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Retrospective Fire Safety Strategy

Blocks 1-8, Saunders Street, Edinburgh EH3 6TR



SPL Fire Safety Ltd
Ashton Old Baths
Stamford Street West
Ashton Under Lyne
OL6 7FW

Quality Assurance

Revision	Description	Date	Issued by	Reviewed By
FSF1	Retrospective Fire Safety Strategy	18/01/2025	[REDACTED] BEng (Hons) MCIOB, MIFSM	[REDACTED]

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General Information

Property Details

Address	Blocks 1-8
	Saunders Street
Town / City	Edinburgh
County	
Postcode	EH3 6TR

Client Details

Name	Edinburgh City Council
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Terms and conditions

SPL Fire Safety Ltd has produced this fire strategy document to assess whether the building was designed and constructed to comply with the Building Regulations. This document specifically addresses legislative compliance and the safety of relevant persons. The ownership and implementation of the significant findings lies with the "responsible person".

This retrospective fire strategy reverse engineers a previously constructed building and the author has no access to the original fire strategy; as such, the submission of this strategy constitutes neither a warranty of future results by SPL Fire Safety Ltd nor an assurance against risk. The report represents only the best judgement of the Fire Engineer involved in its preparation and is based, in part on information provided by others and a site inspection. No liability whatsoever is accepted for the accuracy of such information

In addition, the fire strategy does not include specialist testing or invasive inspection of the passive and active fire safety measures within the building as this does not form part of our brief.

CLIENT ACCEPTANCE

I hereby accept this Fire Strategy in accordance with the terms and conditions above

NAME

SIGNATURES

DATE

POSITION IN ORGANISATION

NAME OF FIRE ENGINEER

SIGNATURE

DATE

Executive Summary

Saunders Street consists of 4 residents blocks.

Block 1-2 consists of 6 storeys (ground and floors 1-5) and 42 apartments.

Block 3-4 consists of 6 storeys (ground and floors 1-5) and 37 apartments.

Block 5-6 consists of 6 storeys (ground and floors 1-5) and 29 apartments.

Block 7-8 consists of 6 storeys (ground and floors 1-5) and 25 apartments.



The buildings were constructed mid 1960's and would have been subject to Building Construction Approval at the time of construction.

Edinburgh City Council do not have a fire strategy for the property from the time of development; as such, have commissioned SPL Fire Safety to inspect the building and reverse engineer a fire strategy on their behalf. The fire strategy was commissioned to answer two important questions,

- 1) Were the premises built to the correct standard at the time and
- 2) Does the building design meet the current statutory life safety requirements of Building (Scotland) Regulations?

Following the review, it was found that the properties were not designed to meet guidance available at the time of development and do not meet current guidance.

Recommendations have been made; these can be found at the rear of this document.

This document is a strategy document and is not to be read as a Fire Risk Assessment (FRA).

Essential fire protection features

The following section summarises the key elements of fire safety provisions that have been provided within the premises. The table is broken down into features affecting active and passive measures, and construction.

The table is a summary of the key elements and therefore, should not be read in isolation. The full report should be read before implementation of any recommendations.

	Fire Safety Requirements	Clarification
Construction	Evacuation Strategy	Designed as a Stay Put evacuation
	Occupancy	Residential
	Fire-fighting shaft serving the building	There was no requirement for a fire-fighting shaft at the time of construction; however, there was a requirement for dry rising main for buildings over 18m.
	Fire Service access route	Access to the property is off Saunders Street, Edinburgh
	Corridors	Corridors are required to be protected to a 60-minute standard and accessed by FD60s doors.
Active and Passive Measures	Fire detection and fire alarm for the building	Apartments - BS5839-6 LD2
	Water sprinkler system	Not required at the time of construction
	Emergency Lighting	In accordance with BS5266: Part 1 2016 – Code of practice for the emergency lighting of premises.
	Escape Signage	In accordance with BS 5499: Part 4 2013 – Code of practice for escape route signage.
	Ventilation of stair	None
	Ventilation of lobby	None
	Compartmentation Floors	60 Minute of fire resistance (current guidance)
	Fire protection - Stairs	60 Minute of fire resistance
	Fire protection - Walls	60 Minute of fire resistance
	Fire protection - Structure	60 Minute of fire resistance
	Openings in compartment walls/floors	Should be suitably fire stopped in accordance with the compartmentation section, protection of openings and fire stopping.
	Cavity barriers	To be the same degree of FR as the wall or floor

The Building Structure

The 4 blocks are 6-storey, purpose-built apartment block of apartments consisting of a ground floor and 5 upper floors. Each block consists of:

- **Block 1-2**- 6 storeys (ground and floors 1-5) and 42 apartments.
- **Block 3-4**- 6 storeys (ground and floors 1-5) and 37 apartments.
- **Block 5-6**- 6 storeys (ground and floors 1-5) and 29 apartments.
- **Block 7-8**- 6 storeys (ground and floors 1-5) and 25 apartments.

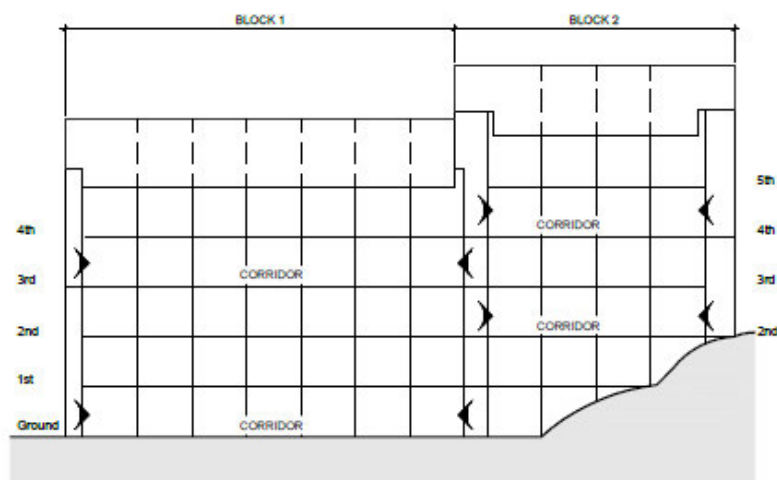
The buildings are constructed from traditional concrete and brick with a pitched roof. They fall under purpose group 1(a) for apartments.

Internal partitions appear to be of masonry construction, and the internal fire spread of linings on escape routes, circulation routes, and other areas appears to be A1, as per the Domestic Technical Handbook April 2024.

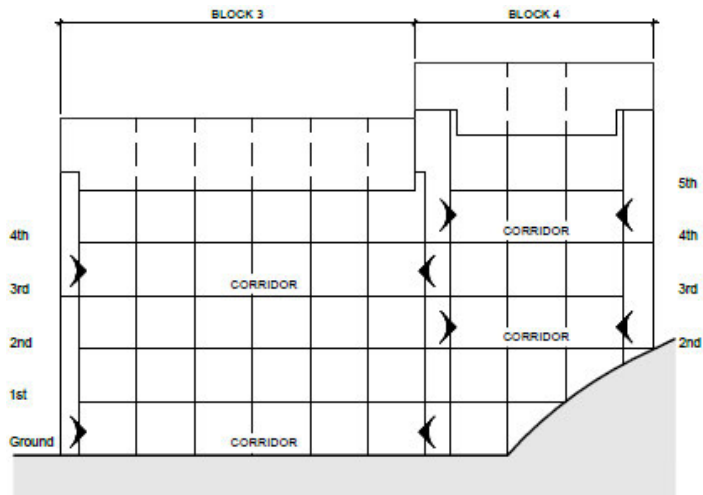
Each block is equipped with a lift for accessing the upper floors. The lift is located in the central staircase and serves the upper floors. The lifts are provided with a fire switch but they are not designed for use during emergency evacuations.

The buildings are designed to implement a stay-put evacuation strategy. Each block has 3 staircases that serve the upper floors, one on either end of the block and one central staircase. All residential apartments have access to two staircases. These have been indicated on the diagrams below.

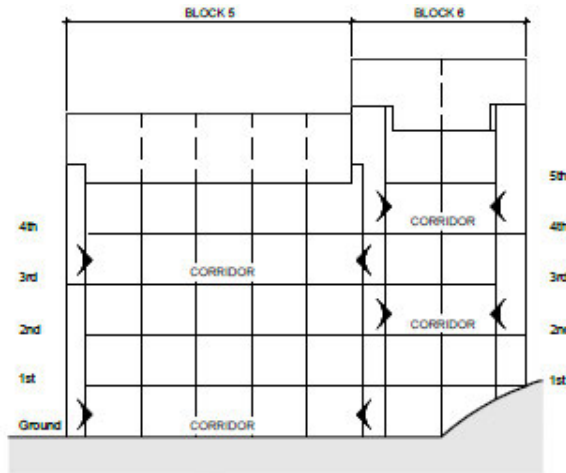
Block 1-2



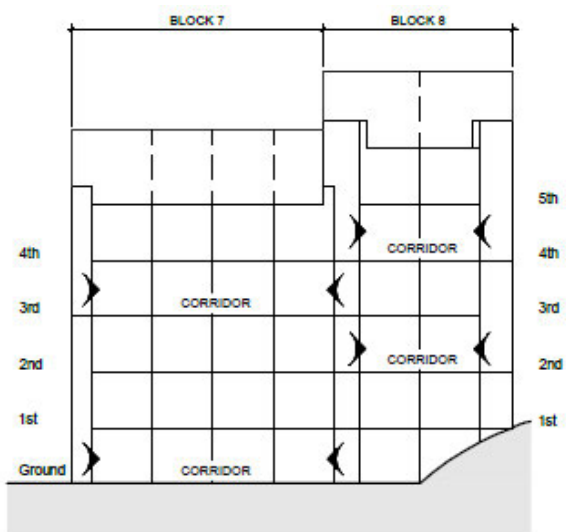
Block 3-4



Block 5-6



Block 7-8

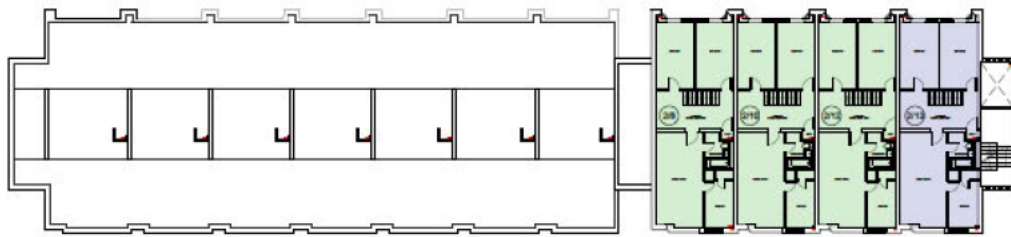


All apartment entrance doors lead into a corridor. This corridor is separated from the staircase by a suitable fire door. The travel distances appear to comply with the Domestic Technical Handbook as of April 2024.

From the staircases at either end, there is access to the bin chute on certain floors which open into the staircase. On other floors, there is a drying area that was not accessible during the site visit. However, from the exterior, they appear to be permanently vented.

See floorplans overleaf

Block 1-2



06 Saunders Street - Block 1 & 2. Fifth Floor
1:200



05 Saunders Street - Block 1 & 2. Fourth Floor
1:200



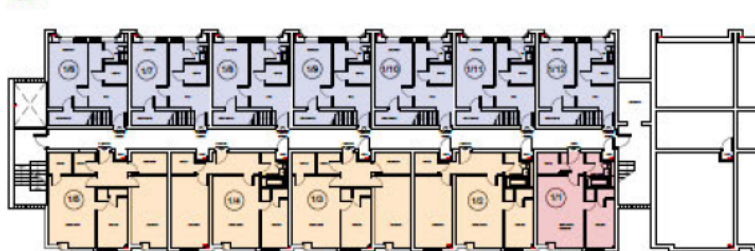
04 Saunders Street - Block 1 & 2. Third Floor
1:200



03 Saunders Street - Block 1 & 2. Second Floor
1:200



02 Saunders Street - Block 1 & 2. First Floor
1:200



01 Saunders Street - Block 1 & 2. Ground Floor
1:200

The Occupants

Maximum number of persons in the building

Block 1-2

1 x bedsit= 2 persons

4 x 1 bed apartment= 8 persons

5 x 2 bed apartment = 28 persons

10 x 2 bed duplex= 40 persons

22 x 3 bed duplex = 132 persons.

Total = 210 persons



Number of employees at one time	Average 2 person per bed. There are a mixture of one, two and three bedroom apartments.
Occupants at special risk	Cleaner/maintenance person from the housing provider.
Sleeping occupants	Yes, occupants of the apartments
Occupants with disabilities	None identified; however, there is the potential.
Occupants in remote areas	N/A
History of Fires?	
Has there been any history of fires on the premises?	None were brought to the attention of the Fire Engineer.
Use of Premises	Private apartments (long-term tenancy agreements).
Maximum number of floors	6. (Ground, 1 – 5)
Number of staircases	3 staircases per block
Number of passenger lifts	1 per block. All fire and passenger lifts

Current legislation & General Principles

As the building was constructed in the mid-1960s the fire strategy will review CP3 “Code of basic data for the design of buildings” as the nearest design guide for when the premises was constructed. This is an assumption following an inspection of the premises and the technical knowledge of the engineer. To identify if the building aligns with current guidance, the latest version of Domestic Technical Handbook 2024 along with the Practical Fire Safety Guidance for Existing High Rise Domestic Buildings 2021 will be utilised. To undertake this task, it will be necessary to review the requirements of Schedule 1 (or an equivalent standard) of the regulations relating to:

The functional requirements required for B1 – B5 are provided below.

Building Regulations	Functional Requirements
B1 Means of warning and escape	The building shall be designed and constructed so that there are 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
B2 Internal fire spread (linings)	To inhibit the spread of fire within the building the internal linings shall <ul style="list-style-type: none">• Resist the spread of flame over their surface; and• Have, if ignited, a rate of heat release which is reasonable in the circumstances. In this paragraph ‘internal linings’ mean the materials lining any partition, wall, ceiling or other internal structure
B3 Internal fire spread (structure)	The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period. A wall common to two or more buildings shall be designed and constructed so that it resists the spread of fire between those buildings. For the purpose of this sub paragraph a house is a terrace, and a semi-detached house are each to be treated as separate buildings.
B4 External fire spread	The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building. The roof of the building shall adequately resist the spread of fire over the roof and from one building to another, having regards to the use and position of the building.
B5 Access and facilities for the fire service	The building shall be designed and constructed so as to provide facilities to assist firefighters in the protection of life. Provision shall be made within the site of the building to enable fire appliances to gain access to the building.

Fire Safety (Scotland) Regulations 2006

The Fire Safety (Scotland) Regulations 2006 is the primary piece of legislation within Scotland, this document states that it is the Responsible Person who has a duty to provide safe premises for all relevant persons.

Part 3, Chapter 1, Duties, Section 53 of The Fire Safety (Scotland) Regulations 2006 states that a suitable and sufficient fire risk assessment must be produced and any significant findings must be shared with relevant persons.

The author of this report is aware that a fire risk assessment has been undertaken for these premises.

Report limitations

Within this report are illustrations and drawings that are suggestive only and are envisioned to describe the notions and principles of the building fire strategy. Property protection and business continuity are not covered within this report; the fire strategy addresses the life safety elements of Building Regulations.

Referenced Drawings

This report should be read in conjunction with the drawings produced by the client.

Drawing Name	Reference Number
Block 1-2 (all floors)	No reference number provided
Block 3-4 (all floors)	No reference number provided
Block 5-6 (all floors)	No reference number provided
Block 7-8 (all floors)	No reference number provided

Compliance with Guidance.

In order to comply with the Code of Practice in force at the time of construction, the building was required to provide adequate levels of life safety within the building.

This strategy will review whether the building was converted to the Code of Practice and the modern technical handbook by the evaluation of the passive and active measures.

This will be achieved by reviewing.

- Review of escape strategy
- Suitable means of escape (MOE) – Horizontal / Vertical escape / Active safety systems
- Means of warning the occupants
- Limiting internal fire spread
- Facilitating fire service emergency operations

Means of Escape Section – Evacuation Strategy

The perceived general building evacuation philosophy at the time of development was based on the concept of a stay-put policy due to the non-provision of a fire alarm and detection system.

The other tenants would normally have stayed in their properties unless they.

- Were directly affected when they should have Stayed-Safe and left their property.
- They could hear a shout of “FIRE” and wanted to Stay-Safe and leave.
- They were concerned with their own safety and chose to leave their property
- They could see smoke or flame from their property and chose to leave their property
- They were advised to evacuate by the Local Authority Fire and Rescue Service or another competent person.

For a stay put evacuation to apply, the following would have applied

- Each of the apartments would have been designed with fire resisting separation and thirty-minute fire resisting door, incorporating a positive action self-closing device (Type 1 door (now known as FD30s)).
- The building was designed so that residents have direct access to the staircase.
- At ground floor level, the persons descending the staircase could reach ultimate safety in fresh air.

Whilst a “Stay Put” policy is in place, staircase calculations have been carried out (see vertical escape), it is derived from the calculations that the flats are provided with adequate amount and width of staircase to facilitate a simultaneous evacuation, should there be a need for this.

NOTE: For information, the client has installed BS5839-6 LD2 system in each apartment. These systems provide early warning whilst still supporting a stay-put strategy.

Conclusion for escape strategy

The evacuation strategy for the properties has been reviewed and appears compliant with previous and current guidance documents.

Means of Escape Section – Horizontal / Vertical Escape Routes

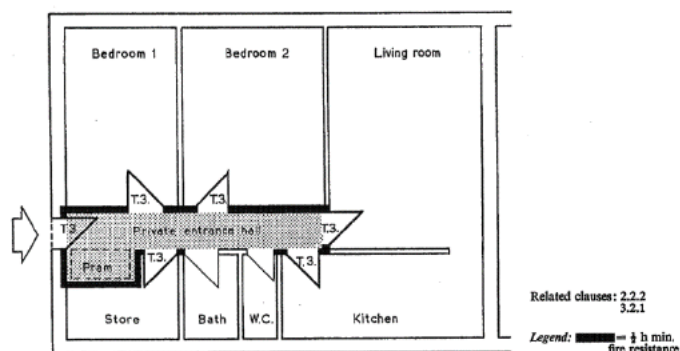
Horizontal means of escape

This section of the strategy will cover the horizontal means of escape, this section was completed by undertaking a physical inspection and reviewing plans of the premises.

Domestic Technical Handbook Limitations on travel distances			
Purpose Group	Use of premises or part of premises	Travel in one direction	Travel in more than one direction
Residential 1 (a)	Apartments	Less than 9m from the furthest point	
	From the apartment entrance door to the stairs.	4.5m unventilated 7.5m ventilated	N/A

The site visit was undertaken to assess the communal area and sample apartments against the guidance contained in the above table.

Apartments (single storey)– Apartments have a traditional single storey layout with all rooms accessed off an internal hallway. The travel distances within the internal hallway exceeds 9m (approximately 12m). At the time of construction, CP3, paragraph 2.2.2.1 required for apartments to be provided with protected



entrance hallways with all doors to be fire doors. Paragraph 2.2.2.3 requires the kitchen to be situated at the most remote part of the premises, with the bedrooms closest to the apartment entrance door.

All single storey apartments visited complied with this guidance, aligning with both past and current standards for travel distance in apartment design. However, a recommendation has been made in the fire door section regarding the lack of internal fire doors and a number of non-compliant apartment entrance doors.

NOTE: The requirement for fire-resistant internal doors may be eliminated as the travel distances from the furthest point within the apartment to the apartment entrance door are less than 9m. However, a risk assessment must be conducted before their removal.

Duplex apartments- in accordance with CP3, paragraph 2.2.3.2, because of the generally greater hazard in a maisonette compared with that in a flat it is essential to provide:

(1) a private entrance hall and (except in certain 'open plan' maisonettes) a stairway therein, with no fire risk; living rooms and bedrooms should have direct access to the hall or a landing without passing through another room;

- (2) an alternative exit (or exits) from any floor with habitable rooms other than the entrance floor;
- (3) protection of internal escape routes against fire and smoke.

Although the engineer did not access a maisonette, from the plans provided, it appears that the apartments do not comply with the guidance above due to not being provided with an alternative means of escape from each floor. Although the maisonettes did not comply with the guidance at the time of construction, the remedial works to make them compliant with current guidance, is minimal. In order to bring these up to current guidance, each maisonette is required to be provided with a BS5839-6 LD1 fire detection system and a 30-minute protected staircase enclosure with all doors opening into the staircase to achieve a minimum of FD30 standard.

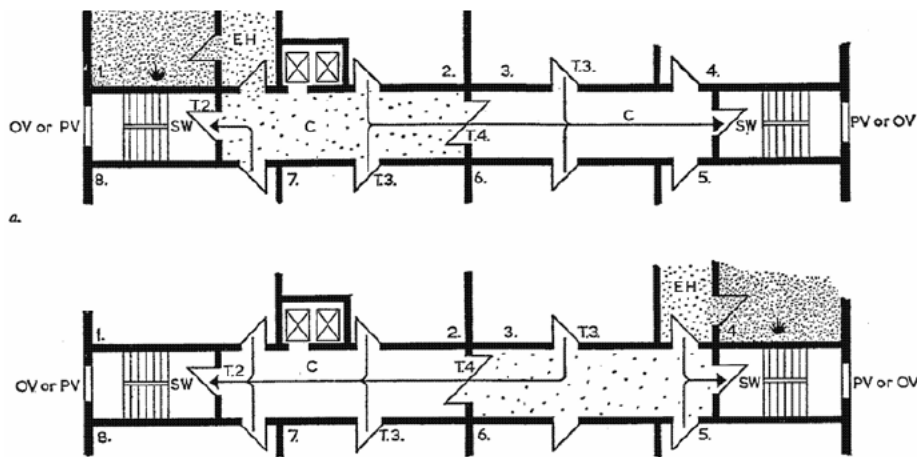
Common areas (residential floors)

In accordance with CP3, paragraph 2.4.2.1, there remains some risk that smoke will enter a stairway and this risk should be countered. There are three methods proposed:

1) One method is to provide two stairways in a building on the assumption that smoke is unlikely to enter more than one stairway at any time. This assumption may prove false, particularly if the stairways are close together. A safeguard using smoke containment, in Stage II is to provide a smoke-stop door across the internal communicating space between the stairways so that, if a fire occurs at any point, one stairway will be accessible due to the protection of an additional smoke-stop door on that floor. Such a door is shown in Fig. 22. It was provided, initially, in order to meet the recommended travel distance limitation of the second stage. It will be seen however, that the same door also contributes to safety in the third stage as there will always be the protection of two smoke-stop or fire resisting doors between one of the stairways and a smoke-logged corridor. (preferred option)

2) The second and more effective method where smoke containment is adopted is to enter the stairway from a lobby which is permanently ventilated to the open air and which is itself entered only from the internal communicating space through a smoke-stop door.

3) The third method, using smoke dispersal in Stage II, is to achieve cross-ventilation in the communicating spaces leading to main stairways by means of manually operated ventilators together with either permanent openings or ventilators automatically controlled by smoke detectors.



The layout of Saunders Street is similar to that described in the guidance. However, it currently lacks protection for the staircases. Of the three options provided in paragraph 2.4.2.1, the most effective way to protect the staircases is by installing a smoke stop door at the midpoint of each corridor. This will prevent smoke from entering both staircases.

The travel distances in Saunders Street vary across different floors, with the maximum distance measured at 40m. With the implementation of the cross-corridor doors, this will be considered compliant with the guidance at the time of construction.


Exit widths

The widths of escape route and exits have been calculated using the guidance from paragraph 2.9.8 of the Non-Domestic Technical Handbook as the exits widths are not covered in the Domestic Technical Handbook.

Table 2.3 Widths of escape routes and exits	
Maximum number of persons	Minimum width in mm
60	750
110	850
220	1050
More than 220	5mm per person

Block 1-2	Occupancy	Number of exits provided	Exit capacity
Ground Floor	Up to 52 occupants	1 x 860mm (discounted) 1 x 860mm	110 persons per staircase
1 st floor	N/A	N/A	N/A
2 nd floor	Up to 32 residents	1 x 860mm (discounted) 1 x 860mm	110
3 rd floor	Up to 84 residents	1 x 860mm (discounted) 1 x 860mm	110
4 th floor	Up to 44 residents	1 x 860mm (discounted) 1 x 860mm	110
5 th floor	N/A	N/A	N/A





Although there are three escape stairs, each floor has access to only two exits. Each exit can accommodate up to 110 persons. After applying the discounting rule, the remaining exit can still accommodate up to 110 persons. The maximum occupancy on any given floor is 84 persons (Block 1-2, 3rd floor), demonstrating that there is sufficient exit capacity for any floor in all four blocks.

It is also important to note that the building follows a stay-put strategy. This means only the residents of the affected apartment will evacuate, while others remain unaware of the fire and stay in place. If a simultaneous evacuation is required, the fire service will manage the process to prevent congestion in the staircase. Therefore, this arrangement is deemed acceptable.

Vertical means of escape

To guarantee that the staircase can accommodate everyone in the building, measurements were taken to confirm it would allow for a simultaneous evacuation if necessary.

The widths of the escape stairs were determined based on the guidance provided in paragraph 2.9.31 of the Non-Domestic Technical Handbook, as the Domestic Technical Handbook does not address stair widths. The following formula will be used to calculate the stair width:

$$EW = \frac{5.3 \times AC}{N - 1}$$

Where:

- EW is the effective width of an escape stair measured in mm between handrails and clear of obstructions

- AC is the appropriate capacity, which in relation to an escape stair is the occupancy capacity of the storey served by the escape stair, less 20%
- N - 1 is the number of escape stairs minus 1, unless it meets exception for protected lobbies above

A deduction of 20% from the appropriate capacity is made to allow for the number of occupants who could be standing in the stair.

It is assumed that each apartment can accommodate two people per bedroom.

Worst case scenario (block 1-2) – potentially up to 124 persons above ground

Although there are two staircases serving each floor, a worst-case scenario will be applied and it will be assumed that residents only have access to one staircase as one of the staircases will be discounted.

$$EW = \frac{5.3 \times AC}{N - 1}$$

$$EW = \frac{5.3 \times (124 \times 0.8)}{1}$$

$$EW = 530\text{mm}$$

Required Width= 530mm – Minimum of 800mm to meet guidance.

Current width= 1070mm

It can be seen that in the event of a simultaneous evacuation, assuming the worst-case scenario, each staircase is wide enough to accommodate all persons within each block even if one of those staircases becomes compromised.

To effectively manage the flow of people entering the staircase during an alert, an evacuation alert system (EACIE system) would be recommended; however, this is not currently mandatory. This system would enable the fire and rescue service to control the movement of individuals into the staircase strategically. The implementation of an EACIE system is also recommended in the Domestic Technical Handbook, paragraph 2.14.8, in buildings taller than 18m.

NOTE- there is a lift within each block which is designated as a fire lift. This is compliant CP3 given the height of the premises.

Disabled Refuges

Disabled refugees are not a requirement within premises utilising a Stay Put evacuation strategy; as such, the premises comply with previous and current guidance.

NOTE – The lift installed in each block is not designed for evacuation purposes and residents should not use the lift in the event of an incident.

Conclusion – Means of escape

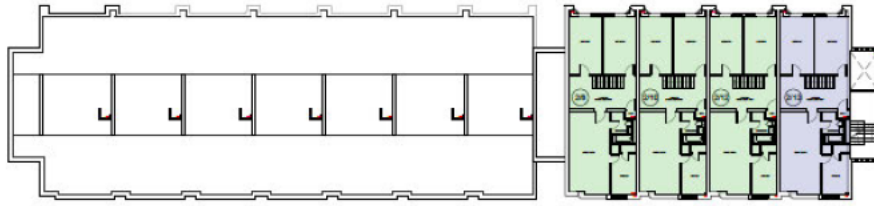
The means of escape for the buildings have been evaluated and it appears that the travel distances within the communal areas of the property have been designed to CP3 and also meets current guidance.

Given all the information provided in this section, it is considered that the communal horizontal and vertical travel distances are compliant, as is the capacity of the staircase.

However, the building currently lacks adequate ventilation, which does not comply with current or previous guidance documents. Implementing the necessary ventilation measures may be very costly and challenging due to the building's existing structure. To enhance life safety, the assessor suggests reducing travel distances by adding cross-corridor doors in the corridors. These doors would act as smoke stop doors, allowing individuals to quickly reach a place of relative safety. This means that if smoke escapes through an apartment entrance door, it would only affect a section of the corridor, enabling residents to reach a safer area within a shorter distance. This provision of cross-corridor doors will also ensure that a single fire escaping an apartment does not compromise both storey exits.

Recommendation 1 – cross corridor doors

It is recommended to install cross-corridor doors to prevent a single fire from compromising both storey exits. Refer to the plan overleaf for an example. This also meets the requirements of the Domestic Technical Handbook 2024, paragraph 2.9.12.



06 Saunders Street - Block 1 & 2. Fifth Floor
1:200



05 Saunders Street - Block 1 & 2. Fourth Floor
1:200



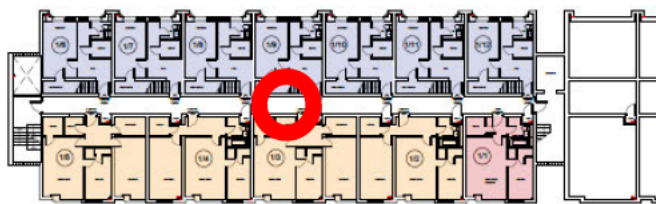
04 Saunders Street - Block 1 & 2. Third Floor
1:200



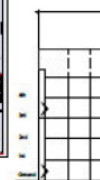
03 Saunders Street - Block 1 & 2. Second Floor
1:200



02 Saunders Street - Block 1 & 2. First Floor
1:200



01 Saunders Street - Block 1 & 2. Ground Floor
1:200



Key Section

General Notes:

- Please note that all information included throughout this document are not accurate measure dimensions & level measurements and be subject to site confirmation. CDC liability as to the information within.
- Any proposed work subject to planning consent and build approvals.

Means of Escape Section - Emergency Lighting

Emergency lighting and escape signage will be required in most areas including all escape routes and common circulation areas in accordance with BS 5266: Part 1 and in accordance with Domestic Technical Handbook, paragraph 2.10.3.

Typical areas which require coverage include:

- To illuminate escape routes, exit signs, and changes of level or direction.
- External exit routes particularly sloped or stepped areas in the hours of darkness.
- Fire alarm manual call points and firefighting equipment.
- Any areas without natural light or borrowed light from outside.
- Any areas used outside of daylight hours.

Conclusion – Emergency lighting

The system installed within the property appears to be very old, and it could not be confirmed whether the lighting levels meet current guidance for this type of property in terms of illumination.

Recommendation 2 – Emergency lighting.

It is recommended to instruct a qualified professional to inspect and assess the emergency lighting levels to ensure they meet the minimum illumination requirements for safe evacuation routes.

Means of Escape Section - Emergency Signage

The closest escape route may not be the most used or obvious to the escaping occupant; it is therefore recommended to display escape signage to indicate the closest/alternative means of escape.

All escape routes have distinctive and conspicuous signage using emergency exit signs of adequate size complying with the Health and Safety (Safety signs and signals) Regulations 1996. Signs containing symbols or pictograms which conform to BS5499 Part 1 will normally satisfy these regulations.

Conclusion – Signage

The escape signage within the property seems to comply with current guidelines for a single staircase building. However, there is a shortage of fire action notices on each floor to inform residents of the evacuation strategy.

Recommendation 3 – Fire action notice.

It is recommended to place adequate fire action notices on every floor to guide residents on the appropriate steps to take in case of a fire.

Means of Warning – Fire Detection and Alarm System

Apartments: The accessed apartments (single storey) appear to be provided with a BS5839-6 Grade D1 LD2 fire detection system, which complies with the Domestic Technical Handbook, paragraph 2.11.1. however, the engineer was informed that a number of apartments were privately owned and it could not be confirmed if these apartments are equipped with an LD2 fire detection system.

Communal Areas: At the time of construction, there was no requirement for a communal fire detection system in buildings following a stay-put strategy, unless it was intended for a specific function, such as activating an automatic opening vent (AOV). Consequently, no such systems have been installed.

Conclusion – Means of warning

Apartments- The apartments are equipped with an LD2 type system, compliant with current guidance documents and BS5839 standards. This system provides smoke/fire notifications within each apartment. However, the detection level in some privately owned apartments cannot be confirmed. Upgrading all maisonette fire detection systems will compensate for the absence of alternative escape routes from the upper floors.

Common area – there is no communal system in this premises. This is compliant with past and current standards. Therefore, there are no recommendations.

Recommendation 4 – Fire detection within apartments.

It is recommended to confirm that all apartments (single storey) are equipped with a suitable BS5839-6 Grade D1 LD2 fire detection. It is recommended that all maisonettes are equipped with a BS5839-6 LD1 system to give an early warning to residents within the effected apartment. This, along with a protected staircase enclosure within the maisonette will compensate for the lack of an alternative means of escape from the maisonettes.

Means of Escape Section – Ventilation (Common areas)

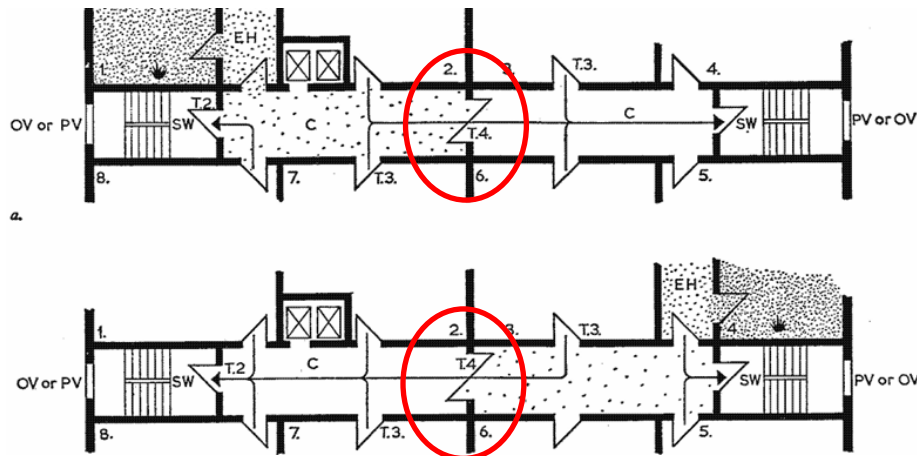
To comply with guidance at the time of construction, CP3 provides information on what ventilation is required within the common areas of the buildings served by one staircase. Ventilation was required in the following areas.

- 1m² of openable vent is required at the head of the staircase.
- 1.5m² permanent ventilation is required in lobbies.

In comparison, the Domestic Technical Handbook, paragraph 2.14.6 requires ventilation within the following areas:

- 1m² of ventilation is required at the head of each staircase.
- 1.5m² ventilation is required in corridors exceeding 4.5m in length.

Lobbies: In accordance with CP3, paragraph 2.4.2.1, where a building has two staircases, there are three methods to protect the staircases from fire and smoke (as outlined in the horizontal means of escape section). The most effective method to ensure compliance is by installing a cross-corridor smoke stop door at the midpoint, preventing both staircases from becoming smoke-logged. See Recommendation 1. With the installation of this smoke stop door, no additional ventilation in the corridors is required, making this arrangement compliant. Refer to the smoke stop doors marked in red below.



Stairs – According to the diagram above, the staircases require either a permanent vent or an openable vent with a clear opening of 1 m² at the head of the staircase.

Currently, the staircases in the Saunders Street blocks have 2.4m² fixed windows at each stair half-landing, which is non-compliant with both previous and current guidance. However, the current setup is considered acceptable for the following reasons:

- The requirement for openable windows in the staircase is for smoke clearance purposes to be used by the fire and rescue service post fire and is not a life-saving device. If ventilation is needed, the fire and rescue service can break the fixed windows.
- For life safety purposes, if one staircase becomes smoke-logged, residents can turn away and use the secondary staircase to escape safely.
- A proposed cross-corridor smoke stop door will prevent a single fire from compromising both staircases, providing additional protection.

For these reasons, the current set up is considered acceptable.

Bin Stores – According to CP3, paragraph 4.5, bin stores should not be located in stairways or lobbies leading to stairways, and they must be separated from the lobby by two doors with permanent ventilation.

At Saunders Street blocks, the bin chutes open directly into the staircases. Although this is not ideal, in the event of a bin chute fire, it is likely to compromise the staircase. However, residents can turn away and use the secondary PV staircase to secure their escape. Additionally, it is recommended to either install

sprinklers at the base of the chute or provide an automatic shutter at the base to prevent fire spread up the chute.

CP3, figure 16, mandates that bin stores must have permanent ventilation. While CP3 does not specify a required size for the permanent vent, current guidelines suggest a minimum clear opening of 0.2m². The need for permanent ventilation within the staircases where the bin chutes open has been deemed unnecessary, as it is likely to affect only one staircase. All residents have access to an alternative exit to secure their escape.

Means of Escape Section – Ventilation (apartments)

Each apartment is equipped with its own ventilation system designed to expel moisture and fumes directly outdoors. The engineer inspected sample apartments and observed that the kitchen in each unit features an openable window for ventilation. However, the engineer could not confirm whether the bathroom ventilation system is communal or if each apartment has an independent system venting directly outside. It's important to note that communal venting ducts could allow smoke to spread between apartments.

Conclusion – Ventilation

Staircases: The staircases have fixed windows at each half-landing. In the event of smoke clearance, these windows can be broken to vent the smoke. Ventilation in the staircases is not required for life safety purposes due to alternative means of escape from all areas.

Internal Lobbies: The corridors are unventilated. A smoke stop door has been recommended (Recommendation 1) to prevent a single fire from compromising both exits. No additional ventilation is required.

Apartments: The engineer observed that the kitchens in the apartments have openable windows. However, the configuration of the bathroom ventilation system could not be confirmed.

Bin Store: The ventilation provisions in the bin chute are non-compliant and are likely to compromise a staircase. However, all residents have access to an alternative means of escape from all areas of the building, so this should not pose any life safety concerns. In the event of smoke clearance, the fire and rescue service can break the windows in the staircase to vent the smoke.

Sprinklers

The premises would not have required sprinklers at the time of construction as the requirement for sprinkler system in buildings over 30m came into place in 2007. As such, the building is considered being compliant with guidance from the time of construction.

Due to the lack of ventilation in the bin chutes (staircases), a sprinkler system has been recommended at the base of the bin chutes. This eliminates the need for permanent ventilation in the staircases. Refer to Recommendation 7.

Internal Fire Spread (linings)

The choice of materials for walls and ceilings can significantly affect the spread of a fire and its rate of growth. Internal linings are required to meet the standard recommendations of paragraph 2.5.1 of Domestic Technical Handbook. The classification shall meet the following standards:

A protected zone should have wall and ceiling surfaces which achieve European Classification A1, A2 or B (see annex 2.B).

A room, unprotected zone or protected enclosure should have wall and ceiling surfaces with a reaction to fire no worse than European Classification C.

Limitations on higher risk surfaces - a room (other than a kitchen) not more than 4m² may have wall and ceiling linings with a European Classification D. In a room (other than a kitchen) more than 4m² the wall surfaces may also have a European Classification D subject to a maximum of 20m² where the total area of European Classification D products is not more than half the floor area of the room.

Conclusion – Internal Fire Spread

The linings appear to meet current guidance for this type of property; as such, no recommendations are required.

Internal Fire Spread (Structure)

The minimum period of fire resistance in accordance with Domestic Technical Handbook, table 2.1 building is 120 minutes. SPL Fire Safety Ltd are not able to confirm if the premises has been built to this standard without intrusive investigations which have not been part of this fire strategy. However, the installed construction in terms of design, weight and wind load would provide a comparative level of fire resistance.

Elements of structure are defined as:

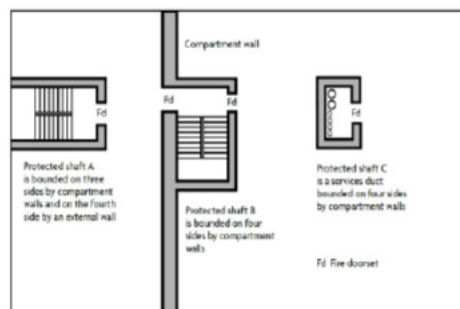
- A member forming part of the structural frame of a building or any beam or column.
- A floor or load bearing wall or load bearing part of a wall.
- An external wall structure supporting fire protected elements for the prevention of external fire spread.

Elements which only support the roof are sometimes exempted from this provision.

Internal Fire Spread (service risers and smoke shafts)

Services such as electrical systems, water and ventilation are required on all floors and these run between floors in protected service risers. The service risers should be 60-minute structures which are accessed on each floor by a minimum of an FD30s door as per Protected Shaft C in the diagram.

This section of the report requires further review as compartmentation breaches were observed in a number of service risers in particular around cables/pipes.



The first things to consider are the types of penetrations that pass through the walls and also their dimensions.).

See table below.

Maximum nominal internal diameter of pipes passing through a compartment wall / floor			
Situation	Pipe materials and maximum nominal internal diameter (mm)		
	(a) Non-combustible materials	(b) Lead, aluminium, aluminium alloy, uPVC ² , fibre cement	(c) Any other material
1. Structure (but not a wall separating buildings) enclosing a protected shaft which is not a stairway or a lift shaft	160	110	40
2. Compartment wall or compartment floor between apartments	160	160 (Stack Pipe) 110 (Branch Pipe)	40
3. Any other situation	160	40	40
Note:			
1. Any non-combustible material (such as cast iron, copper or steel) which, if exposed to a temperature of 800°C, will not soften or fracture to the extent that flame or hot gas will pass through the wall of the pipe.			
2. uPVC pipes complying with BS 4514:2001 and uPVC pipes complying with BS 5255:1989.			
3. These diameters are only in relation to pipes forming part of an above-ground drainage system and enclosed as shown in Diagram 38. In other cases, the maximum diameters against situation 3 apply.			

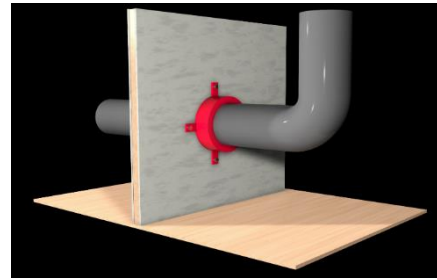
The next part of the review is to identify which method of fire stopping is appropriate for the size of pipe identified below and overleaf.

If a fire-separating element is to be effective, every joint or imperfection of fit, or opening to allow services to pass through the element, should be adequately protected by fire collars, fire resistant sealant or intumescent fire stopping so that the fire resistance of the element is not impaired.

Pipes that pass through a fire-separating element (unless the pipe is in a protected shaft), should meet the appropriate provisions in alternatives A, B or C.

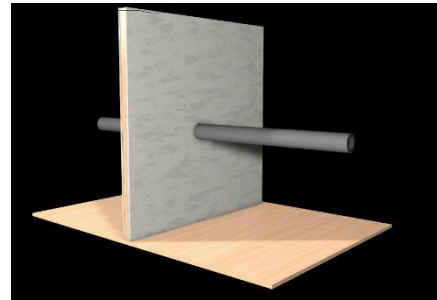
Alternative A: Proprietary seals (any pipe diameter)

Provide a proprietary sealing system, which has been shown by tests to maintain the fire resistance of the wall, floor or cavity barrier.



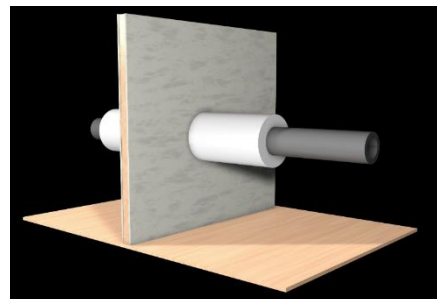
Alternative B: Pipes with a restricted diameter

Where a proprietary sealing system is not used, fire-stopping may be used around the pipe, keeping the opening as small as possible. The nominal internal diameter of the pipe should not be more than the relevant dimension given in Table 11.



Alternative C: 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 as shown below.



Conclusion – Internal fire spread (service risers)

A review of the service risers revealed that several pipes and cables had not been adequately fire-stopped according to the previously mentioned alternatives. Additionally, a boxed section has been constructed outside apartment entrance doors, believed to contain services leading into the apartments. However, the engineer was unable to confirm whether the services within these enclosures had been properly fire-stopped.

Recommendation 5 – Risers

It is recommended to inspect the riser cupboards and the enclosures beside apartment entrance doors. Any breaches found should be addressed to ensure that fire-resisting construction provides at least 60 minutes of fire protection, with all openings properly fire-stopped using appropriate fire-rated materials. Additionally, pipework should be suitably protected in accordance with paragraph 2.2.9 of the Domestic Technical Handbook.

Compartmentation

The compartmentation of the walls, ceilings, and floors within the building helps to minimize the risk of fire spread and mitigate the effects of a fire. The design specifies that each floor should provide 120 minutes of fire resistance, while the apartments should have walls with a minimum fire resistance of 60 minutes. Access to each apartment must be through an FD60S fire door. Inside the apartment, the internal hallway should offer 30 minutes of fire protection, with all doors (except bathroom doors) being FD30 doors, without self-closers or cold smoke seals. However, the need for 30 minutes fire resisting internal structure may be eliminated through a fire risk assessment due to limited travel distances.

It was observed that the shutter at the bottom of the chute is manually operated. As the bin chutes open into the staircases, it is recommended to provide an automatic shutter at the base of the chute or an automatic water sprinkler system in the ground floor bin store.

Conclusion – Compartmentation

A review of the communal areas and the electrical cupboards was conducted to identify whether compartmentation was in place. The following was identified.

- Breaches were identified within the riser cupboards outside apartments.
- Breaches were observed above fire doors going into apartments.
- The vents in between the staircases and corridors are non-fire rating.
- The doors opening into the apartment internal hallways did not appear to be fire doors.
- A number of apartment entrance doors are non-fire rated.
- A number of store room/drying room doors were no capable of resisting the spread of fire.
- Breaches were observed in the riser cupboards. Most of the risers are screwed shut with non-fire rated material.

Note: This list is not exhaustive, and additional breaches may exist within the premises.

Based on these findings, it is concluded that the compartmentation does not comply with previous and current versions of the Domestic Technical Handbook.

Recommendation 6 – Compartmentation.

A qualified contractor should be engaged to conduct a compartmentation survey of the site to assess the extent of any breaches, including those in the riser cupboards (recommendation 5). Any necessary remedial work must provide 60 minutes of fire resistance.

Recommendation 7 – Bin chute shutter.

Option 1- It is recommended to upgrade the bin shutter with an automatic fire shutter, which should be connected to smoke or heat detection systems or operated via a thermal link.

Option 2- install automatic water sprinkler system at the base of the bin chute to mitigate the need for the shutter to be upgraded.

See example block overleaf for compartment lines

External Fire Spread

The premises was constructed with an external elevation that could not be confirmed if it was compliant with the requirements of the Building Regulations.

Conclusion – External Fire Spread

The external facades have been finished with an unknown system. It is unknown if this system satisfies the requirements of the Domestic Technical Handbook 2024.

Recommendation 8 – External wall survey.

It is recommended that an external wall survey is undertaken to determine if the system is compliant with the requirements of Domestic Technical Handbook if this information has not already been obtained by the client.

Fire Doors

CP3, paragraph 4.3.1 recommended the installation of self-closing fire doors. These ranged from type 1 to type 4 doors. Some of the doors currently in place have been retrospectively installed, replacing the old doors. However, there are some doors that may be the original doors installed at the time of construction. Fire doors play an integral role in passive fire safety measures for a building, a well-designed / fitted door set can reduce fire travel and damage significantly.

To understand what the requirements are, information is required relating to

- Height of the building
- Protected areas

At the time of the site inspection, a number of doors failed to provide the requisite 60 minutes fire resistance on escape routes including the staircase.

Building Height

The premises is approximately 15m to the floor slab of the highest occupied floor and the premises is used for residential purposes; as such, compartmentation is required on all floor slabs. Structure protection is set at 60minutes, with walls and the staircase designed to provide 60minutes fire resistance.

It appears that the staircase is designed to achieve 60minutes fire resistance; as such, all doors leading onto the staircase should be a minimum of FD60s specification.

Practical Fire Safety Guidance for Existing High Rise Domestic Buildings, clause 179, states that doors protecting the common escape route between a flat and the escape stair, including flat entrance doors,

are specified as minimum 60-minute fire-resisting self-closing doors (designated FD60S). Letter boxes would incorporate intumescent material which seals the opening when exposed to the heat from a fire. Current design guidance requires that fire doors forming part of the stair enclosure should also be a minimum of 60-minute fire resisting and self-closing. As such, there is a requirement for all communal doors including the apartment entrance doors to be FD60S fire doors.

Doors on escape routes

- All doors on escape routes should be hung to open no less than 90 degrees.
- Any door that opens towards a corridor or a stairway should be sufficiently recessed to prevent its swing from encroaching on the effective width of the stairway or corridor.

Conclusion – Fire Doors

Notional fire doors have been installed in the common areas of the property and may have complied with standards at the time of installation. However, during the site visit, it was observed that these doors are now damaged and aged which would compromise their ability to prevent the passage of fire and smoke. In addition, some apartment entrance doors have been replaced with non-fire rated doors. The engineer also noted that several doors were missing intumescent strips and cold smoke seals. Additionally, some fire doors leading into the staircase were found to be ajar and did not close fully into their rebates.

Routine maintenance/repair / replacement will be required on doors within the property in the future due to use, these should be reviewed through the fire risk assessment process and the additional requirements issued by the Government under the Building (Scotland) Regulations 2004.

Recommendation 9 – Fire doors

It is recommended to engage a qualified professional to inspect all doors, and where necessary, to carry out appropriate remedial work to ensure they meet the FD60S standard as outlined in the current guidance document, clause 179. Additionally, if deemed necessary, the internal apartment doors (excluding bathroom doors) should be upgraded to FD30 specifications to provide the required protection for the internal hallway. Refer to the floor plan in the compartmentation section for the location/standard of the fire doors.

NOTE – (only applicable to single storey apartments) The internal hallway doors could be risk assessed given that the travel distance within the apartments is marginally over recommended guidance in current standards and there is the provision of the LD2 fire detection system. This should be discussed between the client and the fire risk assess

Access and Facilities for the Fire Service

Perimeter access

The main entrance to the building is accessed off Saunders Street and there is 40% perimeter access to each block for fire service appliances. This appears to meet the provisions required in paragraph 2.12, Domestic Technical Handbook.



Picture 1 - Aerial view of Saunders Street blocks from Google

Firefighting Lift

At the time of construction, a lift was not required to be classified as a firefighting lift. As a result, it was identified that the lifts were not provided with a fire switch and were purely designed as a passenger lift.

Water Supplies

A short survey was conducted and confirmed the presence of suitable hydrants within 100m of the building. In accordance with post war building studies, paragraph 43, buildings with any storey higher than 30m (approximately 100ft) should be fitted with 'dry' rising mains. As this building measures 15m, there was no requirement for a rising main.

Conclusion – Saunders Sreet Fire Strategy

SPL Fire Safety were commissioned to reverse engineer a fire strategy for the above property. This was due to the client not being provided with a fire strategy for the building.

The purpose of the review was to establish if the building had been converted to Building Regulations guidance when it was constructed and to establish whether it meets current guidance.

A review of the passive and active fire safety provisions has been undertaken; it was found that the property appears not to be built to Building Regulations guidance at the time and does not meet current standards due to the recommendations contained in the next section of this strategy.

The recommendations should be actioned to ensure the premises are compliant with the requirements of the Fire safety (Scotland) Regulations 2006. In addition, actions relating to the third-party compartmentation review will need to be actioned.

Recommendations

Recommendation 1 – cross corridor doors

It is recommended to install cross corridor doors on the corridors to prevent a single fire from compromising both storey exits. See plan below as an example. This also satisfies the requirements of Domestic Technical Handbook 2024, paragraph 2.9.12.

Recommendation 2 – Emergency lighting.

It is recommended to instruct a qualified professional to inspect and assess the emergency lighting levels to ensure they meet the minimum illumination requirements for safe evacuation routes.

Recommendation 3 – Fire action notice.

It is recommended to place adequate fire action notices on every floor to guide residents on the appropriate steps to take in case of a fire.

Recommendation 4 – Fire detection within apartments.

It is recommended to confirm that all apartments (single storey) are equipped with a suitable BS5839-6 Grade D1 LD2 fire detection. It is recommended that all maisonettes are equipped with a BS5839-6 LD1 system to give an early warning to residents within the effected apartment. This, along with a protected staircase enclosure within the maisonette will compensate for the lack of an alternative means of escape from the dwelling.

Recommendation 5 – Risers

It is recommended to inspect the riser cupboards and the enclosures beside apartment entrance doors. Any breaches found should be addressed to ensure that fire-resisting construction provides at least 60 minutes of fire protection, with all openings properly fire-stopped using appropriate fire-rated materials. Additionally, pipework should be suitably protected in accordance with paragraph 2.2.9 of the Domestic Technical Handbook.

Recommendation 6 – Compartmentation.

A qualified contractor should be engaged to conduct a compartmentation survey of the site to assess the extent of any breaches, including those in the riser cupboards (recommendation 4). Any necessary remedial work must provide 60 minutes of fire resistance.

Recommendation 7 – Bin chute shutter.

Option 1- It is recommended to upgrade the bin shutter with an automatic fire shutter, which should be connected to smoke or heat detection systems or operated via a thermal link.

Option 2- install automatic water sprinkler system at the base of the bin chute to mitigate the need for the shutter to be upgraded.

Recommendation 8 – External wall survey.

It is recommended that an external wall survey is undertaken to determine if the system is compliant with the requirements of Domestic Technical Handbook if this information has not already been obtained by the client.

Recommendation 9 – Fire doors

It is recommended to engage a qualified professional to inspect all doors, and where necessary, to carry out appropriate remedial work to ensure they meet the FD60S standard as outlined in the current guidance document, clause 179. Additionally, if deemed necessary, the internal apartment doors (excluding bathroom doors) should be upgraded to FD30 specifications to provide the required protection for the internal hallway. Refer to the floor plan in the compartmentation section for the location/standard of the fire doors.

NOTE – (only applicable to single storey apartments) The internal hallway doors could be risk assessed given that the travel distance within the apartments is marginally over recommended guidance in current standards and there is the provision of the LD2 fire detection system. This should be discussed between the client and the fire risk assess

Fire Safety Management Assumptions

The strategy contained herein has been written on the assumption that the building concerned will be properly managed. This section of the report defines the minimum standard of management that has been assumed as well as any specific management requirements or procedures that are required to validate the strategy defined in subsequent sections. Failure to comply with these requirements will invalidate this fire strategy.

Management Standards

The building should be properly managed, and a Fire Safety Management Plan and Manual should be developed. Once the building is in use, the management regime should be maintained and any variation in that regime should be the subject of a suitable Fire Risk Assessment.

Fire (Scotland) Act 2005

The Fire (Scotland) Act 2005 came into force on the 1st October 2006. The Fire (Scotland) Act 2005 places a general duty of fire safety care on employees, occupiers and / or owners of businesses to provide and maintain adequate fire precautions throughout their premises and to carry out a suitable and sufficient Fire Risk Assessment.

Section 54(2) (a) of the act also imposes a duty on the responsible person to carry out a fire risk assessment which must focus on the safety in case of fire of all 'relevant persons'. The risk assessment should pay particular attention to the following areas:

- Identifying Fire hazards – sources of ignition, fuel, oxygen
- Identifying people at risk
- Reducing the risk
- Recording the findings
- Reviewing the outcomes

Regulation 38

Regulation 38 requires that, where building work involves the erection or extension of a relevant building, or relevant changes of use of a building, fire safety information shall be given to the responsible person at the completion of the project or when the building or extension is first occupied. The information will facilitate the production of the fire risk assessment. This strategy should be maintained throughout the building works and all stakeholders are required to inform the Fire Engineers of any changes to the building design to ensure that the finished strategy accurately reflects the complete design.

Appendix A - Wayfinder signage for the Fire Service

In 2019, it became a requirement under Building (Scotland) Regulations 2004 for “Storey & Dwelling Indicator Signage” (as prescribed by BS 8629:2019 & the Building (Scotland) Regulations 2004 Domestic Technical Handbook) to be installed in high rise blocks of flats and HMOs with a height of 18m or more.

The following are the changes that should be made to all blocks of apartments whereby the top story is more than 18m above ground level.

Floor identification signs should **meet all of** the following conditions:

- a. The signs should be located on every landing of a protected stairway and every protected corridor/lobby (or open access balcony) into which a firefighting lift opens.
- b. The text should be in sans serif typeface with a letter height of at least 50mm. The height of the numeral that designates the floor number should be at least 75mm.
- c. The signs should be visible from the top step of a firefighting stair and, where possible, from inside a firefighting lift when the lift car doors open.
- d. The signs should be mounted between 1.7m and 2m above floor level and, as far as practicable, all the signs should be mounted at the same height.
- e. The text should be on a contrasting background, easily legible and readable in low level lighting conditions or when illuminated with a torch.

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

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