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Fire Strategy Block F, H, I
November 2023

ABERFELDY VILLAGE MASTERPLAN

Aberfeldy Village Masterplan

BLOCKS F, H & I

STAGE 3 FIRE STRATEGY

November 2023



510478.000

Issue	Description	Date	Prepared By	Signed Off
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Rev 2	Incorporating latest crib sheet introduction	20/09/2023	DE	SB
Rev 3	Incorporating design team comments	21/09/2023	DE	SB
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1 Introduction

1.1 Scope

This Stage 3 Fire Strategy assesses Blocks F, H and I of the Aberfeldy Village development in terms of fire safety.

It is intended for discussion between the design team and to assist the design team in developing the layouts to ensure that once a Building Regulations application is made, all the fire safety elements will be incorporated into the plans.

This report is based on the guidance in Approved Document B (ADB), 2019 edition incorporating the 2020 amendments.

This guidance has been developed to ensure the highest standard of fire safety is designed into the building development at an early stage of design.

Consideration has also been given to The London Plan dated March 2021, which replaces all previous versions. The London Plan is legally part of each of London's Local Planning Authorities' Development Plan and must be taken into account when planning decisions are taken in any part of Greater London. Planning applications should be determined in accordance with it, unless there are sound planning reasons (other material considerations) which indicate otherwise. Any sections within the report that are part of a recommendation from The London Plan shall be highlighted in blue.

1.2 Building Description

The Site is located in Poplar, within the administrative boundary of the London Borough of Tower Hamlets. Each block discussed in this report operates as its own residential block, with a mixture of commercial facilities and residential amenity spaces at ground floor level.

Block	Number of Storeys
F	Ground + 11
H1	Ground + 7
H2	Ground + 7
H3	Ground + 5
I	Ground + 10

Table 1 - Number of floors

This report supersedes the 510478 - Aberfeldy Masterplan Stage 3 Fire Strategy Block F, H, I dated 06/04/2022 previously submitted in support of the Hybrid Application (LBTH Ref: PA/21/02377/A1 and GLA Ref: 2023/0300/S3) and should therefore be read on a standalone basis.

Following a resolution to refuse planning permission by the London Borough of Tower Hamlets (LBTH) Strategic Development Committee (SDC) in February 2023, and the subsequent direction that the Mayor of London will act as the local planning authority for the purposes of determining the Hybrid Application, the design of the scheme has been amended to accommodate second staircases in all buildings over 18m in height, as per the Governments long term plan for housing.

For the sake of completeness only it should be noted that the above referenced amendments follow previous amendments to the Hybrid Application, made prior to its consideration by the LBTH SDC, the assessments of which were set out within previous revisions of this 510478 - Aberfeldy Masterplan Stage 3 Fire Strategy Block F, H, I - Rev 4. In summary the previously assessed changes were: the incorporation of Jolly's Green within the red line boundary, the removal of the previously proposed Block A3 and

associated increase in open space and play space, an increase in the number of affordable rented family homes, and the inclusion of second staircases in Plots F & I.

Further information is set out within the accompanying Covering Letter (as prepared by DP9 Ltd, dated November 2023) and the updated Planning Statement (as prepared by DP9 Ltd, dated November 2023).

1.3 Fire Strategy Summary

The proposals outlined in this document demonstrate a level of fire safety equal to or greater than the general standard as required by compliance with the recommendations in ADB.

The residential and commercial occupancies have been separated with fire resisting construction, equal to the structural fire resistance required for the residential block. Other elements of the fire strategy are summarised below:

- Both occupancies will evacuate independently of one another. The commercial units will adopt a simultaneous evacuation approach, whilst the residential accommodation will implement a stay-put policy.
- Structural fire protection will be provided in accordance with Table B4 of ADB. Each floor will be designed as a compartment floor.
- Sprinkler coverage is provided to the residential apartments and shall be extended to cover the amenity areas (bike storage etc). Sprinkler coverage will also be provided to the commercial facilities.
- Each block over 18m in height will be provided with a firefighting shaft.
- Each block over 18m in height will be provided with two staircases.

1.4 Policy D12 Fire Safety Statement

1.4.1 Declaration of Compliance

In the interests of fire safety, the proposed technical design content produced for the planning application complies with all the relevant legislation and requirements of London Plan Policy D12 and D5(B5) as summarised in the following sections.

1.4.2 Competency and Qualifications of Assessors

The author of this report complies with Section 3.12.9 of Policy D12 of the London Plan and Section 5.2.3 of the London Plan Fire Safety Guidance as outlined below.

Simon Burch BA EngTech MiFireE- Associate Principal

Simon is Associate Principal and Fire Engineer at Introba registered with the Engineering Council and a Member of the Institution of Fire Engineers (MiFireE) with a wealth of experience on a variety of high-rise residential developments for major housing clients across London and the South East. He is the lead author of fire strategies and responsible for all stages of the fire engineering design from the initial client contact through the tendering phase, across construction and the ongoing management and maintenance of fire safety systems and passive fire protection.

He has 23 years of operational service with the Fire and Rescue Service and completed all relevant training and development to act as Incident Commander to manage operational response to building fires.

He has 12 years experience as a Technical Fire Safety Officer with the Fire Service managing a Team of Inspecting Officers and leading on fire engineering design review and consultation, reviewing and commenting upon Building Regulations submissions and technical inspection to confirm compliance to the requirements of the Regulatory Reform (Fire Safety) Order including construction of high rise, multi-occupied residential buildings. This included experience in response to the Grenfell disaster for completing review of façade construction of relevant buildings in the Authority area, reporting to DCLG and agreeing any remediation and interim measures. Experience also included involvement in investigation of fires in multi-occupied buildings of national significance including consultation with BRE and other expert investigators to identify and review construction defects. Completion of all relevant Technical Fire Safety training at the Fire Service College including a Level 5 Diploma in Fire Engineering

He has Three and a half years experience with Introba Consulting involving input to design and fire strategy for major residential, commercial and mixed use projects. He heads the London Office of Fire Engineers for Introba and has overall responsibility for the fire engineering delivery.

1.4.3 The Building's Construction Method and Products and Materials Used

Structural fire protection will be provided in accordance with Table B4 of ADB. Each floor will be designed as a compartment floor. Further information is provided in Sections 5.1 and 5.2.

All materials within the external wall construction for all blocks will be non-combustible as discussed in Section 6.3.

As the design develops these will be catalogued to ensure that once the building control process is started, the information will be available for review. This also applies to the manufacturers details, which will be included in the O&M's and detailed further as the design develops.

1.4.4 Means of Escape for All Building Users and Evacuation Strategy

The residential apartments and ancillary accommodations will evacuate independently of one another. The residential apartments will implement a stay-put policy, whilst the ancillary accommodations on site will adopt independent simultaneous evacuation approaches. In line with the Governments long-term planning for housing on 24 July 2023 those blocks with a storey over 18m in height will be provided with two staircases.

To assist with the evacuation of disabled occupants as recommended in the London Plan dated March 2021, one evacuation lift will be provided alongside the firefighting lift to provide a dignified escape for disabled occupants within the buildings. This is discussed further in Section 3.4.

1.4.5 Passive and Active Fire Safety Measures

The apartments will be provided with an automatic fire alarm and detection system in accordance with BS5839 Part 6.

The residential common corridors at the upper levels will be provided with a mechanical smoke ventilation system (MSVS) as discussed in Section 3.3.2.

The amenity accommodations, ancillary spaces, stores, plant and refuse rooms will be provided with an automatic fire alarm and detection system in accordance with BS5839 Part 1.

Sprinkler coverage is provided to all the residential apartments and shall be extended to cover the ancillary accommodations.

The apartments shall all be enclosed in fire rated construction with fire doors, as will the staircases, lifts, and risers. This is discussed in detail in Section 5.2.1. The ancillary accommodation shall also be enclosed in fire rated construction and when accessed via the residential accommodation, this shall be via a protected ventilated lobby as discussed in Section 3.5.5.

Any penetrations through the compartment walls shall be fire stopped.

1.4.6 Access and Facilities for the Fire and Rescue Service

Where blocks exceed 18m in height they will be provided with a firefighting shaft.

A dry riser inlet will be located on the facade of all blocks and adjacent to the entrances. It will also be within 18m of the fire appliance parking location.

All parts of the floor plates will be covered within 60m when measured along a suitable route for laying a hose from a dry riser outlet or within 60m of the fire appliance parking location at the fire tender access level as discussed in Section 7.

Hydrants will be provided within 90m of the wet riser inlet in accordance with ADB.

Smoke ventilation will be provided to the common corridors where appropriate, and when this is modelled using CFD it will be demonstrated that tenable conditions for firefighting are achieved as per the recommendations of the Smoke Control Association (SCA) guidance. The ongoing maintenance, monitoring and testing of these systems will be detailed in the management plan for the building which will be developed as the design develops, and it will form an integral part of the building handover and sign-off process.

1.4.7 Site Access for the Fire and Rescue Service

Fire tender access will be provided in accordance with the ADB and LFB guidance as discussed in Section 7.

1.4.8 Future Development of the Asset and the 'Golden Thread' of Information

A Regulation 38 pack shall be submitted to the end users upon handover. This will contain all of the details of the building fire safety / protection measures. Any changes to the buildings following their construction will need to maintain the original design intent of this fire strategy and be assessed by a suitable competent person, so as not to reduce the built-in fire safety measures. Whilst it is not possible at this time to specify exactly what will be in this document, it will contain as a minimum the fire strategy (including the evacuation strategy), fire drawings, information on the systems included including operational manuals and maintenance and testing regimes.

As this report is produced for planning purposes it outlines the principles for the ongoing management, maintenance and monitoring of the buildings from a fire safety perspective and this will be further

developed with the design team as the design progresses. Further details are provided within Section 8 which are considered sufficient at this stage.

2 Legislation

2.1 Building Regulations 2010

The development will consist of new buildings, hence, will be undergoing building works as defined in Regulation 3 of The Building Regulations 2010. All buildings will therefore have to comply with the requirements of Schedule 1 of the Regulations.

The requirements of the Schedule relating to fire safety are:

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

The principle aim of the Building Regulations is to ensure the health and safety of people in and around a building.

The 'requirements' set out broad objectives or functions, which the individual aspects of the building design and construction must set out to achieve. They are therefore often referred to as 'functional requirements' and are expressed in terms of what is 'reasonable', 'adequate' or 'appropriate'.

2.2 Approved Document B (ADB)

The Department for Levelling Up, Housing and Communities (DLUHC) has produced several guidance documents to assist designers in meeting the relevant requirements of the Building Regulations. These 'Approved Documents' provide guidance on different aspects of the Regulations. Approved Document B – Fire safety (ADB) provides general design guidance on ways in which the functional fire safety requirements can be satisfied.

The Building Regulations 2010 require reasonable standards of health and safety for persons in or about the building to be provided.

However, as with many "deemed to satisfy" documents, the ADB is general in its approach and cannot contain sufficient detail for the multiplicity of building designs and varieties of building fire loads and occupancies encountered in practice.

The recommendations presented in the ADB provide guidance on how to satisfy the functional requirements of the Building Regulations. However, there is no obligation to adopt any particular solution contained in the document. The document recognises this and accepts that, if the requirement can be demonstrated to have been satisfied by alternative solutions, then this is equally acceptable.

2.3 Regulatory Reform (Fire Safety) Order

Once the buildings are occupied, the Regulatory Reform (Fire Safety) Order (RRO) becomes the controlling fire safety legislation.

The Order came into force on 1st October 2006 and revoked the existing Fire Precautions Act and the Workplace Regulations. Under this order it will be necessary for the owner/ occupier of the building to carry out and maintain a fire safety risk assessment.

The building management team will also be responsible under this order to ensure that the buildings' fire safety provisions are appropriately managed, maintained and tested over the whole life of the building.

2.4 Construction, Design and Management Regulations

Projects undertaken in the UK are subject to the requirements of the Construction (Design and Management) Regulations 2015 (CDM) or within the European Union, that particular country's interpretation of the European Union Directive.

This report defines the strategy for meeting the functional and performance requirements for fire safety in the finished building. It is intended to form part of the submission for approval under the Building Regulations, Part B (Fire safety). Where any conclusions or recommendations contained within this report specify particular materials, products or forms of construction these will have been assessed, in accordance with CDM Regulations 11 and 18 (duties for designers).

In the event that these involve significant residual risks or health and safety critical assumptions, this information will be made available to the CDM Coordinator. Where the architect or other consultants use all or part of this report to specify works, they are understood to be competent in alerting the Client, CDM Coordinator, Designers, Contractors and Building Occupier of issues arising under the CDM Regulations.

2.5 Statutory Consultation

During the Building Regulations application process, the building control body is required to formally consult with the local fire authority. The purpose of this consultation is to give to fire authority the opportunity to make observations with respect to the Building Regulations and to provide an opportunity to make the applicant aware of action that may have to be taken to meet the requirements of the Fire Safety Order.

The consultation should allow both parties to reach mutually compatible views on whether the building meets the requirements of both pieces of legislation. In the exceptional event that the fire authority propose to require physical changes to the building to meet the requirements of the Fire Safety Order, the building control body should make the applicant aware.

2.6 The London Plan

The London Plan is the statutory Spatial Development Strategy for Greater London prepared by the Mayor of London ("the Mayor") in accordance with the Greater London Authority Act 1999 (as amended) ("the GLA Act") and associated regulations.

The London Plan was published by the Mayor in March 2021 and forms the statutory spatial development strategy for Greater London. This report addresses the recommendations in Policy D5 (Inclusive Design) and Policy D12 (Fire Safety).

A Policy D12 statement is included in Section 1.5.

Any changes to the building following its construction will need to maintain the original design intent of this fire strategy and be assessed by a suitable competent person.

3 Means of Warning & 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.”

The general principle to be followed when designing for means of escape is that any person confronted by a fire within a building can turn away from it and make a safe escape therefore; alternative means of escape should be available from most parts of the building.

3.1 Evacuation Strategy

Residential means of escape is somewhat different to many other types of buildings in that only the particular apartment that has a fire in it is immediately evacuated. The reasoning behind this is due to the level of compartmentation between each of the apartments and to reduce false alarms affecting all the people within the building. The Fire Service carries out evacuation of the other apartments if necessary.

The amenity spaces, commercial units and plant facilities included on the site will be considered completely independent of the residential elements. It is proposed that these areas adopt independent simultaneous evacuation approaches. This is particularly important for areas that may have members of the public who are unfamiliar with the building and any evacuation procedures.

3.2 Travel Distances

The travel distances for the building should follow the recommendations of ADB, which is detailed in the table below.

Purpose Group	Accommodation	Travel within	Maximum travel distance (m)	
			In one direction	More than one direction
1(a)	Apartment	Within Apartment / Hallway	9m	N/A
	Common Areas	Within Common Corridor	7.5m	30m
4	Shop / Commercial	Shop area	18m	45m
7	Storage	Storage	25m	45m
	Plant Rooms	Escape within room	9m	35m
		Enclosed escape route	18m	45m

Table 2 - Travel distance requirements

3.3 Escape within Residential Accommodations

3.3.1 Escape within Apartments

Where an apartment has an open living area and a bedroom provided as an inner room, these are classed as open plan apartments. Since ADB does not provide specific guidance on the design of open plan apartments, supplementary guidance can be taken from BS9991, which states that they are acceptable should they conform to the following:

- The size of the open plan flat should not exceed 16m x 12m.
- Open-plan flats should be situated on a single level only.
- The ceilings within the open plan flat should have a minimum height of 2.25m.
- The kitchen should be enclosed in open-plan flats having an area exceeding 8m x 4m. Cooking appliances in open-plan flats having an area smaller than 8m x 4m should not be adjacent to the entrance of the flat.
- In addition to the above, the open plan apartments should be provided with an LD1 fire alarm and detection system in accordance with BS5839 Part 6 as well as a sprinkler system in accordance with BS9251.

It should be noted that in the studio and open plan apartments, occupants should not have to make their escape past a kitchen, therefore the kitchen shall be placed in a location remote from the means of escape route from the apartment. Where this is not possible an assessment will be made on the escape route and the proximity to the kitchen. The minimum distance between the hob and the escape route should be 1.8m, with a minimum width of 750mm for the escape route. This is demonstrated in the following image.

3.3.2 Escape within Common Corridors

When the travel distances within the common corridor are up to 7.5m in a single direction of escape, the common corridor will be provided with automatic smoke venting to assist means of escape.

Where the travel distance exceeds 7.5m in length, a 0.6m² mechanical smoke ventilation system (MSVS) must be provided. The mechanical smoke shaft should achieve a minimum of 0.6m² internal free area with a 0.6m² Automatically Opening Vent (AOV) opening into each smoke shaft from each common corridor. The mechanical smoke shaft should be located within 7.5m of the dead end of the corridor.

Replacement air will be provided to the shaft via the 1.0m² AOV at the head of the stair. Where inlet air is required from the staircase AOV, the staircase doors need to open into the common area on these floors to provide the replacement air, which shall also protect the staircase from smoke ingress. At the later stages of design, a Computational Fluid Dynamics (CFD) assessment will be required to validate the smoke venting strategy for all the blocks.

Block F has travel distances greater than 7.5m from the apartment door to the stair door. A mechanical smoke shaft will be provided at the end of each corridor.

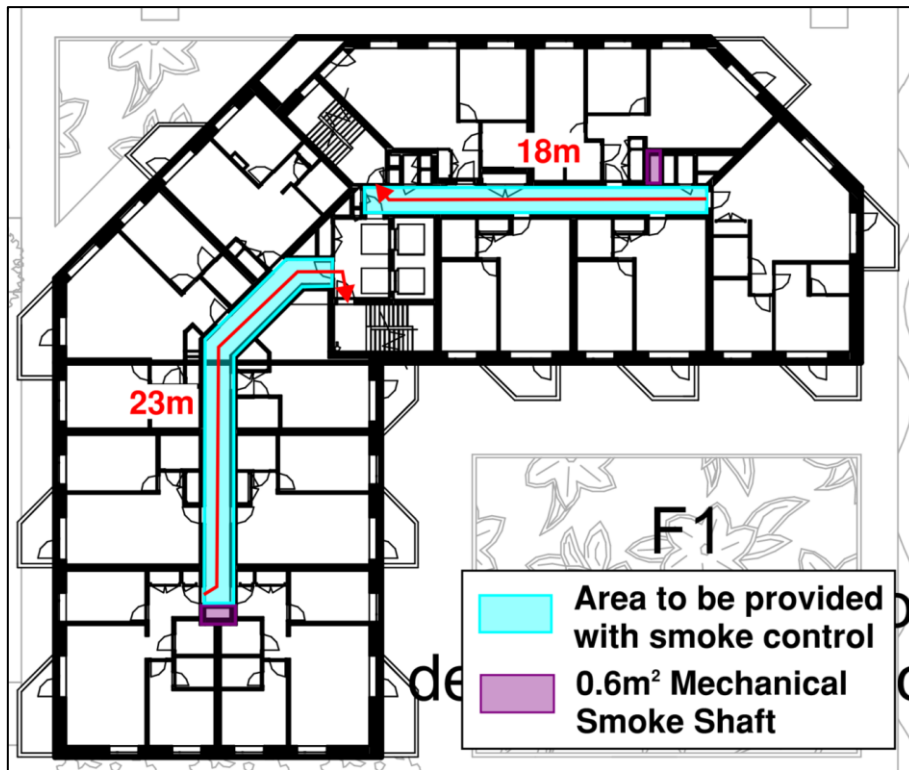


Figure 1 – Common Corridors – Block F

The first floor in Block H1 and H2 is enclosed, with travel distances under 7.5m. One mechanical smoke shaft will be positioned in each corridor.

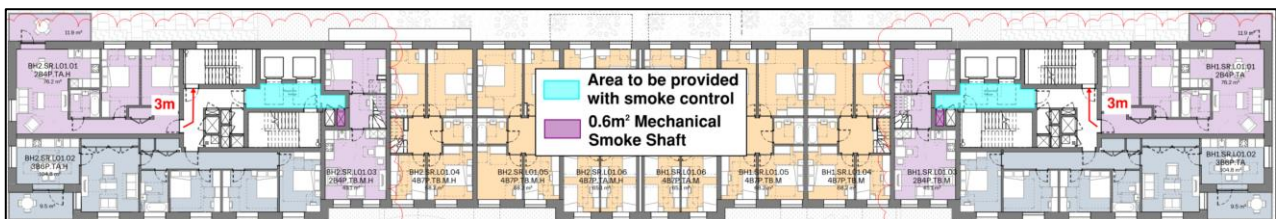


Figure 2 – Common Corridors – Block H1 / H2 First Floor

On the upper floors of Block H1 and H2, there is deck access and hence no travel distance limit on the deck itself. Within the ventilated corridor the travel distance is over 7.5m and therefore a mechanical smoke shaft will be provided.

The following requirements should be followed where escape is via deck access:

- The structure, including floor should be protected by at least 30 minutes fire resisting construction
- The walking surface should be imperforate.
- The sectional profile should be such that any fire plume breaking out of a flat or maisonette is directed outwards and upwards and should be arranged such that smoke does not leak laterally along the soffit. Balconies should be as open as possible to allow for the dispersal of smoke originating in a flat. At least 50% of the vertical section should be open and the area of opening for ventilation should be at least between the top of the balustrade at 1.1m and the soffit to the balcony above.
- The soffit above the balcony or deck having a width of more than 2m should be designed with down-stands placed at 90° to the face of the building on the separation line between flats. Down-stands should project 0.3m to 0.6m below any other beam or down-stand parallel to the face of the building.
- The face of the building should be at least 30 minutes fire resistance.

- Doors opening onto the balcony should be FD30 self-closing doors.
- Window openings should not extend below a height of 1.1m above the deck level. As egress windows are proposed, the windows should be located at exactly 1.1m.
- The external balustrade should be imperforate.
- Surface materials of the facing wall, balcony soffit and balustrade should be of a Class 0 rating.
- The length of the balconies should be sited that no point in any flat or maisonette is more than the recommended hose coverage distances from a rising fire main landing valve or approach position of a fire appliance.

Balcony and deck access should also conform with the requirements of Regulation 7(2) as detailed in Section 6.2. This will mean that any services present on the balcony will need to be non-combustible materials (either A1 or A2-s1, d0).



Figure 3 - Common Corridors - Block H1 / H2 Upper Floors

Block H3 has travel distances greater than 7.5m from the apartment door to the stair door. A mechanical smoke shaft will be provided at the end of each corridor.

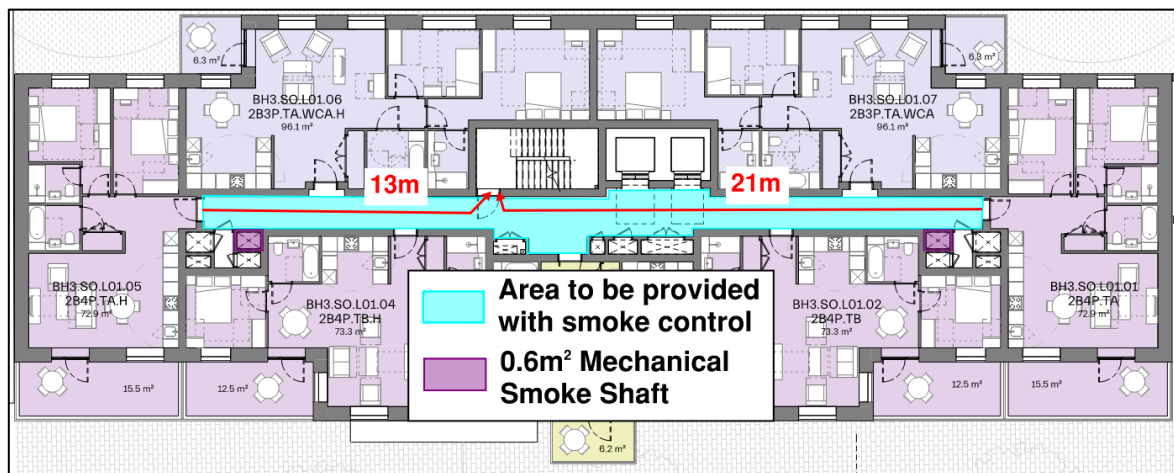


Figure 4 - Common Corridors - Block H3

Block I has travel distances greater than 7.5m from the apartment door to the stair door. A mechanical smoke shaft will be provided at both ends of the corridor. It is recommended to remove the cross-corridor door, flip the secondary escape stair door to open into the direction of escape and flip the evacuation lift lobby door to open against the direction of escape, as illustrated in the figure below.

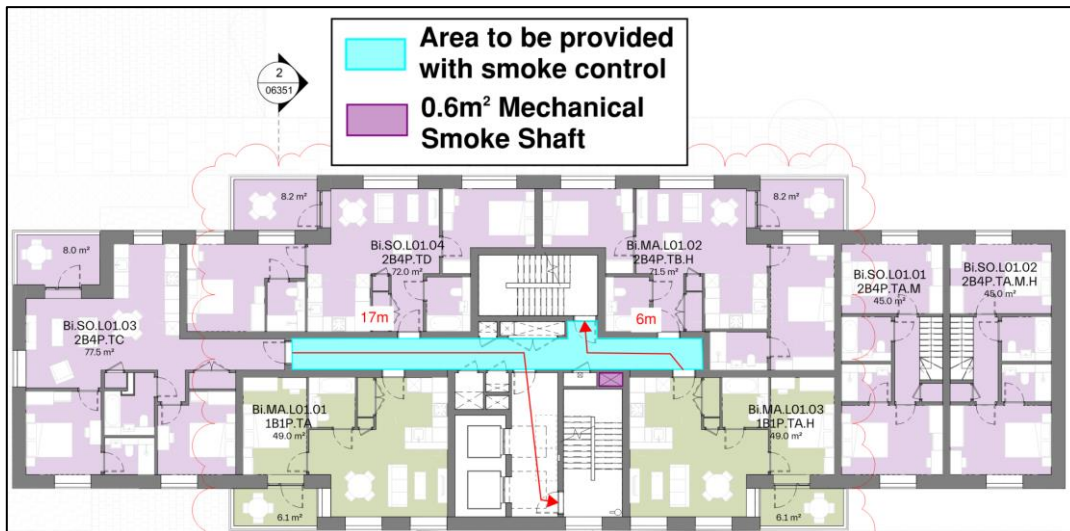


Figure 5 – Common Corridors – Block I

3.3.3 Vertical Escape

All cores which exceed 18m in height will be provided as a firefighting shaft. The firefighting staircase should be at least 1100mm wide (assuming the handrails do not protrude more than 100mm into the stair). The storey exits leading into the staircase at each level are required to have a minimum clear width of 850mm. The final exits doors at ground level should technically have a minimum clear width at least as wide as the associated staircase, i.e., 1100mm, however as the only occupants using the exit should be those in the apartment of fire origin it should be possible to reduce the residential final exit widths down to a clear opening of 850mm.

The stairs within block H3 should be a minimum of 750mm wide as it is not a firefighting stair, however in practice the stair will be at least 1000mm in width.

Since these staircases shall be designed for firefighting, no service risers should be accessed from the staircase, or the exit from the staircase at ground floor level. Where they are provided, the risers will be provided with upgraded fire rated doors with smoke seals, with the services fire stopped in line with the first-floor slab.

All blocks over 18m in height will be provided with two staircases.

3.3.4 Commercial Riser Access

Within Block F, H1, H2 and H3, the commercial riser is to be accessed from the common corridor at each level.

To permit this, the following will be required for the risers to ensure a three-door separation between residential and commercial (further information is given in Section 5.2.3).

- Each duct will be fire rated with a rating equal to the structural fire resistance.
- Each duct will sit within a fire rated enclosure / riser with a rating equal to the structural fire resistance, with a FD60S door (FD30S door where less structure is 60-minutes).
- The lobby at each floor will be fire rated with a rating equal to the structural fire resistance, with 0.4m² permanent ventilation or provided with a mechanical smoke venting system. In this case, it is proposed to provide the ventilation duct with a damper which will open on smoke detection within the lobby.

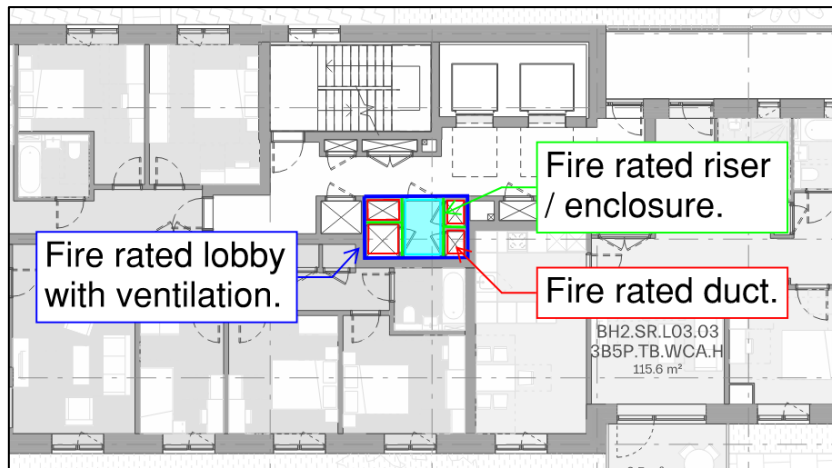


Figure 6 – Commercial Riser Access

3.3.5 Final Exit Route

Approved Document B requires that any discharge paths from the staircase must be along a protected route with any access into adjacent accommodation being by way of a protected lobby. Cupboards and stores should not be directly accessed from the entrance lobby.

Within Block F, the staircase will be provided with a protected route directly to outside as shown below with the access to the ancillary accommodation via a lobby that shall be provided with 0.4m² permanent ventilation. A fire curtain will also be provided where there is an interaction between the commercial unit and the residential corridor, to completely separate these in the event of a fire.

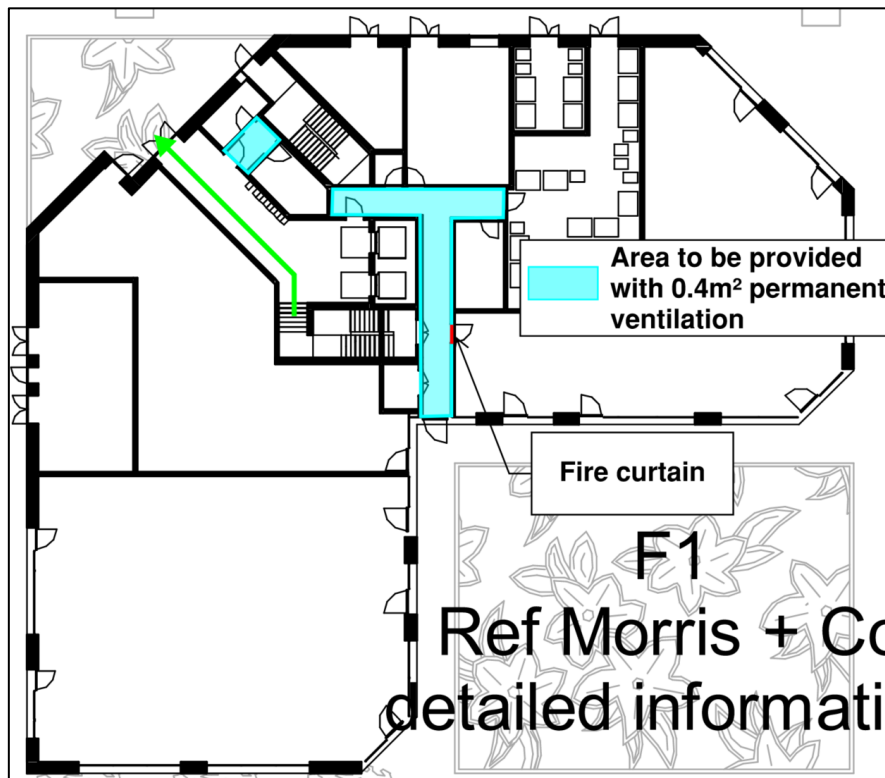


Figure 7 – Final exit route – Block F

Within Block H1 and H3 the stair leads directly to outside. The route for firefighters to access the stair will be via the route shown in blue, as this is where the fire tender will park. This will be a protected route directly to outside as shown below with the access to the ancillary accommodation via a lobby that shall be provided with 0.4m² permanent ventilation.

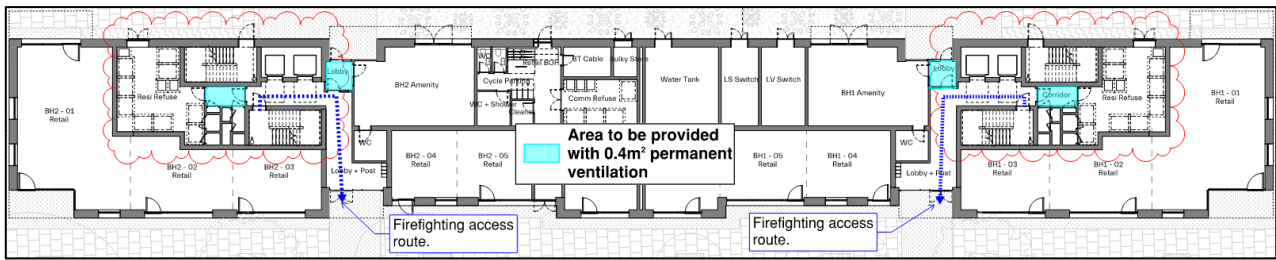


Figure 8 – Final exit route – Blocks H1 / H2

Within Block H3, the staircase will be provided with a protected route directly to outside as shown in the following image with the access to the ancillary accommodation via a lobby that shall be provided with 0.4m² permanent ventilation.

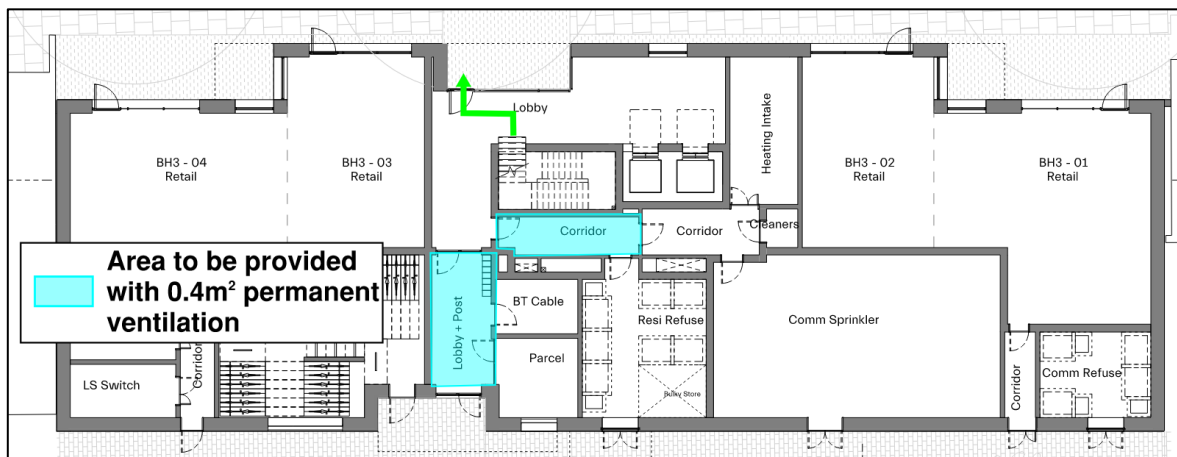


Figure 9 – Final exit route – Blocks H3

Within Block I the stair leads directly to outside. The route for firefighters to access the stair will be via the route shown in blue, as this is where the fire tender will park. This will be a protected route directly to outside as shown below with the access to the ancillary accommodation via a lobby that shall be provided with 0.4m² permanent ventilation, as indicated in the figure below a door is required to separate the ancillary accommodation from the protected route. It is recommended that the cross-corridor door is removed to allow for the entire corridor to be smoke ventilated, this will be amended at the next design phase.

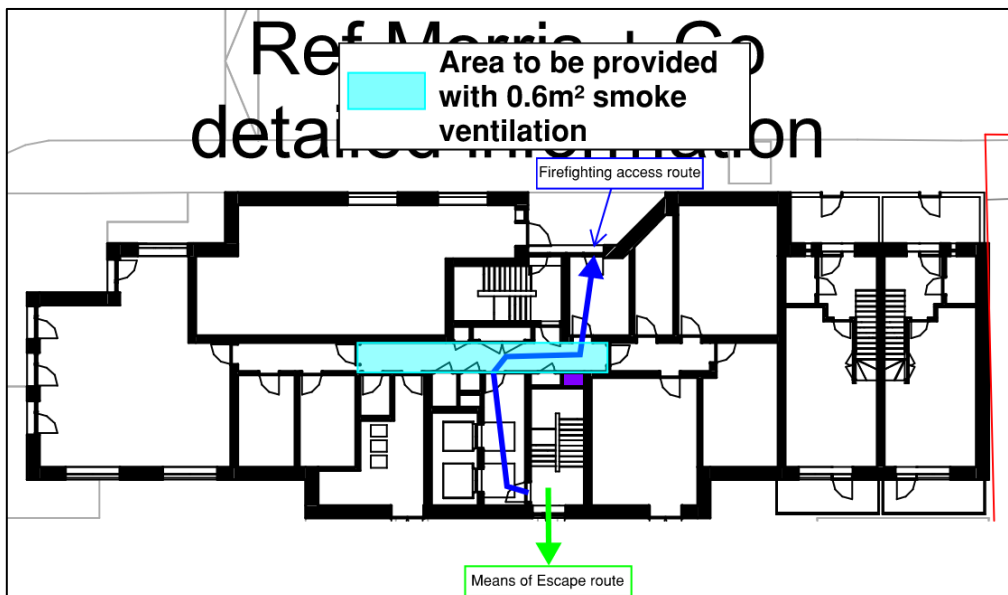


Figure 10 – Final exit route – Block I

3.3.6 Ancillary Accommodation

Travel distances in the plant rooms should be limited to 9m where escape is in a single direction and 35m where escape is possible in more than one direction unless they are places of special fire hazard, in which case the travel distances where there is more than one direction of escape should be limited to 18m.

Travel distances within the cycle stores and bin stores should be limited to 25m where escape is in a single direction or 45m where there are two directions of escape.

Ancillary rooms do not tend to have many occupants at any one time due to their use therefore ADB recommends an occupancy load factor of 30m² per person in each room. Therefore, any ancillary room up to 1800m² in area can be served by a single exit door with a clear width of 750mm (subject to acceptable travel distances being achieved). Rooms larger than this requires two exits with a clear width of 850mm.

3.4 Escape within Commercial Units

The travel distances within the commercial units should be based upon two thirds of the maximum recommended distances as the layout is unknown. The travel distances should therefore be 30m where escape is possible in more than one direction and 12m where only a single direction of escape is available.

If an indicative furniture layout can be provided at Stage 4 of design, then it should be possible to utilize the full recommended travel distances of 18m in a single direction and 45m where escape is possible in more than one direction. At present the commercial units in Block F, H1, H2 and H3 have an adequate number of exits, as the design for these is progressed this should remain the case. The worst-case travel distances are within Block H3 as demonstrated in the following image.

The travel distances in this unit conform with the requirements. It is important to note that the commercial accommodation should be completely independent from the residential accommodation and hence escape cannot be made into the residential cores.

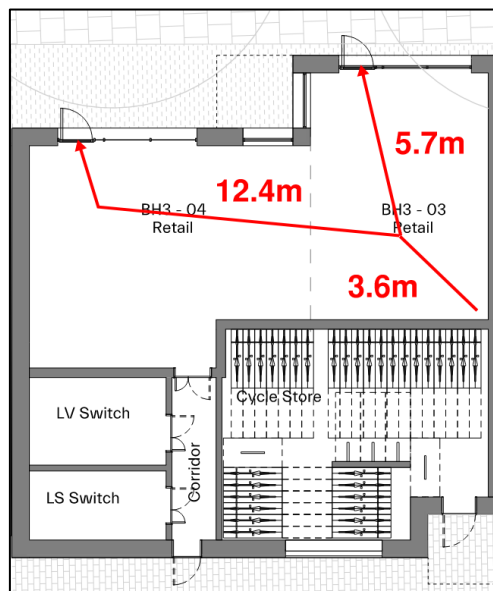


Figure 11 - Commercial unit H3 - travel distances

The occupancy loads in individual rooms will vary throughout a day however any room with a single exit should have a maximum occupancy of 60 people. The exit from such rooms can have a minimum clear width of 750mm and open into the room (open against the direction of escape).

Where any space has an occupancy greater than 60 people then this space should be provided with at least two exits. Each exit will need to open in the direction of escape and have a minimum clear width as outlined in the following table.

Occupancy	Exit Width (mm)
61-110 people	850mm
111-220 people	1050mm
220+ people	5mm per person (e.g., 300 people =1500mm)

Table 3 – Exit widths

The commercial units have been assessed in terms of occupancy load as per the following table. The load factor has been taken as 2m² based on the load space factors given in ADB. Whilst some of the spaces may be restaurant spaces (with this to be confirmed as the design develops), this floor space factor reflects that not all the space will be seating areas.

Unit	Area (m ²)	Load factor	Occupancy Load	Exit Width
Block F – Unit 1	218	2m ² /person	109	2 x 850mm
Block F – Unit 2	290		145	2 x 1050mm or 3 x 850mm
Block H1 Unit	155		78	2 x 850mm
Block H2 Unit	155		78	2 x 850mm
Block H3 Unit 1	118		59	2 x 850mm
Block H3 Unit 2	128		64	2 x 850mm
Block I Residential Amenity	84		42	2 x 850mm

Table 4 –Commercial unit exit requirements

All commercial units are located on the ground floor and there is no requirement for vertical escape.

3.5 Disabled Evacuation

The residential accommodations on the upper levels do not require disabled refuges to be provided.

Policy D5 Inclusive design of the London Plan outlines that emergency carry down or carry up mechanical devices or similar interventions that rely on manual handling are not considered to be appropriate, for reasons of user dignity and independence. It suggests that the installation of lifts which can be used for evacuation purposes (accompanied by a management plan) provide a dignified and more independent solution.

Furthermore, Policy D12 Fire Safety recommends that in all developments where lifts are installed, Policy D5 Inclusive design requires as a minimum at least one lift per core (or more, subject to capacity assessments) to be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building.

However, an evacuation lift deemed to be fully compliant with the current regulations will require a full team of staff to operate, which is impractical for a residential scheme where there may not be sufficient permanent staff at all times. Therefore, it is considered reasonable to provide an evacuation lift, in addition to the firefighting lift, that has dual power supply and allows a disabled occupant to descend to ground floor under fire service control should they see fit to utilise the lift for evacuation. This lift will be a minimum 1100mm x 1400mm in size.

As the commercial units operate solely at the access level where escape is provided directly to outside, disabled refuges will not be required.

The building management forms an integral part of the design and on-going functionality of the building after occupation. The building will have a management team whose responsibilities will include ensuring the fire safety strategy is adopted and enforced. One of the responsibilities of this team will be to develop a management strategy for the building. This strategy will incorporate details of how the building satisfies the requirements of the Equality Act 2010. The management strategy should include information on staff training, how disabled occupants will be evacuated in the event of a fire and identify key roles in ensuring they are assisted in a fire situation.

3.6 Fire Alarm & Detection System

3.6.1 Residential Accommodation

Open plan and studio apartments should be provided with a Life safety system (L) LD1 automatic fire detection and alarm system with a minimum Grade D power supply, designed, installed, and maintained in accordance with BS 5839 Part 6.

It is not considered that the private balconies will be required to have an additional sounder as even though they are accessed from one access room the sounder in the apartment will be able to alert the occupants in the balcony to a fire.

The system should be of Grade D1 if the apartments are to be rented accommodation and Grade D2 if they are to be owner occupied.

A smoke detection system should be provided in the common corridors on each floor to BS5839 Part 1 and to an L5 standard. The sole purpose of the detection system is to activate the smoke ventilation system. No sounders will be provided in the common areas.

3.6.2 Ancillary Accommodation

The fire alarm and smoke detection within the ancillary spaces, stores, plant and refuse rooms should be designed in accordance with BS5839 Part 1 and be of type M/L3.

3.6.3 Commercial Units

The fire alarm and smoke detection within the commercial units should be designed in accordance with BS5839 Part 1 and be a minimum of a manual type (Type M).

3.7 Emergency lighting

Emergency lighting as backup lighting should meet the recommendations of BS5266 Parts 1 and 7. Final locations and routes shall be agreed during the design development.

3.8 Signage

Escape signage should follow the recommendations of BS5499. Further detail will be provided during the detailed design stage.

Wayfinding signage will also be required for the fire service and will be detailed as the design develops.

3.9 Manual Fire Fighting Equipment / Fire Extinguishers

Manual firefighting equipment is not necessary under Building Regulations however the Regulatory Reform (Fire Safety) Order 2005 does request that first aid firefighting facilities should be provided in places of work.

In this case it is proposed that manual firefighting equipment will be provided (by the tenants as a part of the fit out) as part of the commercial unit fit out works with the quantity, location and type of extinguishers identified and agreed with the Fire Service.

At this stage a general guide for the extent of fire extinguisher provisions would be typically one extinguisher per 200m² of floor area with the type appropriate for the risk (i.e., Liquid fires – Powder or CO₂, General fires – Water etc.). They are generally to be located by the exits.

Manual firefighting equipment will not be installed within the common parts of the residential accommodation.

4 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):

“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.*

In this paragraph “internal linings” mean material lining any partition, wall, ceiling, or other internal structure.”

4.1 Surface Linings

The interior wall and ceiling surfaces in buildings can have a significant influence on how fast a fire may develop. It is particularly important that in circulation spaces including staircases, where the rapid spread of fire is most likely to prevent occupants from escaping, surface linings are restricted by making provision for them to have low rates of heat release and surface spread of flame.

The wall and ceilings linings within the building should meet the recommendations outlined in the table below.

Location	Class of Lining
	European Class*
Small Rooms of area less than: <ul style="list-style-type: none"> • 4m² in residential accommodation • 30m² in non-residential accommodation 	D-s3, d2
Other Rooms	C-s3, d2
Circulations spaces within dwellings	C-s3, d2
Other circulation spaces including the common areas of block of flats and commercial units	B-s3, d2
Note: * The European classifications are described in BS EN 13501-1.	

Table 5 - Surface lining requirements

For these requirements, a wall includes the internal surfaces of internal and external glazing as well as any part of a ceiling which slopes at an angle greater than 70 degrees to the horizontal. Doors, door frames, window frames and frames in which the glazing is fitted, architraves and skirting are also exempt from these limitations.

The class of linings can be downgraded (but not less than D-s3, d2) in walls of rooms providing the total area of those parts in any one room does not exceed one half of the floor area of the room and subject to a maximum of 20m² in residential accommodation and 60m² in non-residential accommodation.

5 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 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.*
3. *To inhibit the spread of fire within the building, it shall be sub-divided with fire resisting construction to an extent appropriate to the size and intended use of the building.*
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.*

The requirements will be met;

- a) If the loadbearing elements of structure of the building are capable of withstanding the effects of fire for an appropriate period without loss of stability;
- b) If the building is sub-divided by elements of fire-resisting construction into compartments;
- c) If any openings in fire-separating elements are suitably protected in order to maintain the integrity of the element; and
- d) If any hidden voids in the construction are sealed and sub-divided to inhibit the unseen spread of fire and products of combustion, in order to reduce the risk of structural failure and the spread of fire, in so far as they pose a threat to the safety of people in and around the building.

The extent to which these measures are necessary is dependent on the use of the building, its size and on the location of the element of construction.

5.1 Fire Resistance of Elements of Structure

Premature failure of the structure can be prevented by provisions for loadbearing elements of structure to have a minimum standard of fire resistance, in terms of resistance to collapse or failure of load bearing capacity.

The period of fire resistance required in accordance with ADB is linked to the risk profile of the building considering the height of the top floor and whether the building is sprinklered or not. Where any element supports another the supporting element should possess at least the resistance of the other. Approved Document B defines an element of structure as:

- a member forming part of the structural frame of a building or any other beam or column;
- a loadbearing wall or loadbearing part of a wall;
- a floor;
- a galley
- an external wall; and
- a compartment wall.

The following are excluded from definition of an element of structure:

- Structure that supports only the roof, unless:
 - the roof performs the function of a floor, such as for parking vehicles, or as a means of escape, or
 - the structure is essential for the stability of an external wall which needs to have fire resistance.

The minimum level of structural fire resistance required for each block is defined in the following table. Where cores share elements of structure depending on the structural design, the fire resistance should be the more onerous of the two.

Block	Number of Floors	Approximate Height (m)*	Structural Fire Resistance
F	Ground + 11	33m	120 mins
H1	Ground + 7	21m	90 mins
H2	Ground + 7	21m	90 mins
H3	Ground + 5	15m	60 mins
I	Ground + 10	30m	120 mins

Table 6 – Structural fire resistance

*Top storey heights to be confirmed.

Where elements of structure support a building above, they should be provided with the structural fire resistance to at least that required for the building they support.

Any elements which only support themselves and or a roof can be non-fire rated.

5.2 Compartmentation

5.2.1 Residential Accommodation

All apartments should have 60-minute fire resistant compartment walls with FD30S self-closing front doors. Where an internal corridor is provided it should be 30-minutes fire resisting with FD20 doors.

All floors should be compartment floors with a fire resistance equal to the structure.

Where apartments open onto the deck access, the face of the building should be at least 30 minutes fire resistance, with FD30 self-closing doors. The deck itself should be at least 30-minute fire rated.

Firefighting cores should be enclosed in 120 minutes fire resistance with FD60S self-closing doors. The firefighting lift shaft should have a fire resistance of 120 minutes with FD60 landing doors. Non-firefighting lift shafts and risers should have fire ratings equal to the structure with FD60 doors.

In order to assist with the evacuation of disabled occupants as recommended in the New London Plan dated March 2021, it is recommended that an evacuation lift be provided to provide a dignified escape for disabled occupants within the buildings. Subsequently, the evacuation lifts in blocks F, H1, H2 and I should be enclosed in 120 minutes fire resistance with FD60 landing doors. In the case of block H3 it is considered that the enclosure of this lift can remain at 60 minutes fire resistance with FD30 doors.

The final exit route from the stair to outside should be the same fire rating as the stair. Any risers accessed from this route will need to be provided with the same fire resistance as the stair, with FD60S doors with the services fire stopped in line with the slab.

Openings in compartment walls should be limited to the passage of service ducts and access doors fitted with smoke seals. Where service ducts pass through compartment walls these will be provided with a fire barrier. All openings will be provided with a similar period of fire resistance to the wall they are provided within, and the fire doors are to be locked closed.

To protect the final exit routes from the building all wall construction within 1.8m of the final exit points will be fire rated to 30 minutes. In general, most final exits are acceptable providing there are two directions of discharge from the exit, however where escape is only possible in a single direction and the exit route in the open air is within 1.8m of the building then any glazing present should be fire rated glazing to 30 minutes (integrity only).

5.2.2 Ancillary Accommodation

Plant and refuse rooms should achieve 60 minutes fire resistance with FD30 doors. If the plant rooms and refuse rooms are accessed from the staircase lobby, this should be via a protected lobby that is

ventilated via a 0.4m² passive vent connected directly to outside. Refuse rooms which open into other spaces will require a 0.2m² permanently ventilated lobby.

Cleaner cupboards, stores and utility rooms should be enclosed in 30 minutes fire resistance with FD30 doors. If these rooms are accessed from the staircase lobby, this should be via a protected lobby that is ventilated via a 0.4m² passive vent connected directly to outside.

Any rooms that contain life safety equipment should be enclosed in 120 minutes fire resisting construction in accordance with BS8519. Any electrical sub-stations are likely to be superseded by the electricity supplier's requirements, which are typical based on 4 hours fire separation.

5.2.3 Commercial Units

Following the guidance given in ADB, if the commercial units are sprinklered there is no maximum compartment size and so no additional compartmentation is required.

The commercial units should be separated from all other accommodations by fire resistant construction, with a rating equal to the fire resistance of the block.

Where the commercial riser rises through the residential block, it should be provided with a fire rated duct within a riser fire rated to the same fire resistance of the building structure. A 120-minute lobby should separate this from the common corridor, provided with ventilation as per Section 3.3.4.

5.3 Fire Stopping and Cavity Barriers

Openings in compartment walls should be limited to the passage of service ducts and access doors fitted with smoke seals. Where service ducts pass through compartment walls these will be provided with a fire barrier. All openings will be provided with a similar period of fire resistance to the wall they are provided within, and any fire doors are to be locked closed.

Any openings for services breaching compartment walls will be fire stopped (unless protected throughout their entire length with fire resisting material). Full fire stopping details will be developed as the design progresses.

Cavity barriers will be included in any cavity where there is a potential for unseen fire spread. The key areas that require cavity barriers are as follows:

- At the junction between an external cavity wall and a compartment wall that separates buildings, and at the top of such an external cavity wall.
- At the junction between an external cavity wall and every compartment floor and compartment wall.
- At the junction between a cavity wall and every compartment floor, compartment wall, or other wall or door assembly that forms a fire-resisting barrier.
- In a protected escape route, above and below any fire-resisting construction that is not carried full storey height.
- Within the void behind the external face of rain screen cladding at every floor level and on the line of compartment walls abutting the external wall.
- Within extensive voids greater than 20m in length.
- At the edges of cavities (including around openings, i.e., windows).

The cavity barriers should achieve 30 minutes fire resistance (i.e., 30 minutes integrity and 15 minutes insulation). Any penetrations through the cavity barriers will be either:

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

5.4 Sprinklers

5.4.1 Residential Accommodation

Sprinklers will be provided to all residential accommodation as per the May 2020 amendment to ADB, which requires sprinklers for all residential apartments over 11m in height. This system will be in line with BS9251 (2021), category 4 system for Blocks over 18m, and category 3 for blocks under 18m.

5.4.2 Ancillary Accommodation

Ancillary accommodation may be served by the residential sprinkler system providing it is within the restrictions of Table 4 of BS9251. If there are spaces greater than this, sprinkler coverage will need to be taken from the commercial BS EN 12845 system.

5.4.3 Commercial Units

The commercial units will be provided with sprinkler protection in accordance with BS EN 12845.

6 External Fire Spread

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

- a) 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 building.
- b) 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.

The objective of this requirement is to ensure that there is sufficient separation between buildings to prevent fire spread and to ensure that fire does not spread up the building façade.

6.1 Unprotected Areas

The unprotected areas are the areas of the façade that are not fire rated (i.e., glazing, etc.), which should be sized so that fire spread is unlikely to occur to buildings on the adjacent site or to separate fire compartments on the same site.

The table below shows the result of the calculations for the worst-case scenario for each accommodation.

Facade / Compartment	Actual Compartment (W x H)	Enclosing Compartment (W x H)	Required Boundary Distance (with 100% Unprotected Openings)	Available Boundary Distance	Acceptable Maximum % of unprotected openings
Block F					
Level 00	North (10.55m x 4.5m)	12m x 6m	4.25m	>4.25m	100%
	South (19.8m x 4.5m)	21m x 6m	5.25m	>5.25m	100%
	East (20m x 4.5m)	21m x 6m	5.25	>5.25m	100%
	West (9.9m x 4.5m)	12m x 6m	4.25m	>4.25m	100%
Level 01	North (13.03m x 3m)	15m x 3m	2m	>2m	100%
	South (8.2m x 3m)	9m x 3m	1.75m	>1.75m	100%
	East (12.4m x 3m)	15m x 3m	2m	>2m	100%
	West (9.8m x 3m)	12m x 3m	1.75m	>1.75m	100%
Level 02-06	North (12.9m x 3m)	15m x 3m	2m	>2m	100%
	South (8.5m x 3m)	9m x 3m	1.75	>1.75m	100%

Facade / Compartment	Actual Compartment (W x H)	Enclosing Compartment (W x H)	Required Boundary Distance (with 100% Unprotected Openings)	Available Boundary Distance	Acceptable Maximum % of unprotected openings
	East (12.5m x 3m)	15m x 3m	2m	>2m	100%
	West (13m x 3m)	15m x 3m	2m	>2m	100%
Level 07	North (13m x 3m)	15m x 3m	2m	>2m	100%
	East (12.36m x 3m)	15m x 3m	2m	>2m	100%
	West (12.36m x 3m)	15m x 3m	2m	>2m	100%
Level 08-11	North (13m x 3m)	15m x 3m	2m	>2m	100%
	East (12.36m x 3m)	15m x 3m	2m	>2m	100%
	West (12.36m x 3m)	15m x 3m	2m	>2m	100%
Block H1/2					
Level 00	West (8.89m x 4.5m)	9m x 6m	3.75m	>3.75m	100%
	East (22.87m x 4.5m)	24m x 6m	5.75m	>5.75m	100%
	North (12.66m x 4.5m)	15m x 6m	4.5m	>4.5m	100%
	South (12.66m x 4.5m)	15m x 6m	4.5m	>4.5m	100%
Level 01 - 07	West (12.89m x 3m)	15m x 3m	2m	>2m	100%
	East (18.45m x 3m)	21m x 3m	2.25m	>2.25m	100%
	North (6.36m x 3m)	9m x 3m	1.75m	>1.75m	100%
	South (6.36m x 3m)	9m x 3m	1.75m	>1.75m	100%
Block H3*					
Level 00	West (15.43m x 4.5m)	18m x 6m	5m	>5m	100%

Facade / Compartment	Actual Compartment (W x H)	Enclosing Compartment (W x H)	Required Boundary Distance (with 100% Unprotected Openings)	Available Boundary Distance	Acceptable Maximum % of unprotected openings
	East (15.43m x 4.5m)	18m x 6m	5m	>5m	100%
Level 01	West (17.39m x 3m)	18m x 3m	2m	>2m	100%
	East (12.29m x 3m)	15m x 3m	2m	>2m	100%
Level 02 - 04	West (8.46m x 3m)	9m x 3m	1.75m	>1.75m	100%
	East (12.41m x 3m)	15m x 3m	2m	>2m	100%
Level 05	West (17.3m x 3m)	18m x 3m	2m	>2m	100%
	East (17.3m x 3m)	18m x 3m	2m	>2m	100%
Block I**					
Level 00	North (13.82m x 3m)	15m x 3m	3m	>3m	100%
	South (9.47m x 3m)	12m x 3m	2.75m	>2.75m	100%
	East (11.5m x 3m)	12m x 6m	1.75m	>1.75m	100%
	West (12.61m x 3m)	15m x 3m	3m	>3m	100%
Level 01 - 06	North (14.82m x 3m)	15m x 3m	2m	>2m	100%
	South (9.47m x 3m)	12m x 3m	1.75m	>1.75m	100%
	East (10.93m x 3m)	12m x 3m	1.75m	>1.75m	100%
	West (11.09m x 3m)	12m x 3m	1.75m	>1.75m	100%
Level 07 - 10	East (9.5m x 3m)	12m x 3m	1.75m	>1.75m	100%
	West (9.5m x 3m)	12m x 3m	1.75m	>1.75m	100%

Table 7 - External fire spread requirements

Note * - The north and south facades of block H3 are bordered by Loren Apartments and Sherman House and the party wall between these will be fully fire rated.

Note ** - The

6.2 External Wall Construction

The external envelope of the building should not be a medium for fire spread.

Block F, H1, H2 and I are over 18m in height, and as such all the materials which become part of an external wall, should achieve European Classification A2-s1, d0 or Class A1, classified in accordance with BS EN 13501-1:2007+A1:2009. This does however not apply to the following

- cavity trays when used between two leaves of masonry;
- any part of a roof if that part is connected to an external wall;
- door frames and doors;
- electrical installations;
- insulation and water proofing materials used below ground level;
- intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part B of Schedule 1;
- membranes;
- seals, gaskets, fixings, sealants and backer rods;
- thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part L of Schedule 1; or
- window frames and glass.

Membranes above ground level, although exempt, should achieve a minimum classification of B-s3, d0.

Block H3 is under 18m in height, and therefore where it is greater than 1m from the relevant boundary there are no restrictions on the external wall materials when referring to ADB.

However, it is advised that Block H3 is considered the same way as the other block to guard against any changes in guidance, and that the external wall build-up is of A2-s1, d0 classification. This will also ensure the blocks under 18m complies with the relevant part of the Fire Safety Act 2021.

To protect the staircases from a fire on the floor plate any wall construction perpendicular to the stair core within 1.8m of the staircase should be fire rated equal to that of the fire protection to the stairs.

6.3 Roofs

Roof coverings for all blocks should be designed in accordance with Table 12.1 of ADB as shown in the following figure.

Designation ⁽¹⁾ of covering of roof or part of roof	Distance from any point on relevant boundary			
	Less than 6m	At least 6m	At least 12m	At least 20m
B _{Roof} (t4)	●	●	●	●
C _{Roof} (t4)	○	●	●	●
D _{Roof} (t4)	○	● ⁽²⁾⁽³⁾	● ⁽²⁾	●
E _{Roof} (t4)	○	● ⁽²⁾⁽³⁾	● ⁽²⁾	● ⁽²⁾
F _{Roof} (t4)	○	○	○	● ⁽²⁾⁽³⁾

● Acceptable.
○ Not acceptable.

NOTES:
Separation distances do not apply to the boundary between roofs of a pair of semi-detached dwellinghouses and to enclosed/covered walkways. However, see Diagram 5.2 if the roof passes over the top of a compartment wall.
Polycarbonate and uPVC rooflights that achieve a class C-s3, d2 rating by test may be regarded as having a B_{Roof}(t4) designation.

- The designation of external roof surfaces is explained in Appendix B.
- Not acceptable on any of the following buildings.
 - Dwellinghouses in terraces of three or more dwellinghouses.
 - Any other buildings with a cubic capacity of more than 1500m³.
- Acceptable on buildings not listed in (1) if both of the following apply.
 - Part of the roof has a maximum area of 3m² and is a minimum of 1500mm from any similar part.
 - The roof between the parts is covered with a material rated class A2-s3, d2 or better.

Figure 12 - Limitations on Roof Coverings

Any roofs which form an access deck/balcony will be treated as roofs and will therefore be classified as B_{Roof}(t4). This will also apply to public and private terraces which sit above accommodation. This is in line with the recommendations of BS8579, with the following figure demonstrating where this applies (the hatched areas are specified as B_{Roof}(t4)).

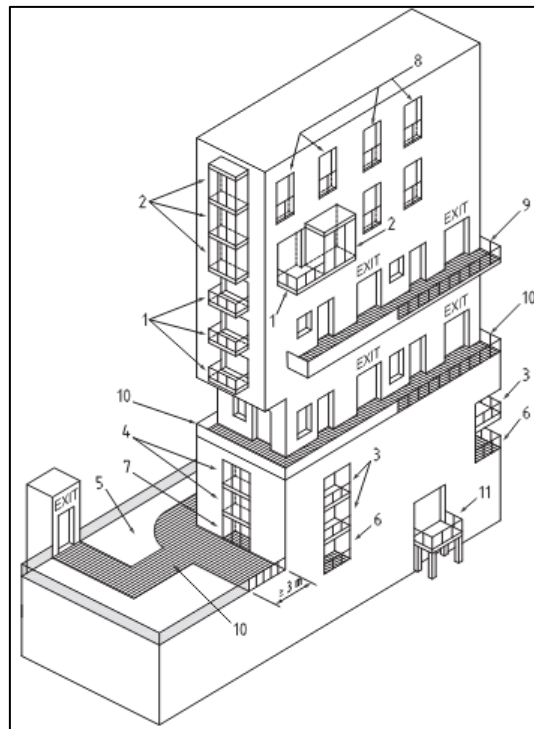


Figure 13 - Roof designation as taken from BS8579

7 Access & Facilities for the Fire Service

Schedule 1 of the Building Regulations requires the following functional requirement 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 fire fighters in the protection of life.*
- (2) *Reasonable provisions shall be made within the site of the building to enable fire appliances to gain access to the building.*

The following discusses the implications of these requirements on the proposed design with regard to access and facilities for the Fire Service within and around the building.

7.1 Vehicle Access

Fire Service access is required to provide access for fire personnel and a water supply to within a reasonable distance of the building entrances. Due care should be given to ensure that the vehicle access route meets the requirements for a pump appliance as shown in the table below (which is taken from London Fire Brigade – Guidance Note 29).

Appliance Type	Minimum width of road between kerbs	Minimum width of gateways	Minimum turning circle between kerbs	Minimum turning circle between walls	Minimum clearance height	Minimum carrying capacity
Pump	3.7m	3.1m	16.8m	19.2m	3.7m	14.0t

Table 8 – Vehicle Access Requirements

Any access / security measures in and around the site (especially any bollards preventing vehicle access) should be bypass-able by the fire service. The details of the bypass arrangements should be developed and agreed with the fire service as applicable.

The road layout shows that fire service access is available to within 18m of each dry riser inlet.

7.2 Internal Fire Service Access

All blocks which contain a top floor more than 18m from the access level shall be provided with a firefighting shaft. In this case, the firefighting shaft should serve every upper floor level and be designed in accordance with ADB as listed below.

- Be constructed within 120 minutes of fire resisting construction,
- Include firefighting staircase (at least 1100mm wide),
- Include firefighting lift (provided with dual power supply, water protection etc.),
- Ventilated Fire Fighting Lobby,
- Outlet from the fire main at each storey that the firefighting shaft serves (within the staircase),
- Protected access (at least 120 minutes) onto firefighting shaft at access level.
- A 1.0m² vent on the top of the staircase.

In the residential accommodation, where the common corridor is to be utilized as the firefighting lobby, the entrance to the stair and lift should not be separated by more than 7.5m. The separation between the common corridor and the apartments must provide a fire resistance of at least 60 minutes as shown in the following figure.

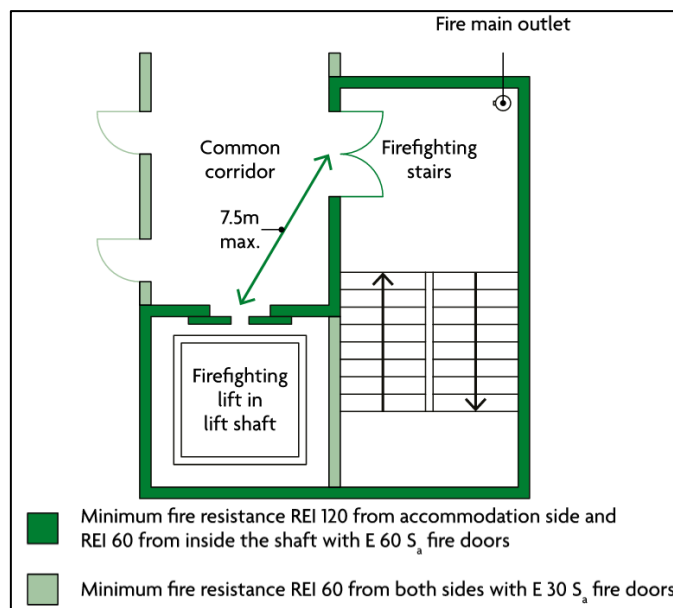


Figure 14 - Internal firefighting shaft

The firefighting stair will be provided with a level of lighting recommended in BS5266 Part 1 and will have a backup power supply capable of maintaining the lighting and other operations in the firefighting shaft for at least 3 hours.

As Block H3 is under 18m in height, it is not required to have a firefighting shaft. However, the stair will be provided with a dry riser to provide adequate hose coverage.

7.3 Dry Riser

Every block will be provided with a dry riser. All dry riser inlets should be adjacent to the building entrances and be visible from the fire appliance (plus accessible within 18m of the fire appliance parking location).

All parts of the floor plates should be covered within 60m (when measured along a route suitable for laying hose) from the dry riser outlet provided within the firefighting staircase, and within 45m of a dry riser inlet in an escape stair (applicable to Block H3).

7.4 Smoke Venting

7.4.1 Residential Accommodation

The smoke venting requirements for the residential areas are discussed in detail as part of the common areas means of escape section (Section 3). No further provisions beyond this are needed for firefighting.

7.4.2 Ancillary Accommodation

All ancillary accommodation accessed from the stair lobbies should be accessed via a protected lobby that is ventilated via a 0.4m² natural ventilation duct connected directly to outside.

7.4.3 Commercial Units

Due to the simultaneous evacuation strategy of the commercial units, it is not deemed necessary to provide any smoke venting within the units themselves.

Smoke venting will be provided to the protected lobby serving the commercial risers on each residential floor as per Section 3.3.4. This will be in the form of a 0.4m² duct with a damper at each level. The smoke extract is not required to be powered; it will be a natural 0.4m² vent direct to outside at roof level.

7.5 Hydrants

ADB recommends that hydrants should be provided as necessary to ensure that the dry riser inlet is within 90m of a fire hydrant. Where the existing hydrants cannot achieve this, then a private hydrant should be provided.

It is proposed that a site survey confirms whether the above criteria is achieved based on any existing hydrant provisions. If this survey establishes that the existing hydrants are inadequate it is recommended that an additional private hydrant is included on the site.

7.6 Emergency Power Supplies

Each life safety system provided within the building will have an independent power supply which would operate in the event of a failure of the main supply.

Secondary power supply should be provided to the following life safety systems:

- Automatic opening vents,
- Mechanical Smoke Venting system,
- Fire Alarm System,
- Emergency lights and signs,
- Residential sprinkler system,
- Commercial Sprinkler System,
- Evacuation Lifts,
- Emergency Voice Communication (EVC) panels,
- Firefighting lifts.

8 Fire Safety Management

8.1 General

Given the use and likely occupancy of the building, management procedures will assist in the prevention and control of fires and the evacuation of occupants.

Good housekeeping standards will be enforced to ensure that the effectiveness of the fire safety provisions is not affected.

Maintenance procedures will be developed to ensure that all equipment and services within the building are able to operate effectively.

A full Fire Risk Assessment should be carried out by the occupier of the building nearer to the development completion and be in place on occupation to meet the Regulatory Reform Order (RRO). The assessment should be maintained and act as a record of the provision and measures, passive and active, used to minimize fire risk within and around the building.

8.2 Key Management Issues

This section describes each of the key management areas that will need to be implemented and maintained during the lifetime of the building:

- All necessary fire safety systems must be regularly maintained and tested.
- The building management will regularly monitor and control the specification and use of combustibles within the escape routes and circulation areas. These areas will generally be maintained free of all combustibles and the escape routes will be unobstructed at all times.
- A full Fire Risk Assessment will be developed for the building.
- All building staff and tenants will receive regular training including roles and responsibilities for key members of staff.

8.2.1 Control of Evacuation and Fire Safety Planning / Implementation

A detailed fire safety plan will be drawn up by the building management, which will provide clear simple advice for the occupants in the event of an emergency.

The fire safety plan will be prepared, maintained and implemented by the fire personnel responsible for the building in question and will include:

- The procedures to be adopted in the event of a fire signal being given
- Procedures for evacuation of occupants (including disabled occupants)
- Procedures for equipment maintenance
- Frequency and nature of fire drills
- Staff training
- Procedures for recording and monitoring equipment maintenance and any fire incidents

Expanding on the information given above the fire strategy includes a number of risk critical areas resulting in the need to formalize the fire safety management in the building. In order to develop and maintain the safety of the building, the building management should formulate a policy statement appropriate to the building configuration, location, occupation, and if relevant, to the building users. The policy statement should include:

- General safety issues related to the use of the building
- Possible fire scenarios
- Aims and objectives of the proposed management system and its methodology

This policy should be endorsed by the highest level of management.

8.3 Regulation 38

To satisfy Regulation 38 to the Building Regulations it is proposed that a full package of building design information is passed to the end users. It is therefore proposed that the following information is provided to the end users:

- The fire strategy report
- Any management information proposed in addition to that contained in this strategy
- Details of all passive fire safety measures (including compartmentation, cavity barriers, fire doors, self-closers and duct dampers)
- Details of the fire alarm and detection systems, emergency lighting, emergency signage, access controls, door hold open devices
- Details of all active fire safety measures including sprinkler systems design, including isolating valves and control equipment; and smoke control systems design, including mode of operation and control systems.
- Details of the dry / wet risers, fire hydrants
- Any high risk rooms and equipment present
- As built plans for the building
- O&M Manuals for the building systems, including commissioning information and certification
- Any provision incorporated into the building to facilitate the evacuation of disabled people

This information will be transferred as a package of information by the main contractor at handover of the building.

9 Conclusions and Recommendations

This report outlines the fire safety strategy proposals for the Aberfeldy Masterplan Blocks F, H and I that seeks to demonstrate compliance with the Building Regulations (generally in the form of the recommendations of Approved Document B).

The designs of the residential cores, such as travel distances etc., are not compliant within the common areas in accordance with ADB and so a mechanical smoke system will be installed and developed and validated using CFD at a later design stage. An automatic opening vent will be provided at the head of each staircase to provide make up air to the system.

Elements of structure will achieve varying levels of fire resistance dependent on the height of each block.

All blocks over 18m in height will be provided with a firefighting shaft. The shaft will incorporate a firefighting stair, smoke clearance and a dry or wet main. A firefighting lift will also be provided. In Block H3, a dry riser will be provided in the escape stair, but it will not be required to be provided with the facilities of a firefighting shaft. In those blocks over 18m in height, two staircases will be provided.

Based upon the above proposals it is considered that adequate measures are provided to meet the functional requirements of the Building Regulations. [This report addresses the recommendations in Policy D5 \(Inclusive Design\) and Policy D12 \(Fire Safety\) from the London Plan as well as the guidance within The Fire Safety London Plan Guidance \(LPG\) 2022.](#)



ABERFELDY VILLAGE MASTERPLAN