

Fire Statement

Mercure London Heathrow

Shepiston Lane, Hayes UB3 1LP



Design stage:

RIBA Stage 2: Concept design

7th April 2026

MUK10790 – Issue 01

Client: Sal Hotels Ltd, 5th Floor, 111 Charterhouse Street, London, EC1M 6AW

Revision	Date	Description
01	07.04.26	Initial issue

Author: Andy Ballantyne BArch MEng CEng MIFireE PMSFPE
Institution of Fire Engineers Member 00056660



Fire Engineering credentials maybe validated using the online directory at:
<https://portal.ifehosting.org.uk/Resources/IFE-Member-and-Engineering-Council-Registrant-Directory>

This report should not be divulged to any other parties without the approval of the client for whom it was produced. It should not be manipulated, abridged or otherwise presented without the written consent of Mu.Studio (UK) Ltd. In the event that such permission is sought and agreed, and the report is copied; then it must be copied in its entirety.

Mu.Studio (UK) Ltd shall have no duty of care beyond that owing to the Client. Under no circumstances shall Mu.Studio (UK) Ltd be liable for any reliance by any party, other than the Client, on the information contained within this report. Nothing in this report confers or purports to confer on any third party, any benefit, or the acceptance of any third-party liability by virtue of the Contracts (Rights of Third Parties) Act 1999.

This report is subject to Mu.Studio (UK) Ltd’s standard terms and conditions and is issued Commercial in Confidence.

The London Plan 2021

Mu.Studio (UK) Ltd have been commissioned to provide fire safety consultancy services for a proposed apart-hotel development on the site of an existing car park at Shepiston Lane, in the London Borough of Hillingdon.

This Fire Statement report is provided both to fulfil the expectations of the London Plan 2021 [1] for a ‘major development’, where having a floor area greater than 1,000 m², as well as to support the design team with developing their project information into detailed and technical design. The report includes completed Form 1 and Form 3 pro-forma as provided within the Greater London Authority document “London Plan Guidance – Fire Safety” (February 2022 version, draft for consultation). The remainder of the document provides more detailed information to substantiate the completed pro-forma and to assist with the ongoing development of the scheme.

Further supporting fire strategy information as developed to date is included within the main body and subsequent appendices of this report, offering technical content which may be of relevance to potential consultees during the planning process (such as the London Fire Brigade).

In the event that planning permission is granted for the proposal, this is not to be construed as providing consent or support for any aspect of the fire safety design set out in this report. All aspects of the fire strategy approach will remain subject to approval under the requirement of the Building Regulations following planning.

General information

Item	Description
Site address	Mercure Heathrow London, Shepiston Lane, Hayes, London UB3 1LP
Description of development	Demolition of existing car park and erection of 5 storey hotel building (with retention of the lower car park level) providing apart-hotel suites, landscaping alterations and associated development.
Name, qualifications, professional memberships, and experience of author	Mr Andrew O.M. Ballantyne BArch MEng CEng MIFireE PMSFPE , Director of Mu.Studio (UK) Ltd. Andy is a Chartered Engineer registered with the Engineering Council by the Institute of Fire Engineers, being a Full Member of the Institute of Fire Engineers with membership number 00056660. Andy graduated from the University of Edinburgh with the First-Class Master’s degree in Structural and Fire Safety Engineering. Prior to this, Andy also received a Batchelor’s degree in Architectural Design from the University of Dundee. Following graduation, Andy has worked in fire safety engineering for over 10 years, working primarily in the London area and undertaken numerous commercial, residential, and governmental projects of varying scale and complexity.
Has a Gateway One Statement been submitted?	Not applicable, where proposal is not a ‘Relevant Building’ as defined in the Town and Country Planning (Development Management Procedure and Section 62A Applications) (England) (Amendment) Order 2021.
Declaration of Compliance*	
The technical content produced for this planning application is considered to suitably comply with the relevant legislation and requirements of London Plan Policies D5(B5), D12A and D12B, subject to suitable development and implementation during the Building Regulations process, construction, and occupation. Signed: 	
* Note – a combined declaration for Policies D5(B5) and D12 is included to facilitate use of a digital signature	

Form 1: Fire Statement – Policy D12A & D12B

Item	Detail	See also:
The building’s construction: methods, products, and materials used		
Structure	Currently expected to be a combination of concrete and steel framing, with concrete composite floors.	-
Internal walls	Generally, a combination of masonry or gypsum dry-lining walls. Internal wall lining classifications to be accordance with ADB2.	Section 4.1
External walls and attachments	The external walls will meet contemporary fire safety guidance in ADB2.	Section 5.1
Roof coverings	Roofing systems meeting either B _{ROOF} (t4) to BS EN 13501-5, or green (inc. brown or sedum) roofs design in accordance with the GRO code.	Section 5.2
Means of escape for all building users and the evacuation strategy		
Design basis	Means of escape based on Approved Document B Volume 2 (ADB2).	Section 1.2
Evacuation regime	A simultaneous evacuation strategy throughout the hotel.	Section 3.1
Horizontal escape	Escape is typically arranged to meet the expectations of ADB2 with respect to travel distances, dead-end distance, and protection of corridors. Protected bedroom corridors will lead to one of multiple protected stairs, offering diverse routes of escape from each of the floors with limited dead-end travel distances. The apart-hotel suites will feature open-plan arrangements supported by automatic suppression, a high standard of detection and alarm based on research that demonstrates an equivalent level of safety to ADB1 guidance.	Section 3.3
Vertical escape	Two protected stairs are provided within the building, offering diverse means of escape and ample capacity from each of the above- or below-ground floors.	Section 3.4
Final exits	The escape stairs will each discharge to outside at Ground floor.	Section 3.5
Evacuation lifts	An evacuation lift is to be provided adjacent to each protected stair, to assist management with the evacuation of disabled or elderly occupants.	Section 3.6
Passive and active fire safety measures		
Structural fire resistance	Structural elements required to be fire-resisting are to achieve a fire resistance rating of 60 minutes.	Section 4.3
Compartmentation and fire-resisting walls	Fire resistance ratings are to be provided in accordance with ADB2. All floors are to be compartment floors. Protected shafts (incl. stairs, lifts, and service risers) are to have a fire resistance rating of at least 60 minutes. All bedroom corridors are to be protected corridors enclosed by fire-resisting construction rated to at least 30 minutes with smoke-sealed fire doors.	Section 4.4
Fire detection and alarm	Category L1 system to BS 5839-1 provided throughout the apart-hotel.	Section 3.2
Smoke control	Smoke control is not expected by guidance or proposed for this hotel building.	Section 3 & 6

Emergency lighting and escape signage	Emergency lighting is to be provided throughout the building in accordance with BS 5266. A combination of internally and externally illuminated escape signage is to be provided to BS 5499, depending upon the available emergency lighting coverage.	Section 3.8 & 3.9
Automatic suppression	Automatic suppression is not required to meet the expectations of ADB2 based on the height of the building, though will be provided in each apart-hotel suite in accordance with Category 1 to BS 9251 in support of the open-plan arrangements.	Section 4.2
Stand-by power	Stand-by power is expected to be provided through in-built batteries to smaller items of equipment, with diverse cabling from a robust single supply to be provided to the sprinkler pump and evacuation lifts.	Section 6.7
Access and facilities for the fire and rescue service		
Building access	External doors are the east and west sides of the building, offering access at ground level to the reception area, ancillary areas, and to each protected stair.	Section 6.2
Fire hydrants	An existing fire hydrant is available, being <10 m from the hotel entrance.	Section 6.3
Firefighting shafts	Not required where no floor exceeds 18 m in height. Firefighting access is available to the interior of the building via the common circulation routes.	Section 6.4
Firefighting lifts	Not required where no floor exceeds 18 m in height.	
Rising mains	A rising main not required where suitable façade access is to be available.	
Smoke control	Not expected or proposed	
Basement venting	Not applicable.	Section 6.5
Car park venting	The car park at Lower Ground floor is to be naturally vented via openings in the building perimeter as well as via the car park entrance.	Section 6.6
Site access for the fire and rescue service		
Access via public roads	Public highways provide the primary route of access to the development, with Shepiston Lane and Arlington Court being existing roads that would allow multiple appliances to access the building.	Section 6.2
Internal / private road access	The existing road around the site will give access to circa 60% of the perimeter of the building, expected to meet guidance within LFB document GN29 for high-reach appliances.	
Hardstanding areas	Suitable appliance hardstanding areas will be available using Shepiston Lane and Arlington Court.	
Modifications to the development and the ‘golden thread’ of information		
During design and construction	Further development of the fire safety provisions within this Fire Statement are expected during the Building Regulations approvals process, including the selection of specific products, systems, or materials to fulfil the expectations of the Fire Statement. Modification to the fire safety provisions in this Fire Statement should not be incorporated unless agreed in writing by the appointed building control authority.	Section 7.1

Handover of information	The as-built fire safety strategy for the building, as agreed by the appointed building control authority, should be documented and provided to the building owner and Responsible Person for the building as defined in the Regulatory Reform (Fire Safety) Order 2004, as well as to meet the principles of the Golden Thread of Information. This should include, but not be limited to: • This Fire Statement report • The as-built fire safety strategy report and associated fire strategy drawings • Manufacturer’s literature for fire safety products and equipment • Drawings indicating the locations of fire safety products and equipment	
Storage of information	It is recommended that the above information is provided to the Responsible Person in a digital format that may be retained using a cloud-based or other remote service, to reduce the potential for loss of information.	
Use of information	The Responsible Person and their appointed Building Safety Manager are expected to ensure that periodic maintenance of the fire safety equipment is undertaken in accordance with manufacturer’s recommendations. The information provided within the Regulation 38 documentation is to assist maintenance professionals in identifying the systems, spare parts, operational procedures, maintenance procedures, etc. for the various systems present.	
Future changes to the development	Any amendment to the fire safety provisions at the building will require consent from an appointed building control authority. The building owner should consult with a building control authority or fire safety professional prior to conducting any modification works, to ensure that these will meet any relevant fire safety legislation in force at that time.	

Form 3: Provision of evacuation lifts – Policy D5(B5))

Item	Detail
Details of the evacuation lift and shaft	
Design standard	To meet BS EN 81-76, as well as being in accordance with Annex G.2 of BS 9999 as relevant.
Location	The evacuation lifts are located adjacent to the protected stairs and access from the protected bedroom corridors. Occupants will be familiar with the location of the lifts where these will also be the lifts used by occupants to access the floors.
Waiting areas	The lift waiting spaces are places of relative safety, being within a protected bedroom corridor. Communication equipment meeting BS 5839-9 to be provided at the lift waiting spaces.
Capacity assessment	
Size of cars	Evacuation lifts are to meet the recommendations of Part M of the Building Regulations. This is considered sufficient for the transportation of typical wheelchair or other less mobile users, plus potential for a lift operator.
Capacity of lifts	Specific guidance for undertaking capacity assessments for the evacuation of disabled occupants has not yet been developed / published. In the hotel, each stair will have at least one associated evacuation lift. This is considered sufficient for supporting egress of disabled occupants only in the event of a fire.
Evacuation strategy	
General philosophy	The building will utilise a simultaneous evacuation strategy, with all areas being signalled to evacuate at the same time upon confirmation of a fire. Disabled occupants would be expected to make their way to the evacuation lift lobbies independently, with assistance to make their onward escape via the lift by management staff.
Operation	BS 9999 guidance recommends that evacuation lifts are driven by trained members of staff. For hotels, 24hr management is expected to be available onsite who should also be trained in the use of the evacuation lifts. The method of evacuation lift operation is to be confirmed by the time of lift purchase, depending on the available technology and in accordance with best practice guidance. It is envisioned that this should use an automatic system if available at that time.
Use of lifts	It would be recommended that an evacuation lift is used to support disabled occupants only in the event of a fire, with ambulant occupants using the stairs to escape. It would be recommended that where possible, an automatic operated evacuation lift be limited to occupants that require additional support only. However, this would be dependent on the available technology at the time of lift purchase.
Evacuation lift management plan	
Responsibility	The evacuation lift management plan must be developed by the building operator as part of the wider fire safety management plan. This should include consideration of the organisation's fire safety policies and support tools, guidance provided by the manufacturer for operation of the evacuation lift, development of a general evacuation plan for unspecified occupants, a process for identifying and developing an evacuation plan for occupants with additional needs, and a plan for liaising with the fire service in an incident.

Roles	The required roles in support of the evacuation lift should be developed following best practice guidance for the type of lift available at installation. For driver-controlled lifts, it is typically expected that at least two members of staff be available to operate an evacuation lift, with one controlling the lift at Ground floor and the other being within the lift and supporting occupants at the floor being evacuated. For an automatically operated lift, this is not expected to require management staff to operate the evacuation lift.
Maintenance	In the event of lift maintenance, ongoing support to disabled occupants would be available via refuge areas and management support in using the protected stairs to escape (as per Building Regulations expectations). It is recommended that planned maintenance of and evacuation lift occurs when the guest rooms are less likely to be occupied, such as during daytime hours. Management is recommended to consider their ability to support the evacuation of disabled occupants during any planned or unplanned maintenance of the evacuation lifts. In the event of there being any additional concerns, further contingency measures (such as provision of evacuation chairs) could be considered.

Table of contents

1.

INTRODUCTION

6

1.1

General

6

1.2

Legislation and basis of design

6

1.3

Reference information

6

2.

DEVELOPMENT SUMMARY

7

2.1

Description of proposal

7

2.2

Occupancy

7

3.

MEANS OF WARNING AND ESCAPE

8

3.1

Evacuation philosophy

8

3.2

Means of detection and alarm

8

3.3

Horizontal means of escape

8

3.4

Vertical means of escape

9

3.5

Final exits and onward escape

9

3.6

Means of escape for disabled persons

9

3.7

Doors on escape routes

10

3.8

Emergency lighting

10

3.9

Fire safety signage

10

4.

INTERNAL FIRE SPREAD

11

4.1

Internal wall and ceiling linings

11

4.2

Automatic fire suppression

11

4.3

Structural fire resistance

11

4.4

Fire-resisting construction and fire doors

11

4.5

Concealed spaces and cavity barriers

12

4.6

Fire-stopping and penetrations through fire-resisting construction

12

5.

EXTERNAL FIRE SPREAD

13

5.1

Construction and materials used for external walls

13

5.2

Roof coverings

13

5.3

Space separation and unprotected areas of the façade

13

6.

FIRE SERVICE ACCESS AND FACILITIES

15

6.1

Notification and information for the fire and rescue service

15

6.2

Fire appliance access to the site

15

6.3

Firefighting water supplies

15

6.4

Firefighting facilities within the building

15

6.5

Basement smoke clearance

15

6.6

Car park smoke clearance

15

6.7

Stand-by power supplies

16

7.

ADDITIONAL FIRE SAFETY GUIDANCE

17

7.1

Fire safety information and future development

17

7.2

Management and maintenance of fire safety systems

17

7.3

Fire extinguishers and fire blankets

18

8.

REFERENCES

19

APPENDIX A – FIRE SAFETY AND FIRE-RESISTING CONSTRUCTION MARK-UPS

21

1. Introduction

1.1 General

- 1.1.1 Mu.Studio (UK) Ltd have been commissioned to provide fire safety consultancy services in support of the design of new apart-hotel building on the site of a car park building previously serving the existing Mercure Hotel building at Shepiston Lane, in the London Borough of Hillingdon, as illustrated in Figure 1.
- 1.1.2 This report may be used in support further detailed design development. It is not intended to portray detailed design information for fire safety systems or construction specifications and should be read in conjunction with the wider project documentation.
- 1.1.3 Any alternative design solutions suggested within this report are subject to agreement and eventual approval by the relevant authorities having jurisdiction (AHJs).



Figure 1 – Location of site (background image from Google Maps)

1.2 Legislation and basis of design

- 1.2.1 This fire safety strategy is developed in cognisance of the fire safety expectations of the Building Regulations 2010 (as amended), including:
 - Regulation 7 – Materials and workmanship
 - Schedule 1, Part B1 – Means of warning and escape
 - Schedule 1, Part B2 – Internal fire spread (linings)
 - Schedule 1, Part B3 – Internal fire spread (structure)
 - Schedule 1, Part B4 – External fire spread
 - Schedule 1, Part B5 – Access and facilities for the fire and rescue service
- 1.2.2 The fire safety strategy has not been developed to include additional property protection enhancements or to meet the expectations of insurer requirements. However, fire safety provisions as required by the Building Regulations will, to some extent, assist with the protection of property in the event of fire.

- 1.2.3 This fire safety strategy does not address site fire safety during construction. The Health and Safety Executive (HSE) [2] and Fire Protection Association (FPA) [3] issue guidance on identifying and managing fire precautions on construction sites, which should be consulted by the Principal Contractor for the scheme.
- 1.2.4 The building will be designed in accordance with the recommendations of Approved Document B - Volume 2 (ADB2) [4], including further documents and standards referenced therein.
- 1.2.5 Fire engineering principles are employed to support alternative solutions where strict adherence to design guidance would conflict with the wider aspirations for the scheme. In accordance with the fire safety engineering principles detailed in the PD 7974 codes of practice [5], it is considered appropriate that all fire precautions are determined based on there being one seat of fire (i.e., accidental fires).

1.3 Reference information

- 1.3.1 This strategy is based on information provided as listed in Table 1. Additional contradictory information or subsequent design variations to the information supplied may render the findings and recommendations of this report invalid.
- 1.3.2 External references utilised in the generation of this report are summarised in Section 8.

Table 1 – Project design documentation

Description	Author	Document	Rev.
Site Plan Proposed	Goldstein Heather Architecture Ltd	25009-GHA-XX-XX-DR-A-2001	P01
Lower Ground Car Park Plan Proposed		25009-GHA-XX-XX-DR-A-2009	P01
Ground Floor Plan Proposed		25009-GHA-XX-XX-DR-A-2010	P01
First Floor Plan Proposed		25009-GHA-XX-XX-DR-A-2011	P01
Second Floor Plan Proposed		25009-GHA-XX-XX-DR-A-2012	P01
Third Floor Plan Proposed		25009-GHA-XX-XX-DR-A-2013	P01
Fourth Floor Plan Proposed		25009-GHA-XX-XX-DR-A-2014	P01
Roof Plan Proposed		25009-GHA-XX-XX-DR-A-2016	P01
Section AA Proposed		25009-GHA-XX-XX-DR-A-2020	P01
Section BB Proposed		25009-GHA-XX-XX-DR-A-2021	P01
North Elevation Proposed		25009-GHA-XX-XX-DR-A-2030	P01
West Elevation Proposed		25009-GHA-XX-XX-DR-A-2031	P01
East Elevation Proposed		25009-GHA-XX-XX-DR-A-2032	P01
South Elevation Proposed		25009-GHA-XX-XX-DR-A-2033	P01

2. Development summary

2.1 Description of proposal

- 2.1.1 The proposal is for the design of a new apart-hotel on the site of an existing hotel car park at Shepiston Lane, as illustrated in Figure 1. The proposed building will be set across storeys (LG, G + 4), featuring apart-hotel suites at Ground to Fourth floors, a reception area at Ground floor, and a car park at Lower Ground floor.
- 2.1.2 The building will provide 38 apart-hotel suites, being used for short-term hotel accommodation within a demise that is managed on 24 / 7 / 365 basis and arranged as summarised in Table 2
- 2.1.3 The height of the uppermost floor of the building will be at ~14.3 m above ground level on the lowest side of the building and the Lower Ground being 1.8 m below Ground level. The building is not subject expectations for 'Relevant Buildings' as defined in Regulation 7(4) of the Building Regulations, though would be subject to expectations for external wall materials in ADB2 for residential (other) buildings greater than 11 m in height.
- 2.1.4 Figure 2 to Figure 6 provides an overview of the internal arrangement of the proposed building, with full fire safety mark-ups also included within Appendix A.

2.2 Occupancy

- 2.2.1 In accordance with Table 0.1 in ADB2, the demise is deemed to be a 'Residential (Other)' area in Purpose Group 2(b). This use is typically sleeping accommodation within managed buildings such as hotels or boarding houses.
- 2.2.2 The maximum number of occupants within the hotel building has been calculated using a combination of floor space factors given by Table D1 in ADB2 and available bedrooms, summarised in Table 2. It is assumed that each double bed feature two guests for conservatism.
- 2.2.3 No additional fire safety features in support of the expected occupancy have been requested by the client, and this fire strategy has been developed premised on meeting the expectations of Part B in Schedule 1 of the Building Regulations only.

Table 2 – Design occupancy

Floor	Use	Area (m ²)	Floor space factor	Occupancy
Fourth	2x two-bedroom suites, 1x one-bedroom suite, 3x studio suites	N/A – number of bedrooms		16
Third	4x two-bedroom suites, 1x one-bedroom suite, 2x studio suites	N/A – number of bedrooms		22
	Plant room	~80	30 m ² /person	3
First & Second	5x two-bedroom suites, 2x one-bedroom suite, 3x studio suites	N/A – number of bedrooms		30 / floor
Ground	Reception	~47	1 m ² /person	47
	Office	~18	6 m ² /person	3
	5x two-bedroom suites	N/A – number of bedrooms		20
	Ancillary areas	~100	30 m ² /person	4
Lower Ground	Car park	25x car park spaces		50

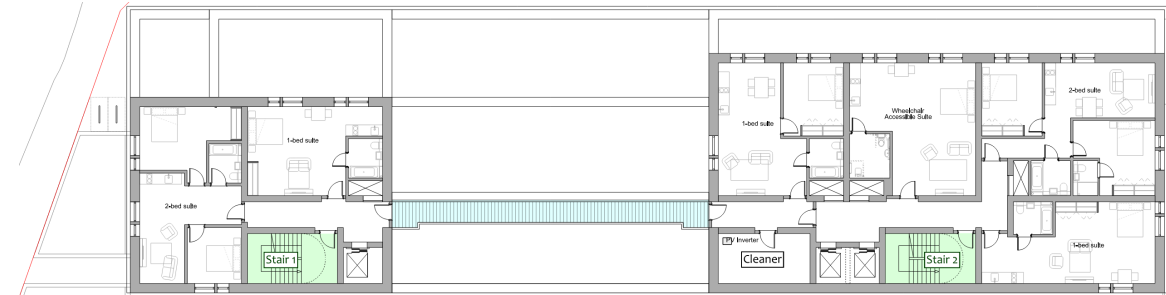


Figure 2 – Fourth Floor arrangement

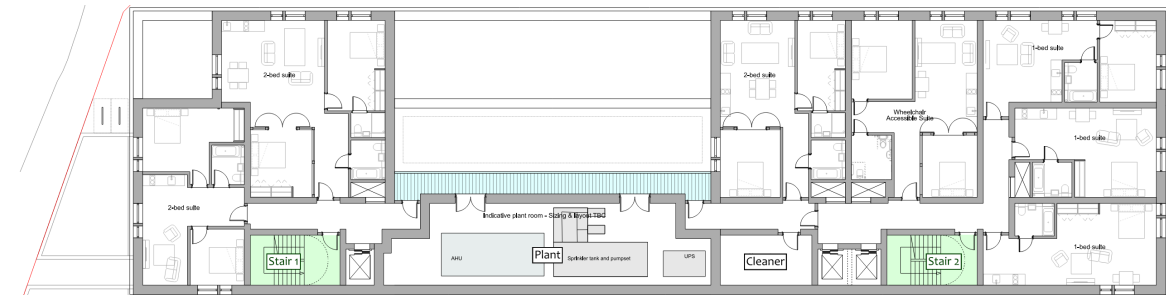


Figure 3 – Third Floor arrangement



Figure 4 – Typical First & Second Floor arrangement

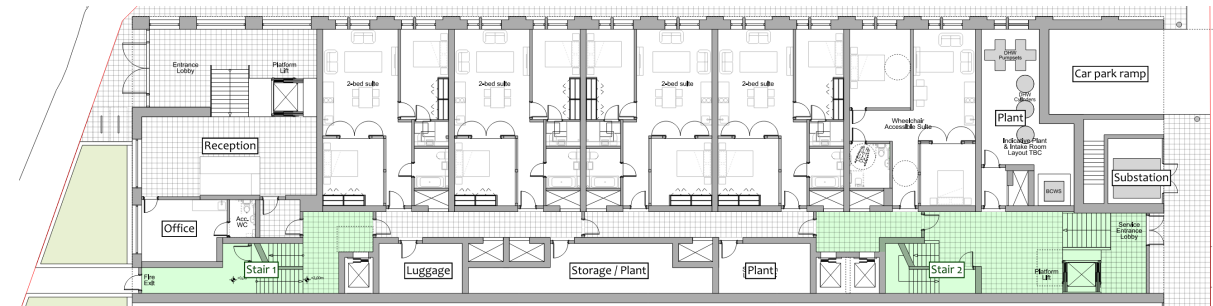


Figure 5 – Ground Floor arrangement

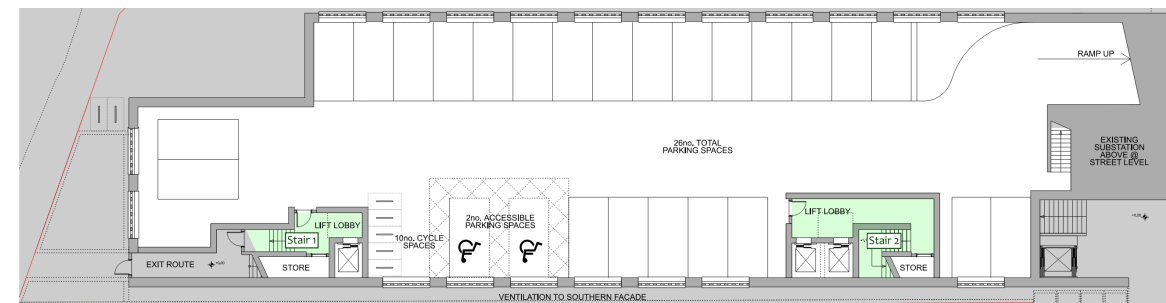


Figure 6 – Lower Ground Floor arrangement

3. Means of warning and escape

3.1 Evacuation philosophy

- 3.1.1 A simultaneous evacuation strategy will be implemented throughout the hotel building, whereby all occupants will immediately evacuate upon activation of the fire alarm anywhere in the building.
- 3.1.2 If a fire were to spread beyond the area of fire origin, the wider evacuation of adjacent areas or buildings would be initiated and managed by the London Fire Brigade.

3.2 Means of detection and alarm

- 3.2.1 A fully addressable Category L1 detection and alarm system shall be provided throughout the hotel in accordance with BS 5839-1 [6]. This will typically include smoke detection in all rooms except toilets, stairway lobbies or toilet lobbies, small cupboards not more than 1 m², and shallow voids less than 800 mm in depth unless featuring a heightened risk of fire. Manual call points will be provided at storey and final exits, and such that all areas of the building are within 45 m of the nearest manual call point.
- 3.2.2 The activation of the fire alarm will utilise a ‘double-knock’ cause and effect protocol, with a 5-minute silent investigation period to be incorporated during which building management may seek to confirm whether a real fire or false alarm has occurred. The system design is to be developed in detail by the fire detection and alarm supplier, but is expected to feature the following:
 - In the event of the first activation of a smoke detector head:
 - An alert signal at the fire alarm panel will sound. Acknowledgement of the alert will commence a 5-minute silent investigation period. Failure to acknowledge the alert at the panel within 1 minute will result in activation of the fire alarm within the compartment of fire detection.
 - During the 5-minute investigation period the alarm may be either manually activated should a real fire be discovered or reset should a false alarm be confirmed. The alarm will activate automatically following expiration of the 5-minute investigation period.
 - Immediate activation of the fire alarm in the event of any one manual call point or heat detector being activated, or in the event that a second smoke detector head activates during the acknowledgement or investigation periods as set out above.
 - Activation of the fire alarm would occur simultaneously throughout the entirety of the building.
- 3.2.3 Manual call points are to be provided with transparent hinged covered, to reduce the instances of casual or malicious operation. Operation of this two-action manual call point then involves lifting the cover and operating the manual call point in the normal manner.
- 3.2.4 Visual beacons or alternative means of warning should be provided in rooms or spaces where the background sound level could be louder than the fire alarm, e.g., plant rooms. Visual beacons should also be considered in areas where occupants with hearing difficulties may be in isolation, and issuance of vibrating pillows to hard-of-hearing guests would support rousing of all occupants from sleep.
- 3.2.5 The fire alarm control panel is expected to be located at the main hotel entrance, where this may be monitored by reception staff and be easily located by the attending fire and rescue service.
- 3.2.6 It would be recommended that key staff members are provided with a handheld means of communication that may be used to convey information in the event of a fire. This could be via mobile phone, radio, or pager, or other suitable device for use in supporting management of the hotel.

3.3 Horizontal means of escape

- 3.3.1 To meet the recommendations of ADB2, the maximum permitted travel distance for the various areas to either a point of choice (for single directional travel) or storey / final exit are typically expected to be in accordance with the limits summarised in Table 3.

- 3.3.2 The apart-hotel suites are to feature open-plan arrangements, where bedrooms are accessed via the living areas, which are not covered within ADB guidance. As such, reference is made to the findings of the NF19 study conducted for NHBC [7] which considered the necessary fire safety provisions for open-plan design in order to equal or exceed the level of safety expected by ADB through comparison with a protected entrance hall arrangements of ADB1 [8]. The results of the initial NF19 study recommended that:
 - Apartments are to be set over a single level only.
 - The area of the flat is not to exceed 192 m² (i.e., 16 m x 12 m). Kitchens in apartments exceeding 32 m² (i.e., 8 m x 4 m) should be enclosed. The ceilings will have a minimum height of 2.25 m.
 - Automatic suppression is to be provided throughout the apartments in accordance with BS 9251.
 - A Grade D1 Category LD1 system is to be provided to meet BS 5839-6.
 - Adequate separation is to be provided between escape routes and cooking equipment.

Table 3 – Travel distance limitations

Area	Recommended maximum travel distance	
	Single direction (m)	Multi-direction (m)
Within bedrooms	9	18
Within bedroom corridors	9	35
Places of special fire hazard (i.e., boiler room)	9	18
External roof areas	60	200
Elsewhere	18	45
Note: These figures are for actual travel distances, including consideration for furnishings, and must be respected by the fit-out and furnishing arrangements of the spaces when occupied.		

Table 4 – Exit width capacities

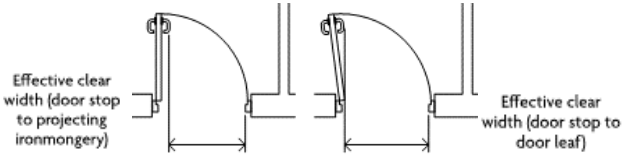
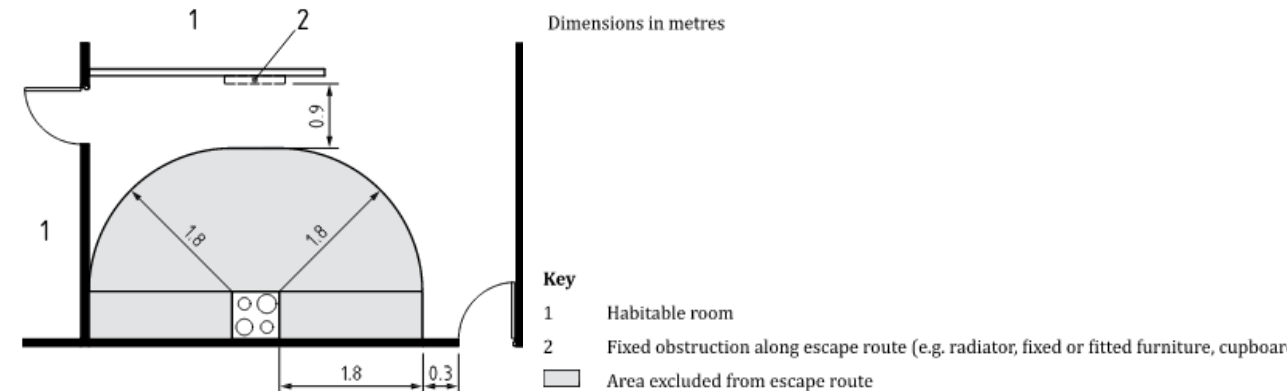
Exit width (mm)	Maximum number of people served
750 to 849	60
850 to 949	110
1,050 to 1,099	220
1,100 and greater	Door width (in mm) / 5
Notes: Exit widths are for clear widths measured in accordance with Diagram D1 in ADB2 as per below:  Where an area has an occupancy of greater than 60 people, at least two exits are to be provided. The largest exit provided is to be discounted when calculating the required width for the remaining exits. Doors hung to swing against the flow of escaping occupants are to serve a maximum of 60 people, irrespective of the available clear exit width. Only exits provided with suitable door fastening hardware may be included in escape capacity calculations.	

Table 5 – Exit width provisions

Floor	Area	Occupants	Provided width (mm)	Capacity (persons)
1 st – 4 th	Whole floor	≤30	2x ≥750 (inward or outward swinging)	60
Ground	Whole floor	74	3x ≥750 (inward or outward swinging)	120
Lower Ground	Whole floor	50	2x ≥750 (inward or outward swinging)	60
Note: For areas with multiple exits, the exit having the greatest capacity is to be discounted prior to assessing available escape capacity				

- 3.3.3 To support the used of open-kitchen arrangements in larger apartments, further research by BRE (who undertook the initial NF19 study) was commissioned by Trenton Fire and publicly disseminated [9]. This research concluded that open-plan kitchens may be utilised within the maximum sized apartments considered in the study (three bedrooms, 192 m²), while also justifying the use of concealed sprinkler heads in open-plan apartments.
- 3.3.4 The revised specification is utilised for the design of all open-plan residential apartments, as follows:
- Apartments are to be set over a single level.
 - The area of each apartment will not exceed 192 m² (i.e., 16 m x 12 m), which may include open kitchens. Ceilings within the apartments will have a minimum height of 2.25 m.
 - Automatic suppression will be provided throughout the apartments in accordance with BS 9251 (see Section 4.2), and this may utilise concealed sprinkler heads.
 - A Grade D1 Category LD1 system will be provided in apartments to meet BS 5839-6.
 - Adequate separation is to be provided between escape routes and cookers, as shown in Figure 7.
- 3.3.5 The corridors which provide access to bedrooms will be protected corridors. Where protected corridors of greater than 12 m in length connect storey exits, cross-corridor doors will be provided the sub-divide the corridor in accordance with Section 2.26 in ADB2.
- 3.3.6 Dead-end corridors are limited to no greater than 9 m in length, as is achieved throughout the building.
- 3.3.7 Areas occupied by greater than 60 occupants are to be supported by exits of adequate capacity as summarised in Table 4. The sizes of exits to suit the expected number of occupants is set out in Table 5.



3.4 Vertical means of escape

- 3.4.1 The maximum occupancy of the above-ground floors is ~101 people, as calculated in Table 2.
- 3.4.2 Each of the protected stairs will feature lobby protection, in support of the provision of sleeping accommodation in the building. As detailed in Table 6, the above-ground escape stairs would offer capacity for up to 750 people, being ample to support the expected maximum occupancy of the upper floors.
- 3.4.3 Two protected stairs will provide escape from the car park at Lower Ground floor. Following discounting of a storey exit, these would provide capacity for up to 240 people, being ample for the maximum of 50 people expected at this level.

Table 6 – Stair capacities

Stair	Floors served	Provided width (mm)	Capacity (persons)
Stair 1 (hotel)	4 (Ground to Fourth)	≥1,200	375
Stair 1 (car park)	1 (Lower ground to Gound)	≥1,200	240
Stair 2 (hotel)	4 (Ground to Fourth)	≥1,200	375
Stair 2 (car park)	1 (Lower ground to Gound)	≥1,200	240
Note: Handrails which do not intrude more than 100 mm into the clear escape route width may be included without reducing the considered available stair width.			

3.5 Final exits and onward escape

- 3.5.1 Final exits from the protected stairs are typically recommended to have a clear width at least as wide as the stair they serve and doors hung in the direction of escape, to prevent congestion from occurring at the base of the stair.
- 3.5.2 Each of the protected stairs will discharge directly to outside at Ground floor, with lobby separation being maintained between route connecting the escape stair and final exits with the wider building accommodation. Onward escape will be available in a direction away from the final exit and being available in multiple directions via external pavements toward a place of eventual safety.
- 3.5.3 The selection of appropriate assembly areas outside the building is an operator-led exercise. Assembly areas should be located such that they are located remotely from access routes for the fire and rescue service, and evacuation from the building can be achieved without exposure to a hazard from a building fire. A public pavement adjacent to Shepiston Lane or Arington Court could be considered for use as an assembly area.

3.6 Means of escape for disabled persons

- 3.6.1 It is envisaged that occupants will be able to escape to a place away from danger, either unassisted or with assistance from trained hotel staff. There will be a certain proportion of building occupants, such as those who are non-ambulant disabled (e.g., wheelchair users), who will not be able to negotiate stairs unaided. Refuge areas should be provided in which their safety can be assured for a short duration prior to being assisted to safety elsewhere within or outside the building.
- 3.6.2 It should be noted that under the Regulatory Reform (Fire Safety) Order 2005, it is the duty of the responsible person along with their appointed fire safety assistants to assist everyone to a place of relative safety or ultimate safety outside in the event of an emergency.
- 3.6.3 The evacuation lifts will each be accessed from a protected corridor adjacent to a protected stair, meeting the expectations of Annex G and Figure G.3(b) in BS 9999 [10].
- 3.6.4 The evacuation lifts are to be in accordance with BS EN 81-20 [11], BS EN 81-70 [12], BS EN 81-76 [13], or Annex G.2 in BS 9999 as relevant. The car should be at least Type 2 under BS EN 81-70 to support the evacuation of persons with disabilities. It is expected that evacuation lift serving the hotel may be driver operated where onsite management is present at the building on a 24/7/365 basis.

- 3.6.5 Refuge areas are to be provided in which the safety of occupants can be assured for a short duration prior to being assisted to safety. Refuge areas are to be provided at each of the above ground levels, located within the protected corridor adjacent to the evacuation lift. All refuge areas are to be provided with emergency voice communication (EVC) between the refuge area and a suitable management position in accordance with BS 5839-9 [14].
- 3.6.6 Management and maintenance staff should consider whether they could adequately escape from the building in the event of a fire. For any resident or member of staff having restricted mobility, it is recommended that a Personal Emergency Evacuation Plan (PEEP) is developed and practised.
- 3.6.7 A General Emergency Evacuation Plan (GEEP) should also be developed for guests who would need assistance to escape. Further information can also be found in BS 8300-2 [15] and the DCLG Publication "Fire Safety Risk Assessment Supplementary Guide – Means of Escape for Disabled People".

3.7 Doors on escape routes

- 3.7.1 All doors on escape routes in common areas will either not be provided with a securing device or be provided with a securing device that is easily openable without the use of a key and without having to manipulate more than one mechanism.
- 3.7.2 Any doors fitted with an electronic latch (e.g., operated by a swipe card reader) on the un-secure side should have door latches operated by a handle on the secure side (so people inside the room will always be able to escape without the need for a key in an emergency).
- 3.7.3 Doors on escape routes will generally be hung to open in the direction of exit, apart from certain instances where the doors will serve less than 60 people, will open not less than 90° and have a swing which is clear of any change in level, other than a threshold or single step on the line of a doorway.
- 3.7.4 If deemed desirable to support day-to-day use of the building, cross-corridor doors may feature hold-open devices in accordance with BS EN 1155 [16].
- 3.7.5 Any fire doors fitted with swing-free door closers or hold-open devices should release on:
- actuation of the fire alarm system or local smoke detector head,
 - manual operation or operation of a switch fitted in a suitable position, if necessary, or
 - failure of the electricity supplies.
- 3.7.6 Doors opening onto stairways or corridors will be sited not to encroach on the effective width of any stairway, landing, or corridor.
- 3.7.7 Vision panels are to be provided in doors subdividing corridors on escape routes.
- 3.7.8 Fire doors are to be specified in accordance with Section 4.4 and Table 8.

3.8 Emergency lighting

- 3.8.1 Emergency lighting will illuminate all occupiable areas (excluding bedrooms, though to be included within tree-house suites), common evacuation routes (internal and external as necessary), and essential areas including plant areas. It will illuminate a safe exit route including fire exits, fire alarm call points, changes in level or direction and firefighting equipment.
- 3.8.2 Emergency lighting will be installed in accordance with the recommendations of BS 5266 [17], BS EN 1838 [18], and BS EN 60598-2-22 [19]. Lighting to escape stairs should be on a separate circuit from that supplying any other part of the escape route.
- 3.8.3 Primary and emergency lighting will also be required for any external escape routes that will not be lit by surrounding street lighting.
- 3.8.4 Discharge lighting installations may operate at voltages that are a hazard to firemen. An exterior discharge lighting installation, or an interior discharge lighting installation operating unattended, operating at a voltage exceeding low voltage (as defined in Statutory Instrument number 1018, part of the Building Regulations), should be controlled by a firefighter's emergency switch.

3.9 Fire safety signage

- 3.9.1 Fire safety signs will be installed where necessary to provide clear identification of fire precautions, fire equipment and means of escape in a fire. All parts of the development will be fitted with appropriate fire safety signage to comply with The Health and Safety (Signs and Signals) Regulations 1996, i.e., signage to be specified in according to BS ISO 3864-1 [20], BS 5499-4 [21] and BS 5499-10 [22].
- 3.9.2 The purpose of fire signs is to direct persons towards fire exits, or to provide specific information or warning about equipment, doors, rooms, or procedures. They should be recognisable, readable, and informative, as they convey essential information to regular and infrequent users of the premises, and the fire and rescue service. Fire notices should be permanently displayed in conspicuous positions throughout the building, including storey exits, and should provide information specific to the building.
- 3.9.3 All fire doors, other than lift landing doors, will be marked with an appropriate fire safety sign conforming to BS 5499-1 [23] (white on blue) according to whether the door is:
- to be kept closed when not in use ('FIRE DOOR - KEEP SHUT').
 - to be kept locked when not in use ('FIRE DOOR - KEEP LOCKED').
 - held open by an automatic release mechanism ('AUTOMATIC FIRE DOOR - KEEP CLEAR').
- 3.9.4 Any emergency securing device fitted to doors on escape routes are to be provided with instruction notices, adjacent to the device, indicating the method of operation.

4. Internal fire spread

4.1 Internal wall and ceiling linings

- 4.1.1 During the development of a fire in a building, the choice of material for the lining of walls and ceilings can significantly affect the spread and growth of fire. Restrictions are placed on the wall and ceiling lining materials within certain areas of buildings to limit the spread of fire and production of smoke in these areas.
- 4.1.2 It is particularly important that in circulation spaces, where the rapid spread of fire is most likely to prevent occupants from escaping, the surface linings are restricted, by making provision for them to have low rates of heat release and surface spread of flame.
- 4.1.3 All wall and ceiling linings in the building should meet the recommendations summarised in Table 7 below.
- 4.1.4 The surface linings of walls and ceilings should generally conform to the classification recommended above for the appropriate location. However, parts of walls in rooms may be of a lower class but not lower than European Class D-s3, d2, provided that the area of linings having the lower classification does not exceed half of the floor area of the room, subject to a maximum of 20 m² in bedrooms and 60 m² in other non-residential areas.
- 4.1.5 No thermoplastic rooflights shall be used at the development.

Table 7 – Reaction to fire classification expectations

Location	Minimum classification to BS EN 13501-1 [24]
Within bedroom areas:	
Small rooms ≤ 4 m ²	Class D-s3, d2
Other rooms	Class C-s3, d2
Within non-residential areas:	
Small rooms ≤ 30 m ²	Class D-s3, d2
Circulation spaces (including corridors and stairs)	Class B-s3, d2
Other rooms	Class C-s3, d2

4.2 Automatic fire suppression

- 4.2.1 Automatic suppression system is not required within the hotel by ADB2 for a Residential (other) premises based on the height of the building.
- 4.2.2 The apart-hotel suites will feature open-plan layouts, as discussed in Section 3.3, and automatic suppression to be provided throughout each the suite in support of the fire safety design. Automatic suppression is not expected in the ancillary areas, where not required to support the fire strategy in this area.
- 4.2.3 To support open-plan arrangements, a Category 1 sprinkler system to BS 9251 [25] is to be provided throughout each of the suites. This is to include the increased design density as set out in Footnote A) in Table 2 of BS 9251. The system may use concealed sprinkler heads if considered preferable by the client, provided these also meet the wider expectations of BS 9251.
- 4.2.4 If sufficient incoming water supply is available, the suppression system may be run directly from the water mains. In the event of insufficient incoming water supply, a suitably sized water tank should be provided to ensure that adequate water is available in the event of a fire. For the Category 1 sprinkler system the available water is to be sufficient for 10 minutes of supply.

4.3 Structural fire resistance

- 4.3.1 New or amended elements of structure within the building should be designed and / or protected to achieve a fire resistance rating of at least 60 minutes in accordance with Table B2 of ADB, deemed suitable for an unsprinklered hotel building with an uppermost floor of less than 18 m above ground level.
- 4.3.2 Elements of structure that only support a roof do not generally require fire resistance. Structure is considered to support more than only a roof if it supports a load other than the roof itself (e.g., rooftop plant), or is essential to the stability of a compartment or other fire resisting wall (internal or external).
- 4.3.3 When determining the elements required to be fire-resisting, the structural engineer may utilise safety factors for the fire design loading case. These are typically less onerous than for the maximum ambient design loading case for primary members, or less onerous than the wind design loading case for stabilising members such as cross-bracing.

4.4 Fire-resisting construction and fire doors

- 4.4.1 All floors are to be compartment floors, where occupants will sleep within the building. No limit is placed on the area of compartments for Residential (Other) buildings in Section 8.10 of ADB2
- 4.4.2 Enhanced separation will be provided to the car park, in note of the additional fire safety hazard that may be posed by electrical vehicles. Walls and floors which separate the car park from the wider building will have a fire-resisting rating of at least 120 minutes.
- 4.4.3 All shafts (e.g., risers, lift shafts and stair cores) are to be constructed as protected shafts where these will pass through compartment floors. Elements of fire-resisting construction will be provided in accordance with the recommendations in Table 8, and as indicated on the fire safety drawings included in Appendix A.

Table 8 – Periods of fire resistance for fire-separating elements (in minutes, for loadbearing, integrity, and insulation where exposed from each side separately unless otherwise stated)

Element requiring fire-resistance	Fire resistance rating	Fire doors
Elements of structure	60	N/A
Compartment floors	60 (from underside)	N/A
Compartment / party walls	60	FD60
External walls (if required by Section 5.3):		
Less than 1,000 mm from a point in the relevant boundary	60	FD60
More than 1,000 mm from the relevant boundary	60 integrity, 15 insulation	N/A
Protected shafts – common stairs, service risers	60	FD30S
Protected shafts – lifts	60	E30 (Note 1)
Separation of ancillary areas (i.e. cycle stores, stores)	30	FD30
Protected lobbies or corridors within the hotel	30	FD30S
Separation to the car park	120	FD60
Separation of life safety plant	120	FD120
Separation to the substation	240	FD120
Cavity barriers	30 integrity, 15 insulation	N/A
Note 1: Lift doors may also be tested to BS EN 81-58 [26]		

- 4.4.4 BR 128 [27] contains advice for the nominal fire-resistance ratings of masonry walls. New drylining partitions or floor systems should be selected using a manufacturer's guidance documents for complete systems (such as the White Book from British Gypsum or the Knauf Manual), which will also provide a fire-resistance rating for the selected build-up.
- 4.4.5 Fire door assemblies are to comply with BS 476-22 [28] or BS EN 1634-2 [29] for fire resistance, and where applicable BS 476-31 [30] or BS EN 1634-3 [31] for smoke leakage. Timber fire doors should be installed in accordance with the expectations of BS 8214 [32].
- 4.4.6 Fire-resisting construction should be provided between the substation and wider building in accordance with UKPN guidance [33].

4.5 Concealed spaces and cavity barriers

- 4.5.1 Cavity barriers are provided in concealed spaces to prevent the rapid spread of unseen fire or smoke in voids, and to prevent the spread of fire around compartmentation via voids.
- 4.5.2 All cavity barriers are to have a fire resistance rating of at least 30 minutes for integrity (E) and 15 minutes for insulation (I). Cavity barriers should be at no greater than 20 m centres in roof voids or cavities with Class C-s3, d2 linings or better to BS EN 13501-1, as well as being located to align with fire-resisting construction as indicated in Figure 8. For other linings, the spacing between cavity barriers should be reduced to 10 m.
- 4.5.3 Cavity barriers provided around openings may be formed of:
- steel at least 0.5 mm thick or timber at least 38 mm thick; or
 - polythene-sleeved mineral wool, or mineral wool slab under compression when installed cavity; or
 - calcium silicate, cement-based or gypsum-based boards at least 12 mm thick.

4.6 Fire-stopping and penetrations through fire-resisting construction

- 4.6.1 Fire-stopping should be provided at the junction of fire-separating walls and external walls to maintain the fire resistance period of fire-separating walls and prevent a fire from travelling around the junction and into the neighbouring space. Penetrations through lines of fire-resisting separation should also be fire-stopped using a product or system that will achieve the same fire resistance rating as the penetrated wall or floor.
- 4.6.2 To maintain the fire resistance rating of separating construction, any pipe or cable penetrations through lines of fire-resisting separation should be fire-stopped in accordance with one of the following methods set out by Section 10 in ADB2, unless located within a protected shaft. Figure 9 is provided to assist in the interpretation of the above recommendations.
- for pipes of any diameter, a proprietary seal which has been shown by test to meet the fire-resistance rating of the wall, floor, or cavity barrier for the penetration circumstance; or
 - for pipes with a restricted diameter, keeping the opening as small as possible and providing fire-stopping around the pipe. The nominal interior diameter of the pipe should not be more than the relevant dimensions given in Table 10.1 in ADB2.
- 4.6.3 Where a duct crosses fire-resisting construction protected escape stairs, corridors, or lobbies, dampers on fusible links are not sufficient. Either combined fire-and-smoke dampers activated upon smoke detection (ES-type dampers) are provided, or the duct should be fire-resisting / enclosed in fire-resisting construction.
- 4.6.4 For other areas of ductwork, ADB2 recommends that these be provided with both smoke detector controlled and thermally actuated mechanisms unless:
- A Category L1(M) detection and alarm system in accordance with BS 5839-1 is provided; and
 - All occupants can be expected to make an unaided escape.
- 4.6.5 Suitable detection and alarm will be provided to meet the above recommendation, as detailed in Section 3.2. Each above-ground floor will also be provided with refuge areas (with protection by mechanical fire-and-smoke dampers as above) and an evacuation lift to support escape by disabled occupants from the building.

As such, this is considered as reasonably sufficient to ensure that all occupants of the building may make a prompt and unaided escape from the building in the event of a fire.

- 4.6.6 Where ductwork penetrates compartment floors, walls enclosing protected service risers, or walls separating ancillary areas, but does not cross a protected escape route, it is considered that dampers that are thermally activated only may be utilised in accordance with Section 10.22(i) of ADB2.

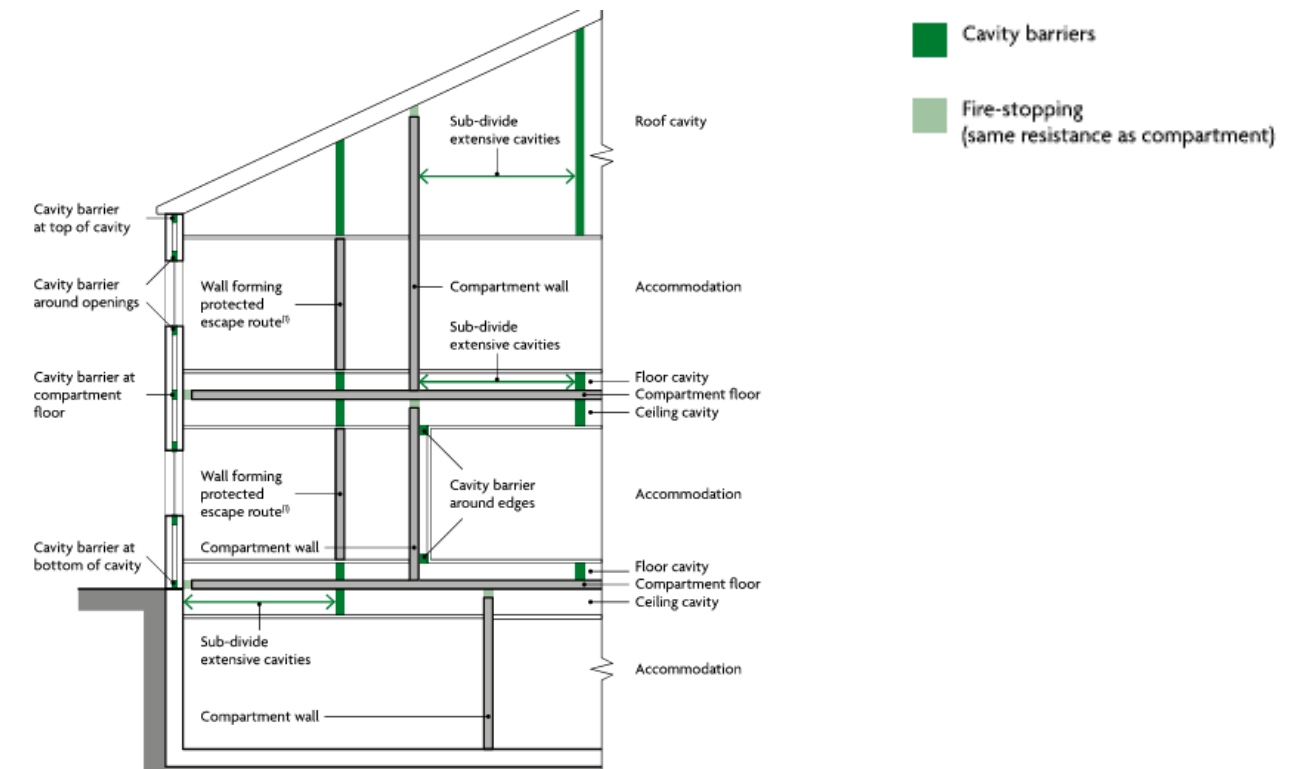


Figure 8 – Generic cavity barrier expectations

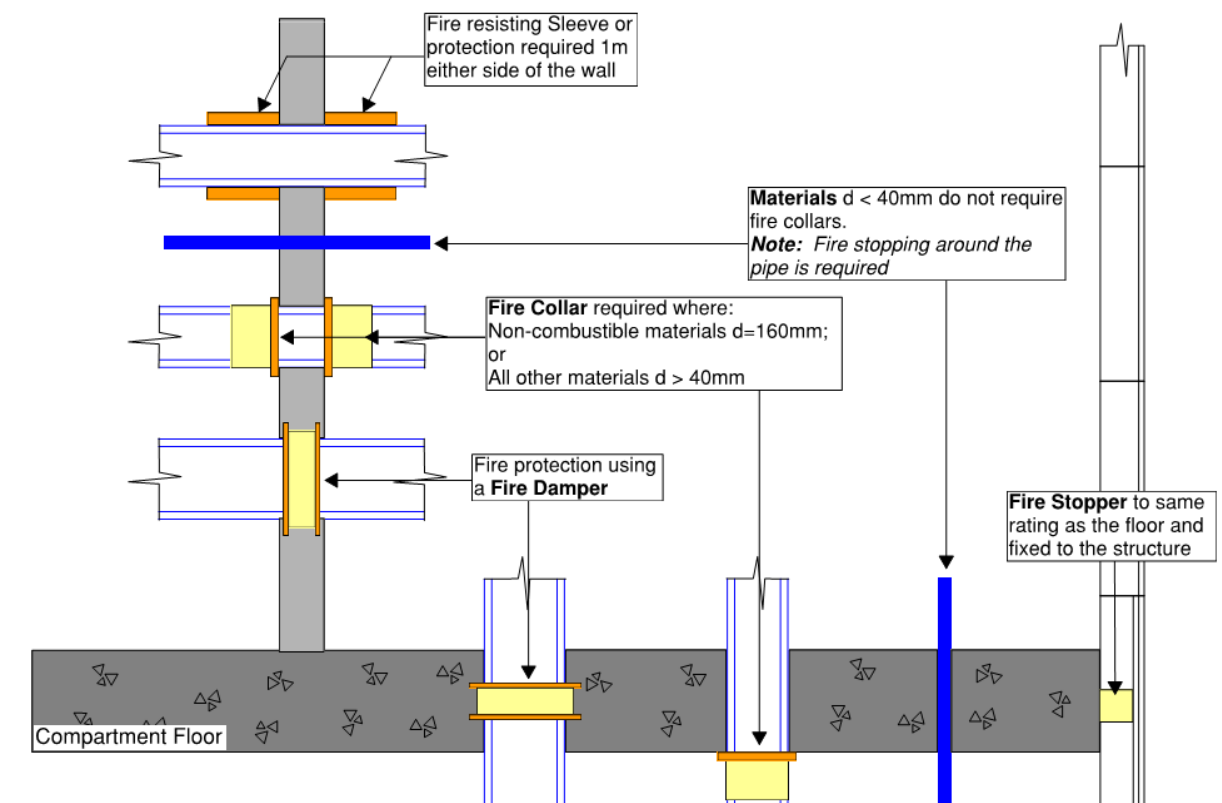


Figure 9 – Generic fire-stopping expectations

5. External fire spread

5.1 Construction and materials used for external walls

- 5.1.1 To prevent the spread of flame across the surface of building at a speed which may pose a threat to life, materials forming the outer surface of external walls of this residential building greater than 11 m in height are to meet the following recommendations:
- External surfaces of walls are to achieve Class A2-s1, d0 or Class A1 to BS EN 13501-1.
 - Insulation materials are to achieve Class A2-s1, d0 or Class A1, except for those insulation materials located between two leaves of brick or concrete each being at least 75 mm thick which are not required to meet any set level of classification to BS EN 13501-1.
 - Other materials used for the external walls (such as structural elements, sheathing or gypsum boards, or membranes) would be permitted to be combustible provided these meet the overall intent of Building Regulation B4, which states that external walls should be constructed to adequately resist fire spread.
- 5.1.2 External walls are also expected to have cavity barriers in accordance with Section 4.5, located to align with internal fire resisting construction or to limit the unbroken length of external wall cavities.
- 5.1.3 No external balconies are proposed at the development, being defined as occupiable external spaces with external space below in BS 8579 [34].

5.2 Roof coverings

- 5.2.1 Roof coverings are to be resistant to fire spread where being either close enough to a boundary to be at risk of ignition from a fire in another building or where needed to resist fire spread between compartments via the roof coverings above.
- 5.2.2 Roof coverings 1.5 m either side of compartment walls should achieve an $B_{ROOF}(t4)$ rating in accordance with Diagram 8.2 of ADB2. The remaining areas should meet the recommendations of Table 14.1 in ADB2, as summarised in Table 9. In general, it would be recommended that all roof areas achieve $B_{ROOF}(t4)$, including roof terrace areas to be used in support of means of escape.
- 5.2.3 Roof coverings may constitute a number of materials (but does not include the roof structure as a whole). Therefore, the top covering material should be considered in tandem with the substrate(s) to assess the performance of the coverings. The covering system as a whole is to meet the provisions of Section 5.2.2.
- 5.2.4 Should green roofs (including brown or sedum roofs) are used at the development, as an alternative to the $B_{ROOF}(t4)$ classification these could also be provided in accordance with the GRO code [35], including:
- Having a growing medium / substrate of at least 80 mm thick.
 - Have a growing medium / substrate that features <20% organic content and no peat.
 - Having a growing medium / substrate that has been tested in accordance with BS 8616 [36].
 - Have fire breaks (i.e., gravel areas) of a least 300 mm around rooflights, soil pipes, rainwater outlets, and of at least 500 mm where adjacent to openable windows or doors. Large areas of green roof should be subdivided by 1 m wide fire breaks such that no single area is greater than 40 m in length.
 - Fire breaks should consist of 20 – 50 mm rounded pebbles to a depth of at least 50 mm or concrete paving stones at least 40 mm thick placed directly onto the drainage board. No substrate should be present within the fire break area.
- 5.2.5 Any photovoltaic panels should also be in accordance with roof classification guidance. If the photovoltaic array results in live cables with a current / voltage that may pose a hazard to firefighters, a remote isolation switch should be provided to allow these to be disconnected prior to commencement of wet operations.

Table 9 – Limitations on roof coverings

Distance from boundary	Allowable roof covering classifications to BS EN 13501-5 [37]		
	$B_{ROOF}(t4)$	$C_{ROOF}(t4)$	$D_{ROOF}(t4)$
Less than 6 m	✓	✗	✗
At least 6 m	✓	✓	✗
At least 20 m	✓	✓	✓

5.3 Space separation and unprotected areas of the façade

- 5.3.1 Should a fire occur, heat will radiate through openings in the external walls. This heat can be enough to set fire to nearby buildings. To reduce the likelihood of this occurring, the Building Regulations guidance place limits on the area of the external elevation with no fire resistance, known as the unprotected area.
- 5.3.2 The building is to be designed and constructed with sufficient space separation and / or fire-resisting construction in the external façade to adequately limit the likelihood of fire spread to, or from, the adjacent relevant boundaries.
- 5.3.3 The relevant boundaries are the reference distances at which the potential for fire spread is considered, being the site boundary or a notional boundary created at the centreline of an adjacent road, railway, or other area with a sufficiently low likelihood of development. These are indicated on Figure 10, being to the centreline of Shepiston Lane and Arlington Court to the west, north and east, or to the property boundary separating the adjacent building to the south.

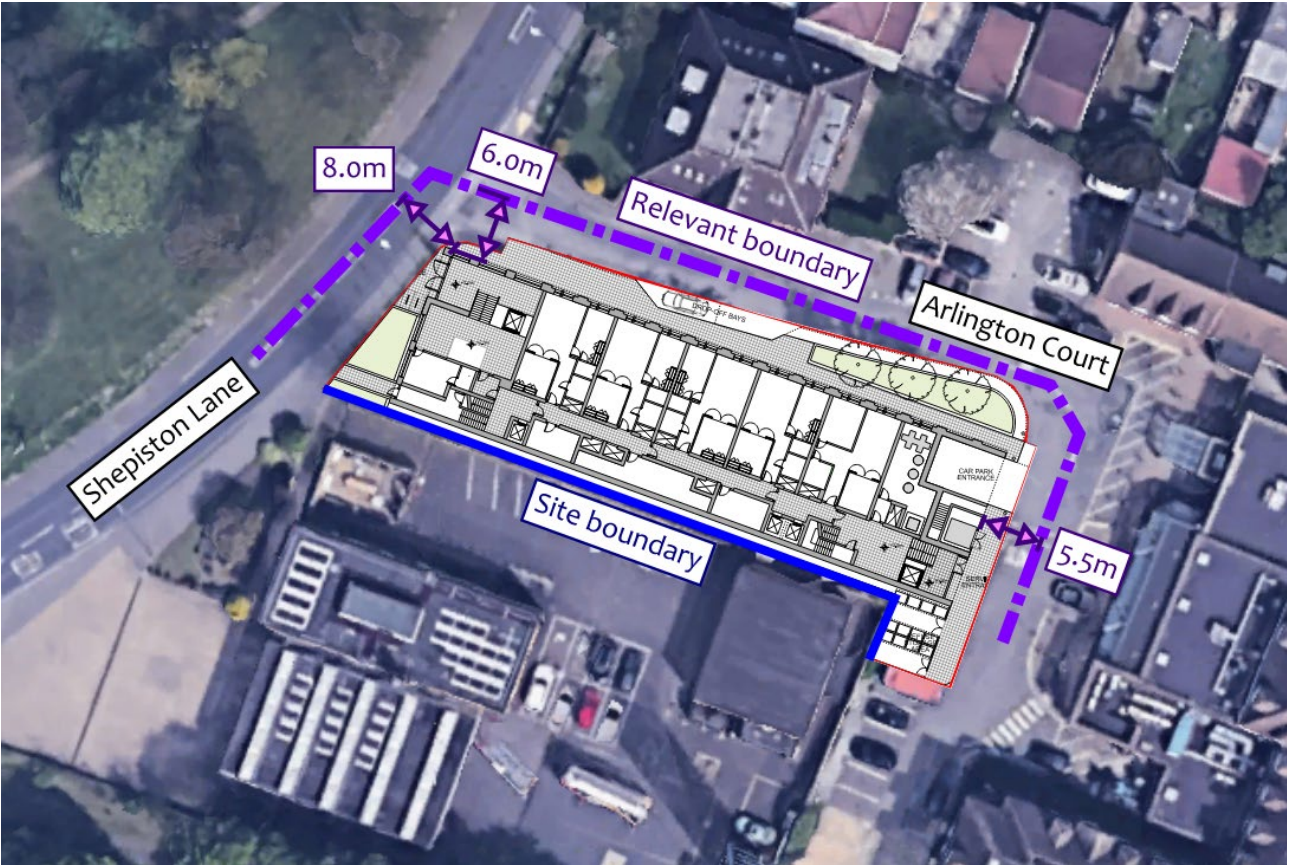


Figure 10 – Distances to relevant boundaries

- 5.3.4 Fire-resisting external façades located within 1.0 m of the site boundary or forming party walls are to achieve a fire resistance rating of at least 60 minutes for integrity and insulation, as per Table 8.
- 5.3.5 Compartment walls and floors will reduce the extent of façade likely to be radiating at any one time. Following the recommendations of BR 187 [38], the lower emitted radiation of 84 kW/m² may be used for the hotel, with the higher value of 168 kW/m² used for plant and storage areas.
- 5.3.6 Using the methodology in BR 187, an analysis of the available distance between the building and the boundaries has been conducted utilising the compartment dimensions as indicated in Figure 12 and Figure 13. The findings of this analysis for the various compartments are presented in Table 10, which calculates the percentage of the façade permitted to be unprotected based on the available separation distances.
- 5.3.7 For façades located at least 1.0 m from the boundary, the methodology in BR 187 is used to analyse the available distance between the building and the boundaries, as indicated in Figure 10. The findings of this analysis for the various compartments are presented in Table 10, which calculates the percentage of the façade permitted to be unprotected based on the available separation distances.
- 5.3.8 Following this analysis, for external walls located at least 1.0 m from the site boundary, the provided space separation and compartmentation will typically be sufficient for preventing external fire spread without support from fire-resisting areas of façade. The exception for this is the south façade, for which solid areas are to have a fire-resistance rating of at least 60 minutes for integrity and 15 minutes for insulation in accordance with Table 8. Unprotected areas in the south façade should not exceed the recommendations in Table 10.

Table 10 – Summary of external fire spread assessment

Area (Façade)	Enclosing rectangle (m)		Distance to boundary (m)	Permitted % of unprotected area
	Width	Height		
Car park (LGF, N)	46.2	≤1.4	≥6.0	100
Car park (LGF, S)	39.3		1.1	24 (13.2 m ²)
Reception (GF, W)	8.4	≤2.5	≥8.0	100
Reception / suites (GF, N)	10.2		≥6.0	100
Car park (GF, E)	3.4		≥5.5	100
Substation (GF, E)	3.8		≥5.5	100
Suites (1F - 4F, W)	≤10.3		≥8.0	100
Suites (1F - 4F, N)	≤10.1		≥6.0	100
Suites (1F - 4F, E)	≤5.2		≥5.5	100
Suites (1F - 4F, S)	≤2.0		1.1	61 (3.0 m ²)

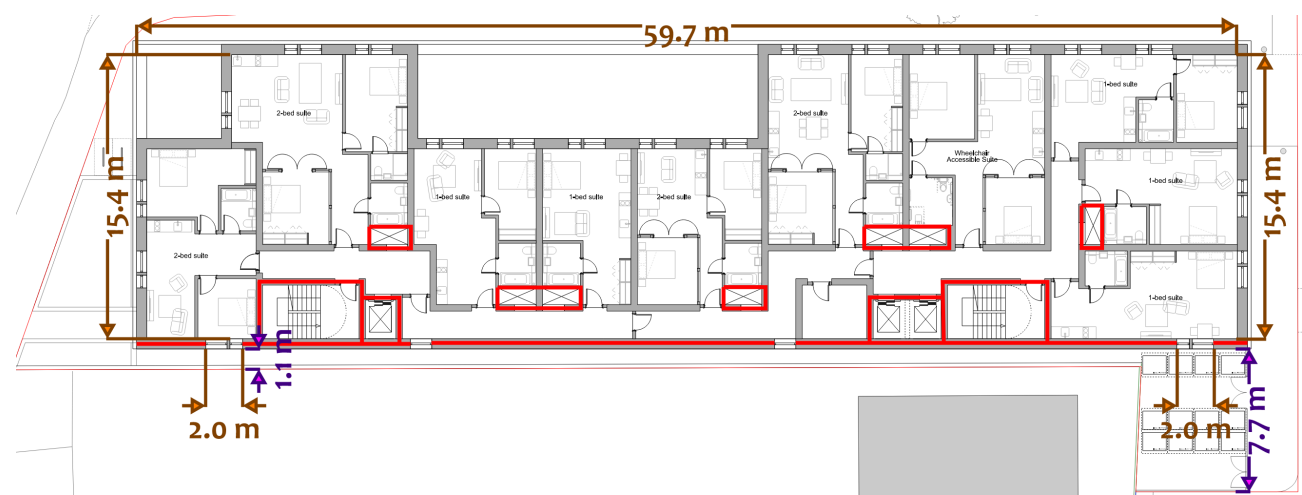


Figure 11 – Compartment dimensions at First floor (worst case above ground)

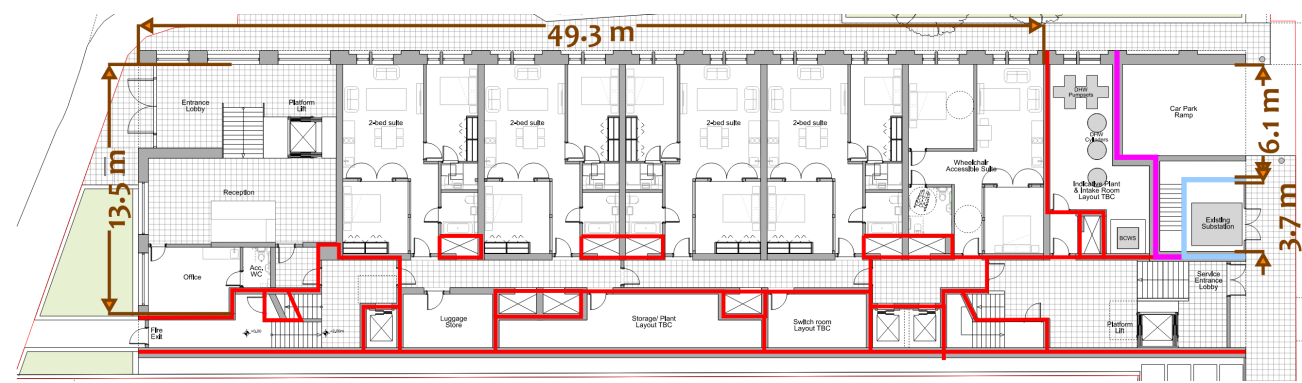


Figure 12 – Compartment dimensions at Ground floor

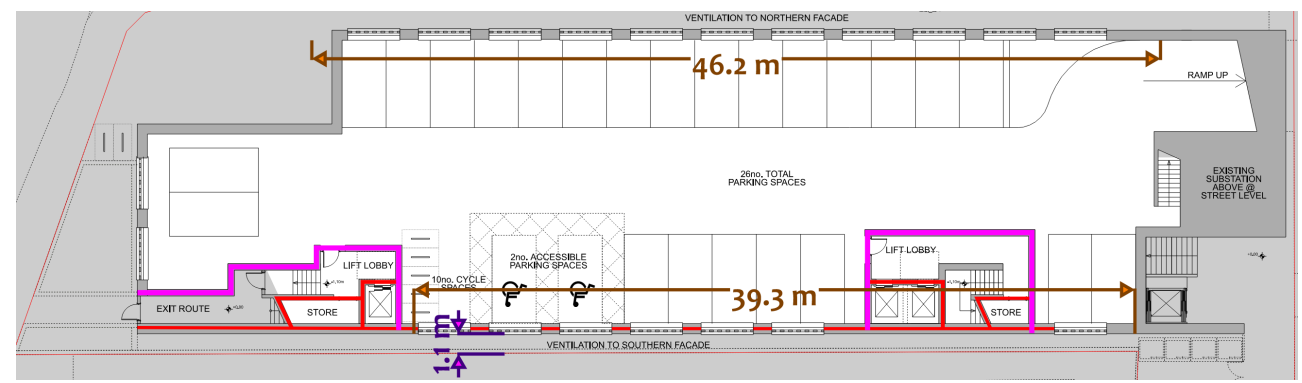


Figure 13 – Typical above-ground compartment dimensions (First floor indicated)

6. Fire service access and facilities

6.1 Notification and information for the fire and rescue service

6.1.1 In the event of a fire, the local Fire and Rescue Service (FRS) are expected to be notified by a member of hotel staff upon confirmation of a fire.

6.2 Fire appliance access to the site

6.2.1 Vehicle access for fire appliance will be available via Shepiston Lane and Arlington Court as illustrated in Figure 14. This route is expected to meet the fire appliance access guidance given in London Fire Brigade Guidance Note 29 [39], as summarised in Table 11.

6.2.2 A turning area is present at the end of Arlington Court such that external vehicle reversing distances would not be required to access the perimeter of the building.

6.2.3 The building has a total floor area of between 2,000 m² and 8,000 m², and an uppermost floor over 11 m above ground level. As such, Table 15.1 of ADB2 recommends that access for a high-reach fire appliance be available to at least 50% of the building perimeter. This will be achieved where perimeter access is available to circa 60% of the perimeter, as illustrated on Figure 14.

6.3 Firefighting water supplies

6.3.1 As a mature urban site, the existing water supply provisions for firefighting will continue to serve the site. This will be via a nearby public hydrant located at the junction of Shepiston Lane and Arlington Court, as indicated in Figure 14.

6.3.2 Section 16.8 in ADB2 recommends that where at least one operable fire hydrant is located within 100 m of a proposed building, further new fire hydrants would not be expected. As illustrated on Figure 14, this is achieved where an existing hydrant is located at less than 10 m from the proposed hotel entrance.

6.4 Firefighting facilities within the building

6.4.1 As the building does not feature an occupied floor at greater than 18 m above ground level, no firefighting shaft is expected or proposed to meet the expectations of ADB2. However, fire safety measures included that would support firefighting within the hotel building include:

- Multiple protected escape stairs giving access to the upper floors of the building.
- Protected lobbies / corridors to stairs, that would assist with smoke control in these areas.
- Compartmentation in support of sleeping occupants, including compartment floors, which would also assist in limiting fire spread.
- Automatic suppression within bedroom suites, that would assist on limiting fire growth.

6.5 Basement smoke clearance

6.5.1 The Lower Ground floor is a car park subject to discussions in Section 6.6.

6.6 Car park smoke clearance

6.6.1 The car park is to include natural venting to comply with the expectations of both Section 11.4 of ADB2 and Section 7.1 of BS 7346-7 [40]. To also support day-to-day venting, this requires:

- Permanent natural ventilation equivalent to at least 5% of the floor area of the car park, with at least 2.5% of the venting to be provided at opposing walls (i.e. 1.25% at each wall).
- With the car park having an area of ~635 m², at least 32 m² of natural venting shall be provided. This is to include at least 8 m² of venting in each of two opposing faces of the building, with the remainder of the venting to be provided as suites around the perimeter of the building.
- Venting is to be provided within the north and south façades, with further venting provide via the car park entrance. The south façade is adjacent to the site boundary and is subject to unprotected area calculations as detailed in Section 5.3.

Table 11 – High-reach firefighting appliance access requirements from GN29

Minimum access route specification	Dimension
Width between kerbs	3.7 m
Width between gateways	3.1 m
Turning circle between kerbs	26.0 m
Turning circle between walls	29.0 m
Clearance height	4.3 m
Carrying capacity	32 tonnes
Maximum reversing distance	20 m

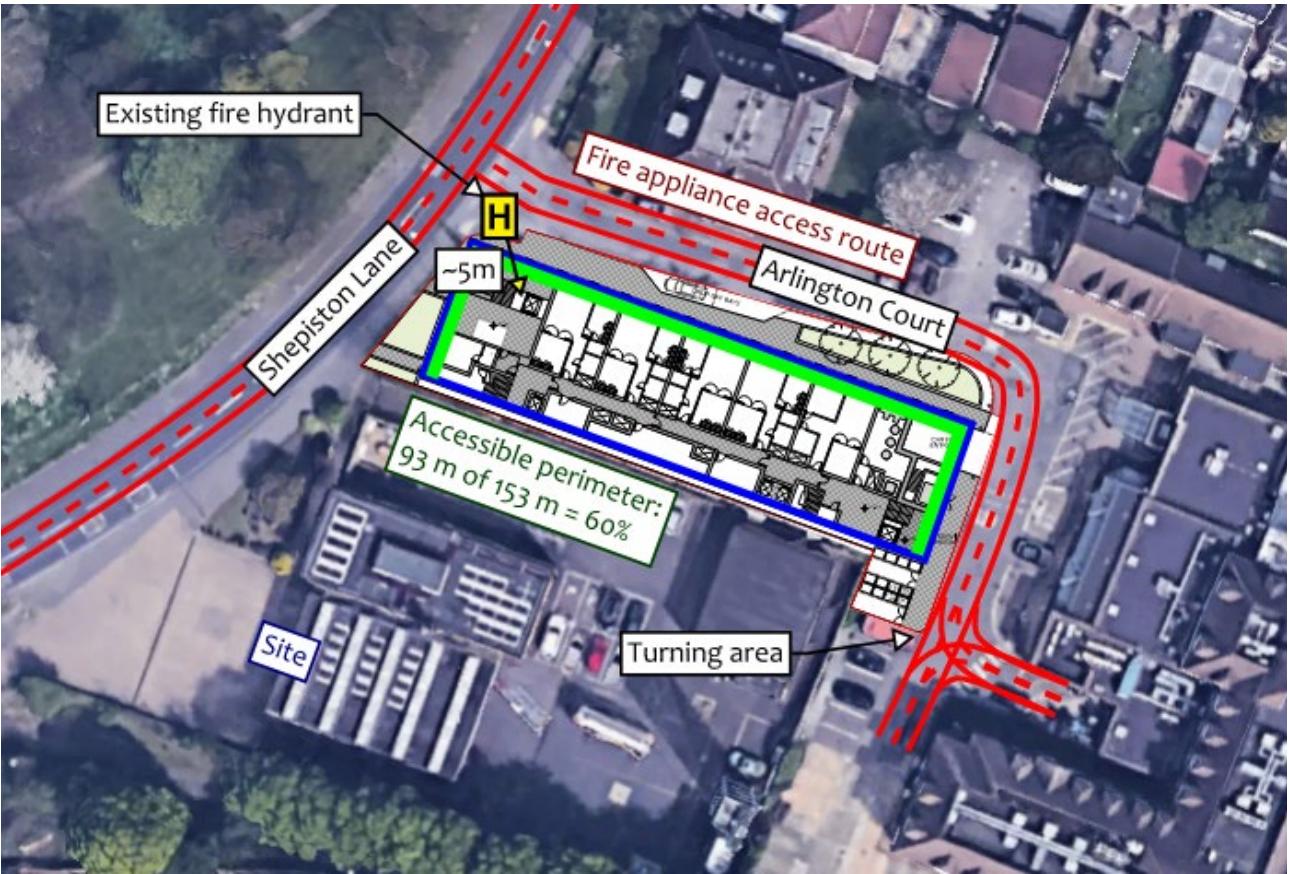


Figure 14 – Firefighting vehicle access and water supplies

6.6.2 The car park may be used by staff or guests with electric vehicles and is expected to be subject to the expectations of Part S of the Building Regulations. Measures above and beyond the expectations of ADB2 for additional robustness in the event of an electric vehicle fire are to include:

- Part S of the Building Regulations is understood to current expect cable routes to be installed for futureproofing the provision of charging points within covered car parks.
- Robust passive fire protection is to be provided between the car park and wider building. Compartmentation separating the car park is to have a fire resistance rating of at least 120 minutes.
- Natural venting would be available to the car park for day-to-day venting, offering double the ventilation area that would be expected as a minimum for the venting of heat and smoke in fire safety guidance.
- Drainage should be in a direction that is away from the designated charging point areas, lowering the likelihood that standing water in this area poses a risk of electrocution.
- An isolation switch is to be provided in an easily accessible location close to the car park entrance, to allow the fire service to cut electricity supplies for the charging points prior to conducting wet firefighting operations.

6.7 Stand-by power supplies

- 6.7.1 All powered life safety systems will have emergency back-up power in accordance with BS 8519 [41] or in accordance with their associated design standard.
- 6.7.2 Smaller items of equipment are expected to utilise batteries capable of a continuous stand-by supply in accordance with the relevant design standard and be fully rechargeable within a period of 24 hours.
- 6.7.3 For a Category 1 sprinkler system, a robust single power supply that meets the expectations of Section 5.12.2 and Figure 7 in BS 9251 may be utilised.
- 6.7.4 Section 20.4 in BS 8519 and Section G.2.2 in BS 9999 note that where no other life safety system which requires an external secondary power supply is present, two protected and diverse supplies from a single intake may be considered for the evacuation lifts (subject to designer risk assessment during detailed design).

7. Additional fire safety guidance

7.1 Fire safety information and future development

- 7.1.1 This Fire Statement details an appropriate level of information to support a planning application for a development of this scale and nature.
- 7.1.2 Following planning, this Fire Statement should be provided to the design team responsible for progressing the scheme through detailed and technical design. The design team will be required to seek approval for the development under the Building Regulations by the appointed building control authority, including consultation with the local fire and rescue service.
- 7.1.3 Further development of the fire safety provisions set out within this Fire Statement is expected during the Building Regulations approvals process, including the selection of specific products, systems, or materials to fulfil the expectations of the Fire Statement.
- 7.1.4 Where any modification to the fire safety provisions set out in Section 3 to 6 of this Fire Statement are proposed during further design, these should not be incorporated unless agreed in writing by the appointed building control authority.
- 7.1.5 The as-built fire safety strategy for the buildings, as agreed by the appointed building control authority, should be documented and provided to the Responsible Person for the building as defined in the Regulatory Reform (Fire Safety) Order 2005 (as amended), to meet the expectations of Regulation 38 of the Building Regulations and principles of the Golden Thread of Information. This should be provided as part of a wider package of building information including, but not being limited to:
- This Fire Statement report
 - The as-built fire safety strategy report and associated fire strategy drawings
 - Manufacturer's literature for fire safety products and equipment provided at the building
 - Drawings indicating the installed locations of fire safety products and equipment
 - Manufacturer's literature detailing suitable methods of operation and maintenance of fire safety products and equipment
- 7.1.6 It is recommended that the above information is provided to the Responsible Person in a digital format that may be retained using a cloud-based or other remote service, to reduce the potential for loss of information in the event of fire, flooding, theft, etc.
- 7.1.7 The Responsible Person is recommended to ensure that periodic maintenance of the fire safety equipment in the building is undertaken in accordance with the manufacturer's recommendations. The information provided within the Regulation 38 documentation may be used to assist maintenance professionals in identifying the systems, spare parts, operational procedures, maintenance procedures, etc. for the various systems present.
- 7.1.8 Any subsequent amendment to the fire safety provisions at the building will require consent from an appointed building control authority. The building owner should consult with a suitable building control authority or fire safety professional prior to conducting any future modification works, to ensure that these will be in accordance with any relevant fire safety legislation in force at that time.

7.2 Management and maintenance of fire safety systems

- 7.2.1 Management of fire safety must be integrated with all other management systems. If this management is lacking, then there is a danger that all the other areas such as security measures and alarm systems will be ineffective. To ensure there is no doubt as to where the responsibility for fire safety rests, and to enable consistency of approach, it is important that each establishment appoints a designated Building Safety Manager. It may be possible to appoint a professional to take on this role but that will depend on the size of the premises, costs, etc.
- 7.2.2 The appointed person should have the necessary authority and powers of sanction to ensure that standards of fire safety are maintained. The duties of the Building Safety Manager may include:
- management to minimise the incidence of fire (e.g., good housekeeping and security)
 - producing an Emergency Fire Plan
 - being aware of all fire safety features provided and their purpose
 - being aware of any particular risks on the premises (e.g., issues relating to hot work)
 - being aware of their responsibilities towards disabled people
 - liaising with, and where necessary seek the advice of, the fire authority, local council, or other relevant enforcing authorities
 - having powers to deal with individuals who sabotage or tamper with fire safety systems, who ignore any smoking policy or who block exits
 - liaising with other fire safety managers in a multi-occupancy arrangement
 - ensuring that residents, tenants, concessionaires, and caretakers are appropriately briefed
 - ensuring that appropriate communication systems are in place to deal with any fire incident
 - checking the adequacy of firefighting equipment and ensuring its regular maintenance
 - ensuring fire escape routes and fire exits are unobstructed and doors operate correctly
 - ensuring that fire detection or protection systems are maintained, tested, with records kept
 - ensuring any close down procedures are followed
- 7.2.3 Good housekeeping is to ensure that the effectiveness of the fire safety provisions are not adversely affected, including the adequate provision for the disposal of waste and / or rubbish.
- 7.2.4 Maintenance procedures are to be enacted so that equipment will be able to operate effectively. Maintenance staff are to be trained in the importance of the fire safety systems and planned maintenance.
- 7.2.5 Common escape routes should have wall and ceiling linings achieving a Class B-s3, d2 reaction to fire standard, apart from permitted exceptions noted in this report. These finishes must be maintained for the life of the building. Display features or items such as posters, artwork pieces, etc. may be included with appropriate consideration, justification, and on-going control.

7.3 Fire extinguishers and fire blankets

- 7.3.1 First-aid firefighting provisions should be assessed and provided as part of the fire risk assessment for the building, including consideration for the day-to-day management of these provisions. Suitable first-aid firefighting provisions can help with the extinguishment of small fires, preventing these from growing into significant fires.
- 7.3.2 In general, fire points should be provided within circulation areas and areas presenting a significant fire ignition risk, such as kitchens, refuse stores and plant rooms. The fire risk assessment that should be undertaken upon occupation of the building may assist with the placement of suitable fire extinguishers.
- 7.3.3 Where provided, the type and size of extinguisher(s) are recommended to be chosen in accordance with the guidance given in BS 5306-8 [42], as summarised by Table 12 and the classification of fire fuel hazards summarised as follows:
- Class A – fires involving solid materials, usually of an organic nature (general hazards);
 - Class B – fires involving liquid or liquefiable solids (such as liquid fuels, lubricants, paints, etc.);
 - Class C – fires involving gases;
 - Class D – fire involving metals; and
 - Class F – fires involving cooking media (vegetable or animal oils or fats).
- 7.3.4 Fire blankets should be provided in kitchens for extinguishing cooking fires and should be affixed vertically to a wall or door to for ease of deployment in an emergency. The blanket should be located close to the cooking appliance, but far enough away such that a hob fire would not prevent access to the fire blanket.

Table 12 – Fire extinguisher types

Medium	Colour code	Application	Do NOT use for
Water	White	Class A fires	Liquid, electrical, metal or cooking fires
Powder	Blue	Class A, B or C fires	Metal or cooking fires
Foam	Cream	Class A or B fires	Electrical*, metal or cooking fires
CO ₂	Black	Class B fires	Metal or cooking fires
Wet chemical	Yellow	Class A or F fires	Liquid, electrical or metal fires
* AFFF Foam extinguishers may be used for electrical fires up to 35 kV (dielectric test) and where operated from a distance of at least 1 m.			

8. References

- [1] Mayor of London, "The London Plan," Greater London Authority, London, 2021.
- [2] HSE, "HSG168 Fire safety in construction (3rd edition)," Health and Safety Executive, London, 2022.
- [3] FPA, "Fire prevention on construction sites (10th edition)," Fire Protection Association, Moreton in Marsh, 2022.
- [4] HM Government, "Approved Document B - Volume 2: Buildings other than dwellings (2019 Edition incorporating 2020 and 2022 amendments)," Online Edition, London, 2022.
- [5] BSI, "PD 7974-0:2002 Application of fire safety engineering principles to the design of buildings. Guide to design framework and fire safety engineering procedures," British Standards Institution, London, 2002.
- [6] BSI, "BS 5839-1:2017 Fire detection and fire alarm systems for buildings - Part 1: Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises," British Standards Institute, London, 2017.
- [7] NHBC Foundation, "Open plan flat layouts - Assessing life safety in the event of fire," IHS BRE Press, St Albans, 2009.
- [8] HM Government, "Approved Document B - Volume 1: Dwellings (2019 Edition incorporating 2020, 2022 and 2025 amendments and forthcoming 2026 and 2029 changes - for use in England)," Online Version, London, 2025.
- [9] D. C. Davis, S. Murphy and D. D. Hopkin, "Open plan apartments - revisiting risks in light of contemporary demands," *International Fire Professional*, vol. November, no. 18, pp. 33-35, 2016.
- [10] BSI, "BS 9999:2017 Code of practice for fire safety in the design, management and use of buildings," British Standards Institution, London, 2017.
- [11] BSI, "BS EN 81-20:2014 Safety rules for the construction and installation of lifts - lifts for the transport of persons and goods. Passenger and goods passenger lifts (incorporating corrigendum November 2015)," British Standards Institution, London, 2014.
- [12] BSI, "BS EN 81-70:2018 Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lift," BSI, London, 2018.
- [13] BSI, "BS EN 81-76:2025 Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lifts - Evacuation of persons with disabilities using lifts," British Standards Institute, London, 2025.
- [14] BSI, BS 5839-9:2011 Fire detection and fire alarm systems for buildings. Part 9: Code of practice for the design, installation, commissioning and maintenance of emergency voice communication systems, London: British Standards Institution, 2011.
- [15] BSI, "BS 8300-2:2018 - Design of an accessible and inclusive built environment. Buildings - code of practice," BSI, London, 2018.
- [16] BSI, "BS EN 1155:1997 Building hardware. Electrically powered hold-open devices for swing doors. Requirements and test methods," British Standards Institute, London, 1997.
- [17] BSI, "BS 5266-1:2016 Emergency lighting. Code of practice for the emergency lighting of premises," British Standards Institution, London, 2016.
- [18] BSI, "BS EN 1838:2013 Lighting applications. Emergency lighting," British Standards Institution, London, 2013.
- [19] BSI, "BS EN 60598-2-22:1999 Luminaires - Part 2-22: Particular requirements - Luminaires for emergency lighting," British Standards Institution, London, 1999.
- [20] BSI, "BS ISO 3864-1:2011 Graphical Symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings," British Standards Institution, London, 2011.
- [21] BSI, "BS 5499-4:2013 Safety signs. Code of practice for escape route signing," British Standards Institution, London, 2013.
- [22] BSI, "BS 5499-10:2014 Guidance for the selection and use of safety signs and fire safety notices," British Standards Institution, London, 2014.
- [23] BSI, "BS 5499-1:2002 Graphical symbols and signs. Safety signs, including fire safety signs. Specification for geometric shapes, colours and layout," British Standards Institution, London, 2002.
- [24] BSI, "BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using data from reaction to fire tests," British Standards Institute, London, 2018.
- [25] BSI, "BS 9251:2021 Fire sprinkler systems for domestic and residential occupancies — Code of practice," British Standards Institution, London, 2021.
- [26] BSI, "BS EN 81-58 Safety rules for the construction and installation of lifts. Examination and tests. Landing doors fire resistance test," British Standards Institution, London, 2018.
- [27] BRE, "BR 128: 1988 Guidelines for the construction of fire-resisting structural elements," BRE Bookshop, Watford, 1988.
- [28] BSI, "BS 476-22:1987 Fire tests on building materials and structures. - Part 22: Methods for determination of the fire resistance of non-loadbearing elements of construction," British Standards Institution, London, 1987.
- [29] BSI, "BS EN 1634-2:2008 Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware. Fire resistance characterisation tests for elements of building hardware," British Standards Institution, London, 2008.
- [30] BSI, "BS 476-31-1:1983 Fire tests on building materials and structures. - Part 31: Methods for measuring smoke penetration through doorsets and shutter assemblies. Section 31.1 Method of measurement under ambient temperature conditions,," British Standards Institution, London, 1983.
- [31] BSI, "BS EN 1634-3:2004 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware. - Part 3: Smoke control test for door and shutter assemblies," British Standards Institution, London, 2004.
- [32] BSI, "BS 8214:2016 Timber-based fire door assemblies. Code of practice," British Standards Institution, London, 2016.
- [33] UKPN, "EDS 07-0102 Secondary substation civil design standard," UK Power Networks, London, 2015.
- [34] BSI, "BS 8579:2020 - Guide to the design of balconies and terraces," British Standards Institute, London, 2020.
- [35] GRO, "The GRO Green Roof Code: Green Roof Code of Best Practice for the UK 2021," Green Roof Organisation, London, 2021.
- [36] BSI, "BS 8616:2019 Specification for performance parameters and test methods for green roof substrates," British Standards Institute, London, 2019.

- [37] BSI, "BS EN 13501-5:2016 Fire Classification of construction products and building elements - Classification using test data from external fire exposure to roof tests," British Standards Institute, London, 2016.
- [38] BRE, "BR 187: 2014, External fire spread - Building separation and boundary distances," IHS BRE Press, Bracknell, 2014.
- [39] LFB, "GN29: Fire Safety Guidance Note - Access for Fire Appliances," London Fire Brigade, London, 2007.
- [40] BSI, "BS 7346-7:2013 Components for smoke and heat control systems. - Part 7: Code of practice on functional recommendations and calculation methods for smoke and heat control systems for covered car parks," British Standards Institute, London, 2013.
- [41] BSI, "BS 8519:2020 Selection and installation of fire-resistant power and control cable systems for life safety and fire-fighting applications - Code of practice," British Standards Institution, London, 2020.
- [42] BSI, "BS 5306-8:2012 Fire extinguisher installations and equipment on premises. - Part 8: Selection and positioning of portable fire extinguishers. Code of practice," British Standards Institution, London, 2012.

Appendix A – Fire safety and fire-resisting construction mark-ups
