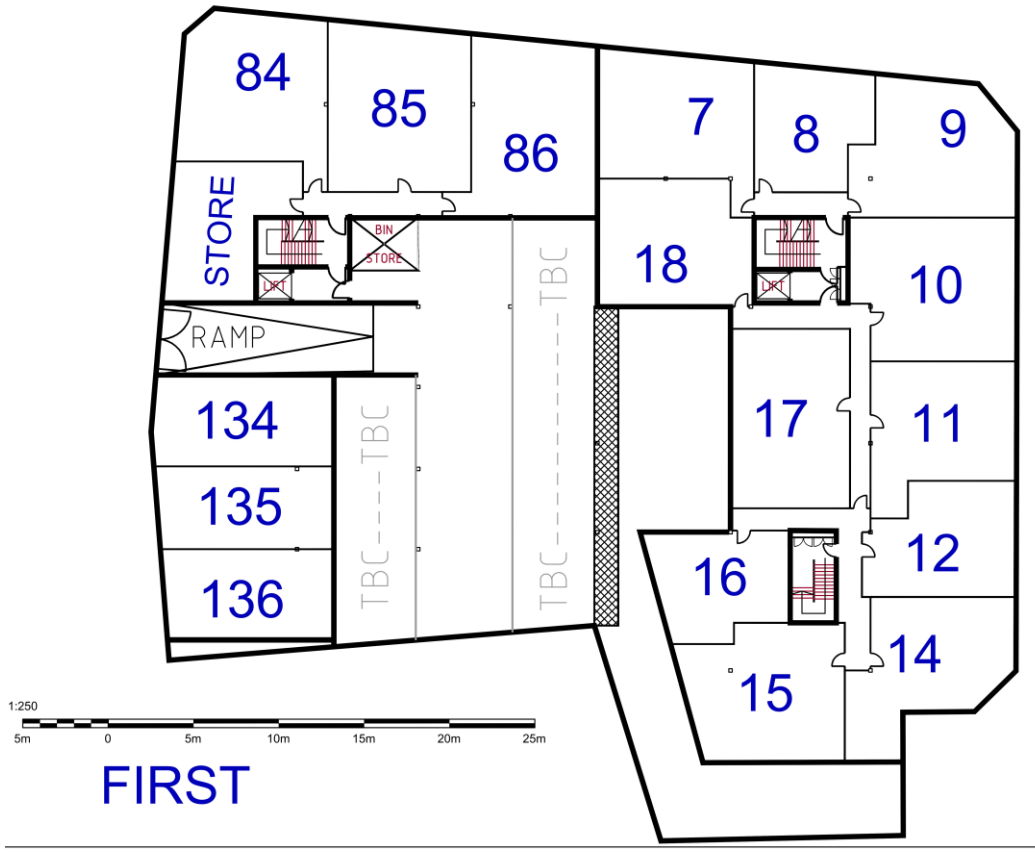


Fig A3: First floor layout

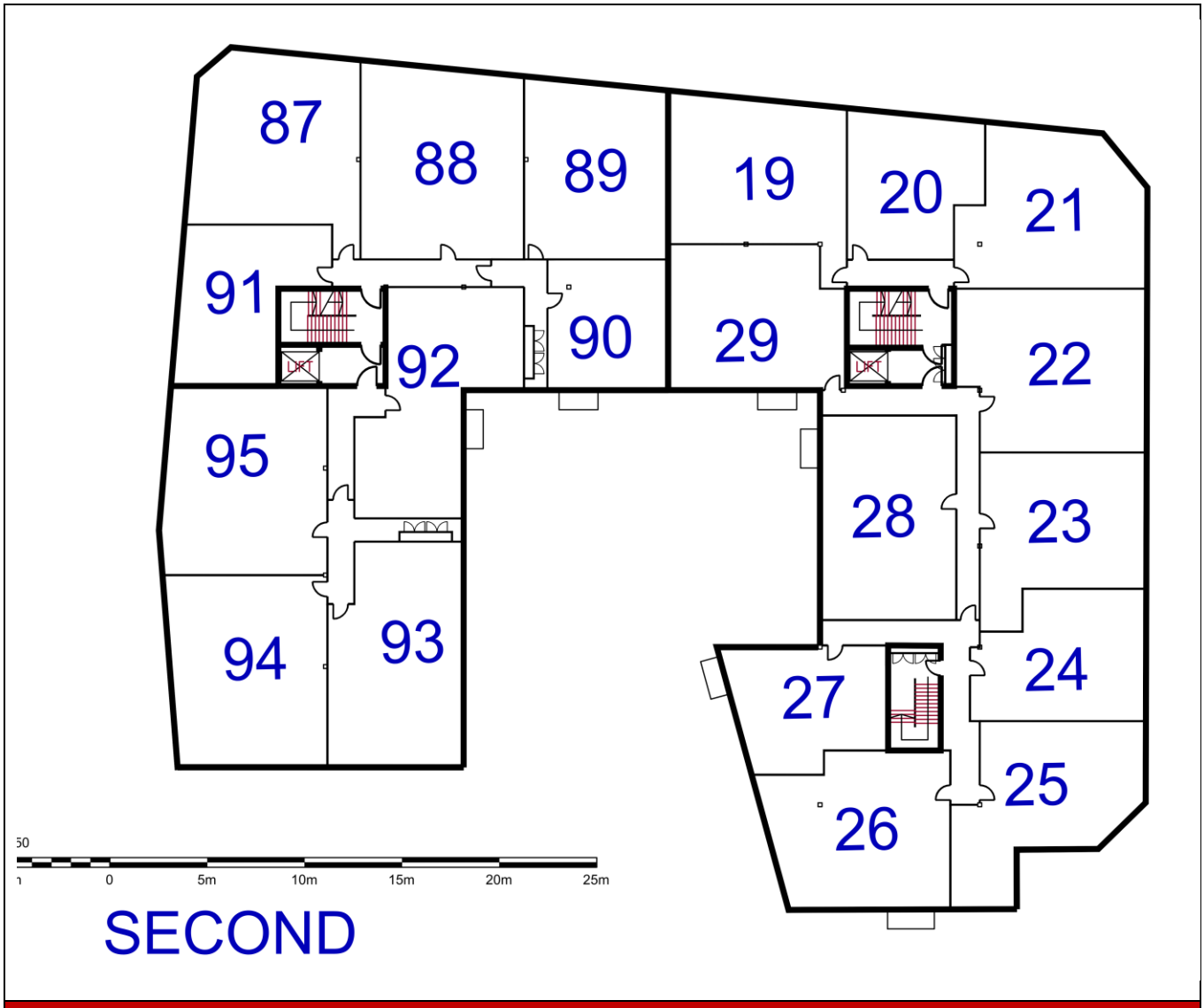


Fig A4: Second floor layout

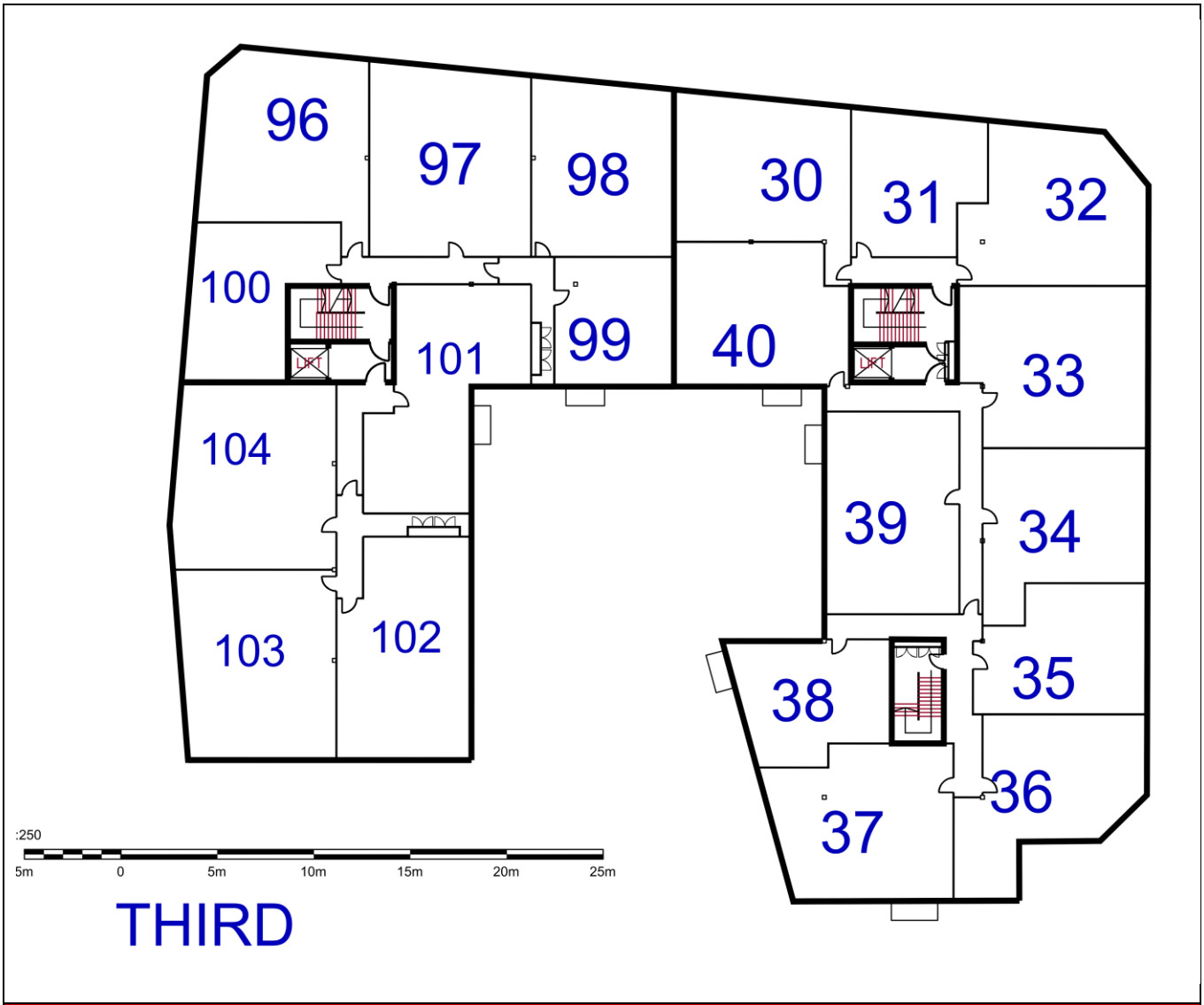


Fig A5: Third floor layout

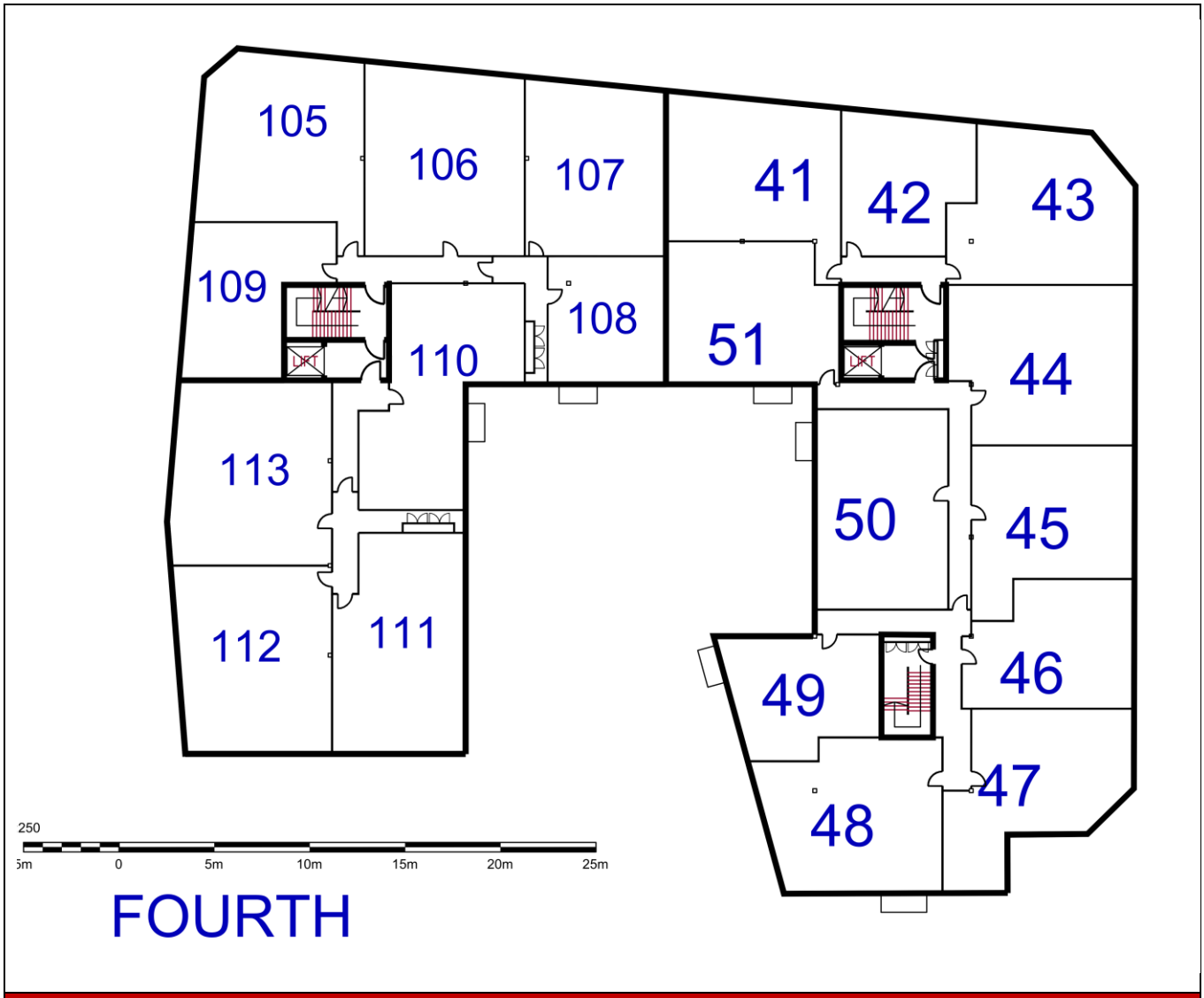


Fig A6: Fourth floor layout

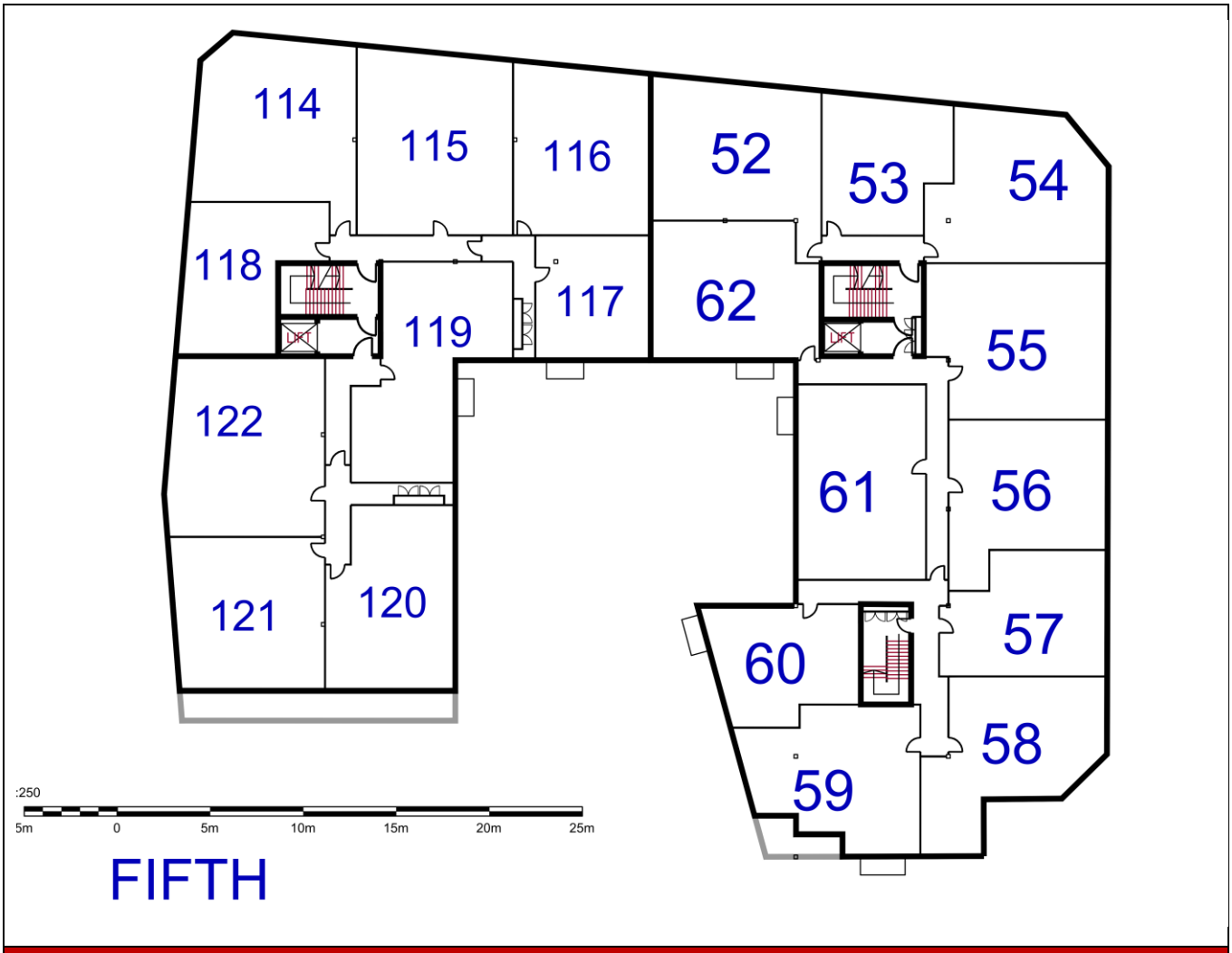


Fig A7: Fifth floor layout

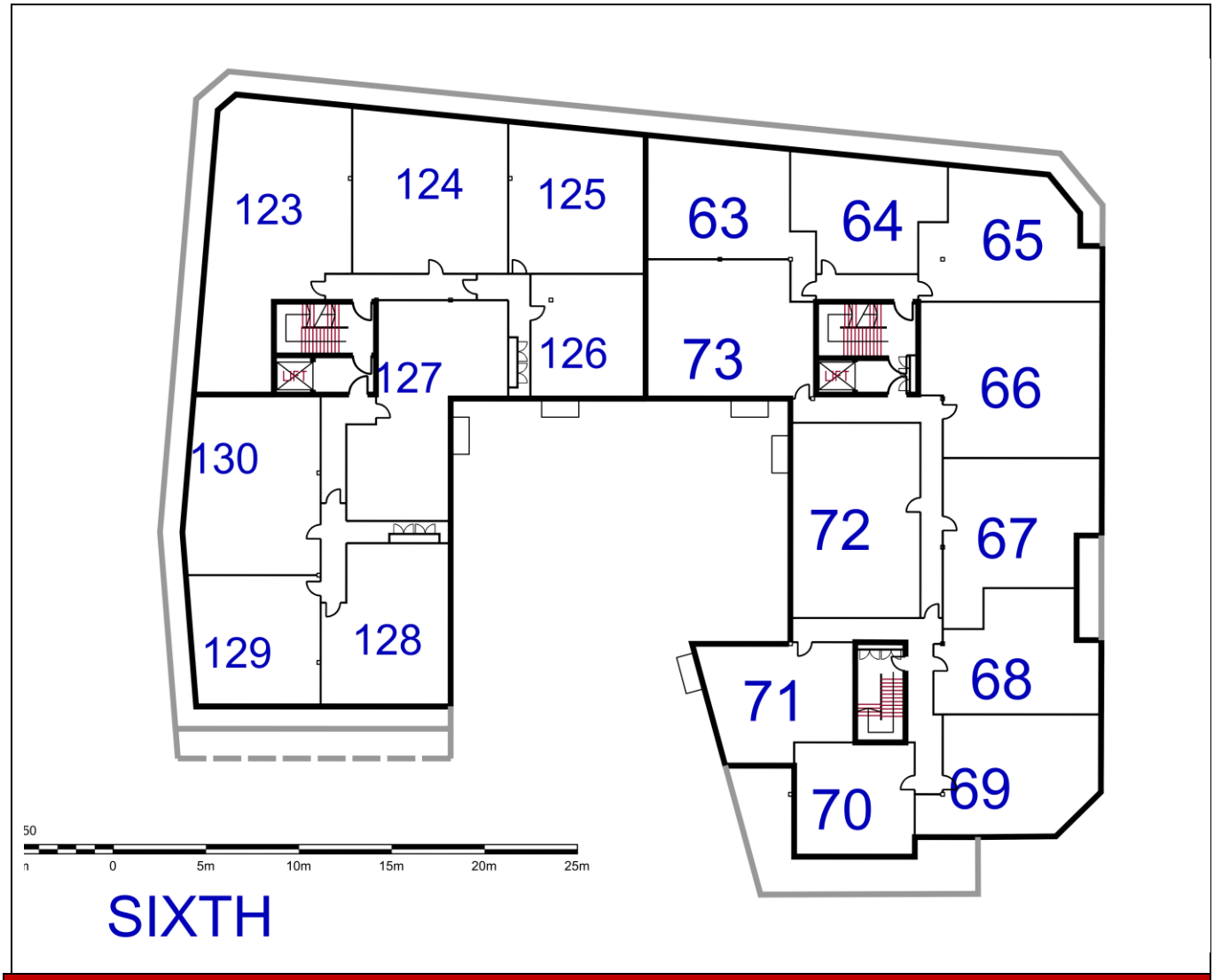


Fig A8: Sixth floor layout

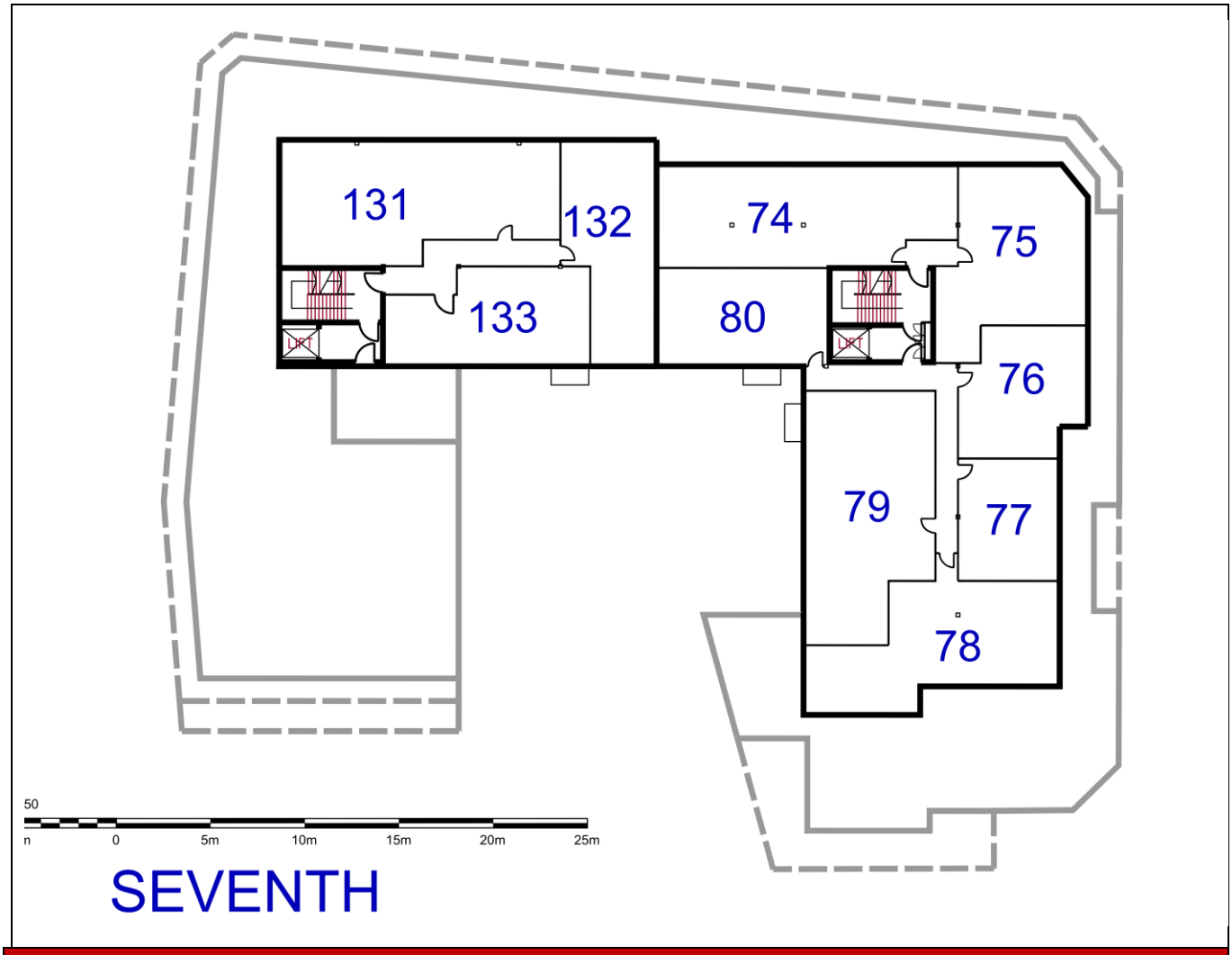


Fig A8: Seventh floor layout

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