



Revision History

Version	Date	Author	Comments
01	31/08/2023	Vishwarajsinh Gohil	Initial issue to the client
02	12/09/2023	Vishwarajsinh Gohil	Revised following commentary from planner, and update on site plan
03	04/12/2023	Vishwarajsinh Gohil	Amend based on updated drawings

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Prepared by	Vishwarajsinh Gohil vishwarajsinhgohil@bbseven.com		
Reviewed by	Brett Kelsall brettkelsall@bbseven.com	5 Carrwood Park Selby Road Leeds	
Approved by	Neil Eaton neileaton@bbseven.com	LS15 4LG	

Prepared for	R Ariel Heathrow Opco Limited	Bath Road
		Harlington
		UB3 5AJ

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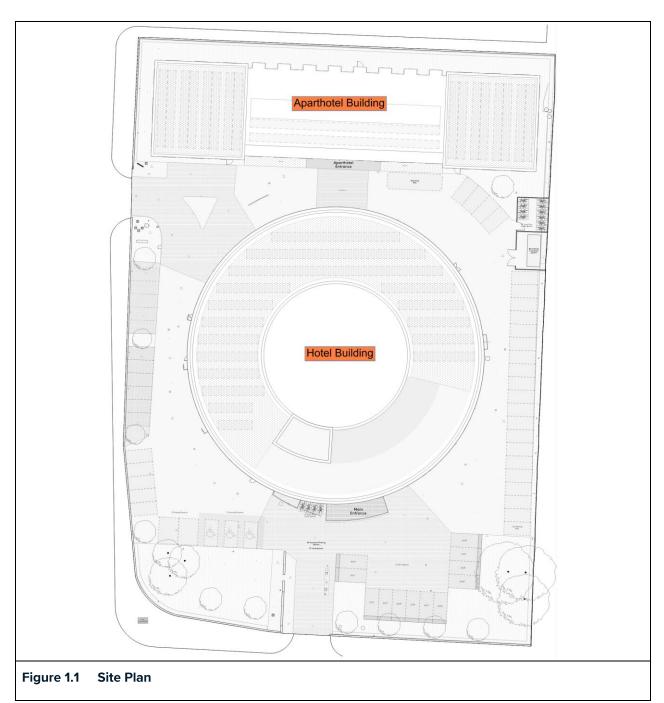
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1. Introduction

1.1 General

- 1.1.1 This document provides an overview of the Ariel Hotel development located at 118 Bath Road, Harlington, Hayes which is close proximity to Heathrow Terminal 2 Airport and is located within the Greater London jurisdiction and therefore should comply with the London Plan Policies D5(B5) and D12 as outlined within the London Plan document issued March 2021.
- 1.1.2 The development consists of the reconfiguration, alteration and extension of existing hotel (providing additional hotel rooms), together with erection of a new apart-hotel building on car park land to the north. The Ariel Hotel development will consist of two buildings, a Hotel and an Aparthotel building both consisting of the erection of new buildings on the 118 plot, Bath Road, Harlington, Hayes. The addition of two storeys above the existing hotel building. Providing 113 new hotel rooms (a total of 299 hotel rooms), and the erection of a new aparthotel building comprising 98 aparthotel rooms, including façade enhancements and associated works.
- 1.1.3 The Hotel building is an existing building which will be redeveloped to provide Hotel accommodation. As such, the redevelopment of the building will be classed as a 'material change of use' under the Building Regulations 2010. Regulation 5 defines a 'material change of use' in which a building or part of a building that was previously used for one purpose will be used for another.
- 1.1.4 The development has a combined floor area, when measured along the external footprint of the scheme, in excess of 1,000m² and therefore, under the guidance of The London Plan it is required to assess the scheme as a 'Major Development'. Consequently, the criteria of Policies D12(A) and D12(B) will be detailed including how the development will meet these.
- 1.1.5 The site plan for the development can be seen as indicated in Figure 1.1 below.



Hotel Building

1.1.6 The proposed hotel building comprises a basement plus 6 storeys (ground + 5 upper floors). This hotel building will have three internal stairways and two lift cores; one lift in each core will be used for evacuation purposes in case of an emergency. All stairs and lift cores will serve the ground floor to five upper floors. The height of the building when measured from the lowest external ground floor level to the topmost occupied storey (fifth floor) will be approximately 16.68m. The height of the hotel building can be seen indicated in Figure 1.2 below.



Figure 1.2 Hotel Building Height

- 1.1.7 Based on the meeting with Architect on 14/07/2023, some of the areas at ground floor and basement are existing, and no works are to take place as part of the refurbishment works. It is to be expected that those areas will still achieve the required fire resistance (the existing area was highlighted with grey on the BB7 drawing markups, revision 2). The basement of the hotel building will predominantly house a gym and the rest of the areas such as the BOH/Plant are existing areas. The ground floor of the proposed hotel building will have a main entrance, a restaurant, a kitchen, a function room, outdoor space, hotel rooms, a store room and other areas that are existing.
- 1.1.8 As shown in Figure 1.3 below, the upper floors (first to fifth) of the hotel building are typical and will have hotel rooms and BOH. There is an amenity space, and it is located only on the first floor.

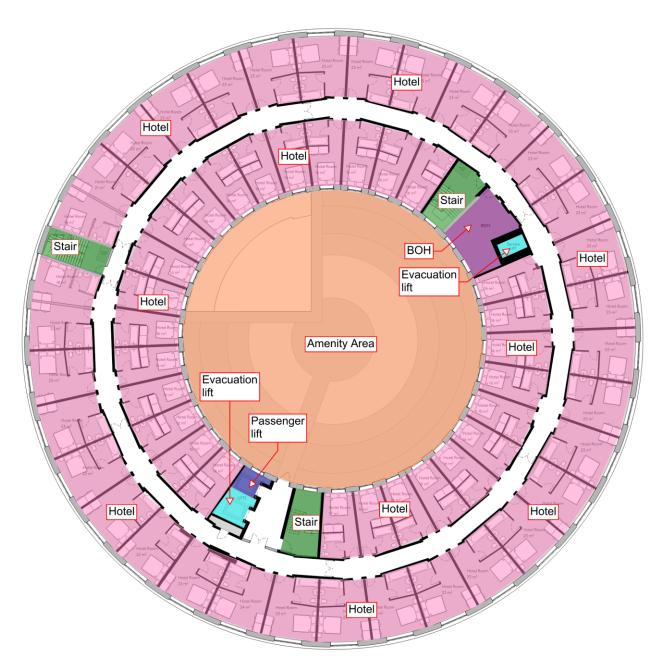


Figure 1.3 Hotel Floor Plan (i.e. First-Third)

1.1.9 It is to be expected that the hotel building will be provided with an evacuation lift and refuge space in each of the stairs.

Aparthotel Building

- 1.1.10 The second building which is close to the hotel building is known as Aparthotel Building, following the meeting with Architect on 14/07/2023, the drawing has been reviewed based on residential guidance, but the occupancy is considered as a Hotel as per the planning application. This is on the basis of the residential guidance being more onerous.
- 1.1.11 The habitable height from the ground floor level to the topmost occupied storey (third floor) will be approximately 10.68m. The ground floor of the proposed Aparthotel building will have a main entrance/seating area, aparthotel rooms, a laundry room, a help desk, pantry and plant room. The height of the Aparthotel building can be seen as indicated in Figure 1.4 below.



Figure 1.4 Aparthotel Building Height

1.1.12 The proposed Aparthotel building comprises up to 4 storeys (ground + 3 upper floors). This Aparthotel building will have three internal stairways and two lift cores; one of the lifts which is located at the centre of the building will be used for evacuation purposes in case of an emergency. The other lift which is located right side of the building will be used as a service lift. All stairs and a lift core will serve the ground floor to three upper floors. The upper floors (first to third) of the Aparthotel building are typical and will have aparthotel rooms. The design layout of the upper floor is shown in Figure 1.5.

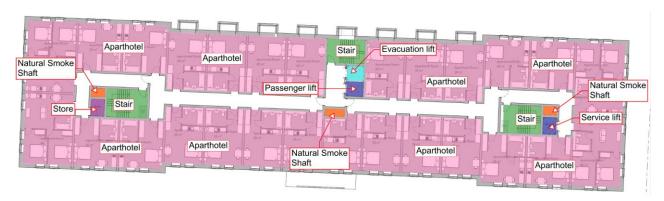


Figure 1.5 Proposed Aparthotel Floor Plan (i.e. first-second)

- 1.1.13 Since the Aparthotel building will be provided with an evacuation lift and refuge space in the stair it is to be assumed that there will be wheelchair-accessible units (M4(3)).
- 1.1.14 The design of the hotel development will be done in line with Approved Document B Volume 2: 2019 edition (incorporating 2020 and 2022 amendments) and Delta Hotels Fire Protection & Life Safety: May 2023.
- 1.1.15 The principal guidance document used for the evaluation of fire safety precautions for the development of the Aparthotel building will be BS 9991: 2015 Fire Safety in the Design, Management, and Use of Residential Buildings Code of Practice (BS 9991).

2. Qualification and Competence of Personnel

Vishwarajsinh Gohil (Author)

Qualifications of the Author

POSITION

Fire Engineer

QUALIFICATIONS/MEMBERSHIPS

BSc (Hons) MSc AlFireE



2.1.1 I, Vishwarajsinh Gohil, can confirm that I am an Associate Member of the Institution of Fire Engineers. Prior to starting my professional career obtained a Bachelor's Degree (BSc) in Fire and Safety (1st Class) and a Master's Degree (MSc) in Fire Safety Engineering (1st Class). I used to work in Gulf Country and have developed fire strategies for various projects such as residential, commercial, hospital and malls. Currently, I am working mostly on residential projects, and I am involved in producing fire strategies for RIBA Stages 1-3. I review architectural drawings, provide mark ups drawings highlighting non-compliances, prepare fire strategies and arrange meetings with clients to resolve any areas of non-compliance.

Brett Kelsall (Review)

Qualifications of the Author

POSITION

Associate Fire Engineer

QUALIFICATIONS/MEMBERSHIPS

BSc(Hons) C.Build E MCABE MIFireE

- 2.1.2 Brett joined BB7 from a background in Fire Testing where he conducted full-scale tests in accordance with British Standards, European Standards, Underwritten Laboratory tests and ISO tests. Wanting to further embrace the fire safety culture, Brett embarked on his career path to becoming a Fire Engineer.
- 2.1.3 Since joining BB7, he has become a crucial member of the team, working on numerous high-profile schemes across all sectors of the industry. He has developed an in-depth understanding of fire engineering standards and guidance, and how to identify value engineering opportunities which can be applied to projects to achieve the most cost-effective solution.
- 2.1.4 Brett has worked on several high-profile projects throughout the country including hospitals, ice rinks, leisure centres, mixed-use developments, high-rise residential towers, educational buildings and football stadiums. Whilst also working on projects which are small in nature, but large in building relations with future clients.
- 2.1.5 Brett is a highly skilled engineer with extensive knowledge of both the theoretical and practical application of all aspects of engineering and the built environment.
- 2.1.6 Brett's background is in fire engineering design, implementing the latest innovation techniques to implement functional fire strategies that benefit the design team during the design development stages, whilst ensuring the building can function in a manageable way once occupied.

Neil Eaton (Authoriser)

Qualifications of the Author

POSITION

Technical Director (Fire Engineering)

QUALIFICATIONS/MEMBERSHIPS

BEng (Hons) IEng, FIFireE, MIFSM

- 2.1.7 Neil is an Incorporated Engineer (IEng) and a Fellow of the Institution of Fire Engineers; he has a degree in fire engineering from the University of Central Lancashire. Neil has been involved in fire-related work for over 40 years, having worked for 25 years in a variety of roles in a local authority fire service prior to taking up roles in fire engineering in 2008.
- 2.1.8 Neil's fire service career included roles involving operational firefighting and command, fire safety inspection and enforcement and fire investigation.
- 2.1.9 As a fire engineer Neil has extensive experience in delivering fire safety designs of buildings across many



sectors including residential, schools, universities, healthcare, defence, leisure, commercial and industrial premises.

2.1.10 Within the many projects in these sectors Neil has worked on listed heritage buildings and some international (non-UK) projects. Neil also has significant experience in conducting fire safety risk assessments and audits.

3. London Plan Policy D5(B5)

3.1 Requirements

3.1.1 The London Plan Policy D5(B5) is outlined below:

"Development proposals should achieve the highest standards of accessible and inclusive design. They should be designed to incorporate safe and dignified emergency evacuation for all building users. In all developments where lifts are installed, as a minimum at least one lift per core (or more subject to capacity assessments) should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building."

- 3.1.2 In the hotel building development, there will be a total of three lifts: two of which will be evacuation lifts and the remaining one will be a passenger lift.
- 3.1.3 The Aparthotel building will also be provided with three lifts: two of which will be used as passenger/service lifts and the remaining one will be used as an evacuation lift.
- 3.1.4 Each of the evacuation lifts will be provided with the measures required by the London Plan Policy D5 (B5). All evacuation lift installations will generally comply with the recommendations of BS 9999 Annex G and should be designed and installed in accordance with the relevant provisions in BS EN 81-20 and BS EN 81-70.
- 3.1.5 An evacuation lift and refuge spaces in escape stairs are provided for the people requiring assistance to escape from the Hotel Building and the routes should be discharged to the outside of the building via a protected corridor. Any room opening into that corridor should be lobbied.
- 3.1.6 The lift installation will be suitably sized in line with the relevant British Standards. A ground floor plan of the development indicating the location of the lift core and escape route is provided below in Figure 3.1.
- 3.1.7 It was discussed in the meeting with the design team on 24/08/2023, the centre lift opening on two sides could be used: into the lobby at the ground floor for day-to-day use and into the protected corridor in evacuation mode.
- 3.1.8 A fire curtain will be provided in front of the lift at ground floor level, reception lobby side, to prevent any smoke from entering the evacuation lift, as lift doors do not have any smoke seals.

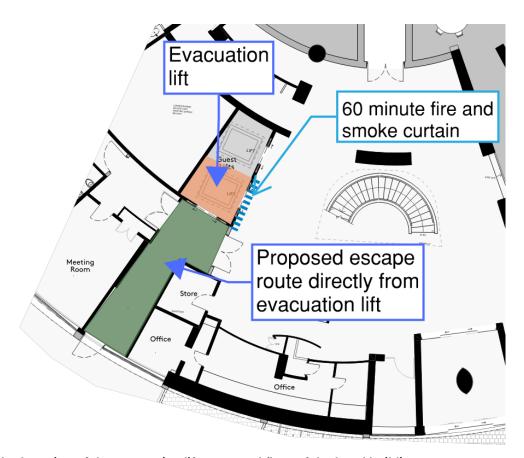


Figure 3.1 Location of the evacuation lift at ground floor of the hotel building

3.2 Evacuation Strategy/Building Management Plan

- 3.2.1 When the building / development provides residential aparthotels and non-residential units, it can be assumed that there will always be a suitably trained person on site to manage the evacuation using the evacuation lift, as is typically required. If this is not accounted for, it is the requirement for the building to have a suitable and sufficient management plan in place. Both developments are recommended to have 24/7 management for the evacuation plan to be appropriately managed. Both developments are recommended to utilise driver-assisted evacuation technology whereby the trained personnel would operate the evacuation lift upon activation of an alarm. This is considered to be suitable for the use of both buildings.
- 3.2.2 Further to the above, the operation of the evacuation lift and its management thereof will consist of the following interfaces and operational guidance which will be incorporated into the end user's management plan, provided by the responsible person(s).
 - Upon alarm activation the lift car will return to the ground floor level and all landing call controls will be disabled.
 - The trained personnel will then operate the evacuation lift switch to manually override the lift car, the lift will only respond to input provided by the driver and will not be overridden by input from landing switches. The communication system within the lift will also become operational at this point, this will be linked to a call station located within each of the lift lobbies at the upper levels.
 - The driver will proceed only to direct the lift to the floors where a call for assistance has originated and they will not stop at additional levels where no call for assistance has been made.



- 3.2.3 Further consultation with the Fire and Rescue Service may identify a more efficient and safer manual operational route of the lift; however typically the below will occur:
 - The fire floor; then
 - The floor immediately above the fire floor.
- 3.2.4 It may be determined however by the trained member of staff (driver) during the evacuation and upon assessment of the latent fire conditions within the building that an alternative operation of the lift may be necessary to evacuate one floor before another.
- 3.2.5 The management operation of the lift will be conducted in a manner reflective of the guidance of BS 9999 Annex G.2.3.
- 3.2.6 A management plan is to be formulated that ensures the maintenance of all fire safety features within the building. This is to include a suitable risk assessment of any variations to the management plan (where these occur).
- 3.2.7 Annex H of BS 9999 should be consulted as it provides generic guidance on the provision of fire precautions and facilities within a building. It addresses the issues that need to be considered during the design process as well as those that will apply whilst the building is in use, or which need to be taken into account when alternations to the building or the use of it are being considered.
- 3.2.8 Procedures for the management of fire safety should be developed by the premises management and documented in a fire safety manual.
- 3.2.9 A typical fire safety manual might include all or some of the following:
 - Fire safety policy statement
 - Fire safety management structure
 - Coordination with other parties (e.g. in a shared building)
 - Emergency response
 - Evacuation of people with special needs
 - Contingency and salvage plans
 - Emergency responsibilities of designated staff
 - Summary of fire safety strategy and plans for the building
 - · Fire risk assessment
 - Procedures for dissemination of information
 - Selection and control of materials
 - Maintenance and testing of fire safety equipment
 - Routine housekeeping (e.g. removal of combustible waste)
 - Fire safety training
 - Fire drills
 - Decoration, alternation and building work
 - Audit procedures and updating of the manual

- Fire safety records
- 3.3 Capacity Assessment

Hotel Building

- 3.3.1 Since the Hotel building will be operating a simultaneous evacuation strategy for the hotel areas, this means that the activation of an evacuation signal will give an instantaneous warning from all fire alarm sounders for an immediate evacuation of the whole premises.
- 3.3.2 The Hotel building will have three stairs (only the top two stairs top left and top right will be 1200mm, and the remaining one will be minimum 1120mm clear width). Out of three stairs, one will be discounted.
- 3.3.3 We have reviewed two fire scenarios:
 - 1. As shown in Figure 3.2, a fire blocking the open stair at the bottom of the drawing; and
 - 2. As shown in Figure 3.3, a fire blocking one of the two other stairs as they will be unlobbied on the upper floor level and a fire could block one of them.

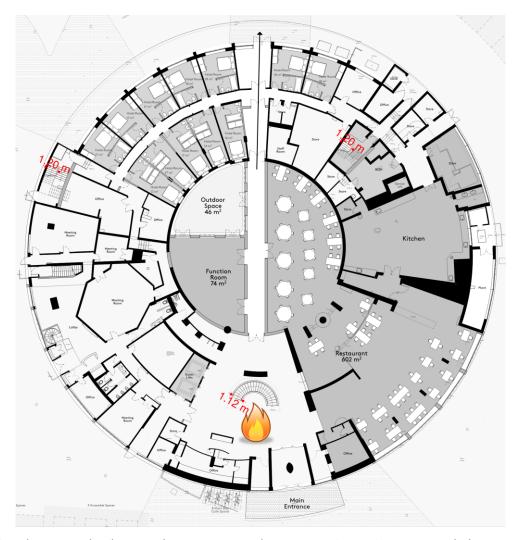


Figure 3.2 First scenario, fire blocking the open stair at ground floor of the hotel building

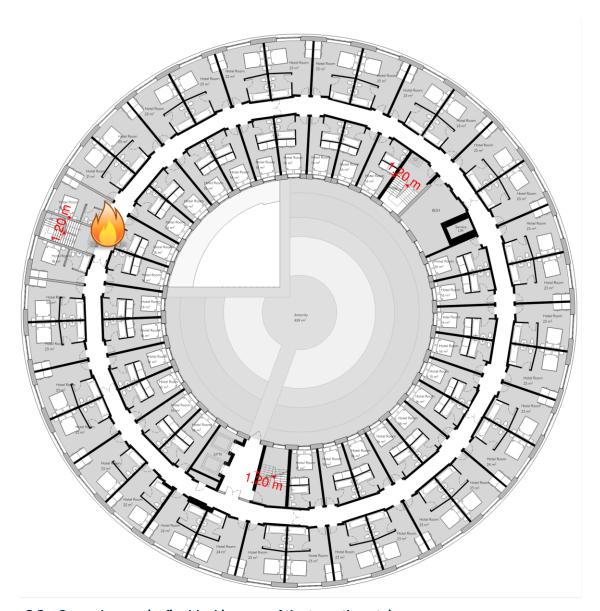


Figure 3.3 Second scenario, fire blocking one of the two other stairs

<u>First Floor:</u> The are 62 rooms (2 people per room) + Amenity space (limited to a maximum of 50 people) + BOH (2 people) = 176 people.

<u>Second Floor:</u> There are 62 rooms (2 people per room) + BOH (2 people) = 126 people.

<u>Third Floor:</u> There are 62 rooms (2 people per room) + BOH (2 people) = 126 people.

Fourth Floor: There are 51 rooms (2 people per room) + BOH (2 people) = 104 people.

Fifth Floor: There are 50 rooms (2 people per room) + BOH (2 people) = 102 people.



- 3.3.4 The total occupant load from the first floor to the fifth floor will be a maximum of 634 people (176+126+126+104+102).
- 3.3.5 The upper floor level of the building will be served by three stairs, all of which are indicated to achieve an effective clear width of 1200mm:
 - As per the discounting rule one stair (1200mm) will be discounted and there will remain two stairs (1200mm + 1200mm). In accordance with ADB v2 Table 3.2, two stairs (1200 mm + 1200 mm) are able to safely accommodate 840 people (840/2 = 420 per 1200mm stair).
- 3.3.6 Based on the above calculation, after discounting one stair, still there will be enough stair capacity to escape from the upper floors, therefore the stair at the bottom of the drawing can remain open at ground floor level.

The architect confirmed in an email dated on 28/11/2023 that all the stairs will be 1200mm clear width.

3.3.7 The Aparthotel building will be operating a stay-put evacuation strategy for the Aparthotel areas, it is considered that having one evacuation lift will be sufficient for the building. Initial high-level calculations have shown that the upper levels are to be provided with three escape stairs each with a 1200mm width. One of the three stairs will be discounted. The remaining stairs can accommodate up to 660 people. The expected occupancy for the upper floors is considered as 180 people (62 people per floor over 2 floors + 56 people over 3rd floor).

4. London Plan Policy D12(A)

4.1 Requirements

4.1.1 The requirements of the London Plan Policy D12(A) are as follows:

"In the interests of fire safety and to ensure the safety of all building users, all development proposals must achieve the highest standards of fire safety and ensure that they:

- 1. identify suitably positioned unobstructed outside space:
 - a. for fire appliances to be positioned on
 - b. appropriate for use as an evacuation assembly point
- 2. are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire; including appropriate fire alarm systems and passive and active fire safety measures
- 3. are constructed in an appropriate way to minimise the risk of fire spread
- 4. provide suitable and convenient means of escape, and associated evacuation strategy for all building users
- 5. develop a robust strategy for evacuation which can be periodically updated and published, and which all building users can have confidence in
- 6. provide suitable access and equipment for firefighting which is appropriate for the size and use of the development."
- 4.1.2 Although not required under Policy D12 B for major developments, the following section details compliance with policy D12 A as requested by the planning case officer.

4.2 Policy D12(A1)

Identify suitably positioned unobstructed outside space appropriate for use as an evacuation assembly point

4.2.1 Upon activation of fire alarm, all occupants within the non-residential areas of the building are to egress



simultaneously to a designated assembly point. The evacuation assembly point is to be a suitable distance away from the building therefore not to be affected by debris upon collapse/failure of the building structure.

- 4.2.2 Due to the high number of anticipated occupants expected to evacuate the Hotel building development on a simultaneous evacuation procedure (634 persons), it is determined that there are no suitable external spaces that may be used as an assembly point within the external landscaping of the development and therefore, the designated assembly point is recommended to be located on a side road (high street Harlington), which is the road serving the development.
- 4.2.3 There is no specific design guidance nor prescriptive legislative requirements which are relevant to the designation/design of assembly points. Some general recommendations and advice can be employed in the designation of the assembly point, as defined below:
 - The area should be sufficiently far away from the building (or any building on the site). The horizontal distance away from the building should be at least 1.5x the height of the nearest building this is based on the guidance pertaining to means of escape in Section 2.1 of Approved Document B Volume 1.
 - The area should be appropriately sized to accommodate the total number of occupants expected to be within the building.
 - Escape from the assembly point to a public domain (roadway, concourse etc) should be possible without needing to travel near to or within the building.
- 4.2.4 As outlined above, these are only our recommendations, and are not considered requirements which must be met. Ultimately, the designation of the assembly point is the responsibility of the Responsible Person (as defined in the Regulatory (Reform) Fire Safety Order 2005).
- 4.3 Policy D12(A2)

Are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire; including appropriate fire alarm systems and passive and active fire safety measures

- 4.3.1 This is addressed under Section 5.4 Policy D12(B3) below.
- 4.4 Policy D12(A3)

Are constructed in an appropriate way to minimise the risk of fire spread

- 4.4.1 This is addressed under Section 5.2 Policy D12(B1) below.
- 4.5 Policy D12(A4)

Provide suitable and convenient means of escape, and associated evacuation strategy for all building users

- 4.5.1 This is addressed under Section 5.3 Policy D12(B2) below.
- 4.6 Policy D12(A5)

Develop a robust strategy for evacuation which can be periodically updated and published, and which all building users can have confidence in

- 4.6.1 This is addressed under Section 5.3 Policy D12(B2) below.
- 4.7 Policy D12(A6)

Provide suitable access and equipment for firefighting which is appropriate for the size and use of the development

4.7.1 This is addressed under Section 5.5 – Policy D12(B4) and Section 5.6 – Policy D12 (B5) below.

5. London Plan Policy D12(B)

- 5.1 Requirements
- 5.1.1 London Plan Policy D12(B) requires a Fire Statement to be produced for "Major Developments".
- 5.1.2 Major Developments are defined within the London Plan, as specified below:

Major Developments are defined as:

- For Dwellings: where 10 or more are to be constructed (or if number not given, area is more than 0.5 hectares)
- For all other uses: where the floor space will be 1000m² or more (or the site area is 1 hectare or more). The site area is that directly involved in some aspect of the development. Floor space is defined as the sum of floor area within the building measured externally to the external wall faces at each level. Basement car parks, rooftop plant rooms, caretakers' flats etc. should be included in the floor space figure.
- 5.1.3 As the Hotel building has a total floor space over 1000m² from ground level to the 5th floor, the site would be recognised as a 'Major Development'. Within Policy D12, major developments should incorporate materials that are Class A2-s1 rated or better under the European classification system, as set out in the standard BS EN 13501-1 and as reflected in the UK Building Regulations will be used except for those exempt elements as set out under Regulation 7(3) of Approved Document B.
- 5.1.4 According to Policy D12 (B) the Fire Statement "should detail how the development proposal will function in terms of:
 - 1) the building's construction: methods, products and materials used, including manufacturers' details
 - 2) the means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach
 - 3) features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans
 - 4) access for fire service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and positioning of equipment, firefighting lifts, stairs and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these
 - 5) how provision will be made within the curtilage of the site to enable fire appliances to gain access to the building
 - 6) ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures."
- 5.1.5 The aspects that should be included within the Fire Statement are outlined in the following subsections.
- 5.2 Policy D12 (B1)

The building's construction: methods, products and materials used, including manufacturers' details

Table 5.1 Building construction

Hotel – Existing Building			
Element	Description		
Structure	Existing RC structure		
External wall	(Existing) plastered blockwork, externally insulated with rockwool insulation, clad with an aluminium panel on an aluminium fast frame system		



Hotel – Existing Building			
Element	Description		
Roofs	Existing roof retained and built over		
Internal floors	Existing RC Structure New MF plasterboard ceiling beneath New carpet to rooms and corridors / New engineered timber flooring to communal areas (assumed) / Vinyl to BOH / Carpet to BOH offices		
Internal walls	Some existing walls remain and are re plastered / touched up All new walls are MF plasterboard – painted		
Balconies	N/A		

Hotel – New Build Rooftop Extension				
Element	Description			
Structure	Either Steel frame or SFS / Metsec framing - TBC			
External wall	Aluminium cladding on fast frame system on SFS substrate. Insulated between SFS studs and in fast frame zone			
Roofs	B _{ROOF} (t4) membrane on insulation on metal deck			
Internal floors	Either metal deck tray with cast concrete topping or SFS / Metsec framing. New MF plasterboard ceiling beneath New carpet to rooms and corridors / Vinyl to BOH			
Internal walls	MF plasterboard – painted			
Balconies	N/A			

Aparthotel – New Build			
Element	Description		
Structure	RC concrete frame		
External wall	Aluminium cladding on fast frame system on SFS substrate. Insulated between SFS studs and in fast frame zone		
Roofs	B _{ROOF} (t4) membrane on insulation on RC concrete substrate		
Internal floors	RC Structure New MF plasterboard ceiling beneath New carpet to rooms and corridors / New engineered timber flooring to communal areas (assumed) / Vinyl to BOH / Carpet to BOH offices		
Internal walls	MF plasterboard – painted		
Balconies	N/A		

- 5.2.2 The above construction details were provided by the design team through email on 29/08/2023.
- 5.2.3 With regards to the fire performance of any products used, these will be robust and as a minimum meet the requirements of Building Regulation 7(2). As such a detailed review of the external wall details proposed will been undertaken by BB7 during the next RIBA Stages and the major components within the external walls (and relevant attachments) will be specified as required by Regulation 7(2).
- 5.2.4 As such, a detailed review of the external wall details proposed will need to be undertaken by the design team



and all primary materials within the external walls should achieve a minimum classification of Class A2-s1,d0 unless otherwise agreed with the Planning Authority.

- 5.2.5 Solar Photovoltaic Panels (PV panels) could be identified as a potential fire risk. The BRE conducted studies over three years (2015 to 2018) to determine the fire risk of PV panels used within buildings. Within the literature review, 2017, the BRE recommend providing fault detection devices to PV panels (arc fault detection, ground fault detection and insulation resistance breakdown detection) which can provide effective protection against the faults that result in fires. The PV panels have been confirmed to be set on concrete paving slabs Additionally, access to PV roofs can present an issue for firefighters, therefore due consideration should be given to the safety of firefighter personnel moving around the rooftops where PV panels are located.
- 5.2.6 A green roofing system has been noted within the Hotel development on the First Floor and at roof level. The green roof is to achieve a classification of $B_{ROOF}(t4)$, and has been confirmed to be set back away from where the PV array is sited on the roof.
- 5.3 Policy D12(B2)

The means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach

- 5.3.1 The basis for the design of the fire strategy uses the guidance contained in Approved Document B (Volume 2): 2019 edition (incorporating 2020 and 2022 amendments) and Delta Hotels Fire Protection & Life Safety: May 2023 for Hotel building and BS 9991 for Aparthotel building.
- 5.3.2 The evacuation approach for the proposed Hotel building will be simultaneous and by activation of a fire alarm, the whole building will need to evacuate. Whereas the evacuation approach for the proposed Aparthotel building will revolve around the "stay put" strategy. Therefore, each aparthotel room will be constructed as its own fire compartment and will be provided with fire detection and alarm systems, which are standalone systems.
- 5.3.3 The stairs in the Aparthotel development will measure a clear width of 1,200mm and be designed to meet the requirements of Part M of the Building Regulations 2010 (as amended). As noted above, the building will be provided with an evacuation lift in the centre of the core and therefore should they require it, mobility impaired people could use those to make their escape to lower levels.
- 5.3.4 The stairs should discharge directly to the outside of the building or via a protected corridor and should be as wide as the stairs. All the doors on the escape route should be open in the direction of escape. The protected corridor should be a sterile space. No fire load should be allowed. This means no furniture and no post-boxes should be presented.

The current design of the final exit within the Hotel Building is not considered to be compliant. The areas identified in the BB7 markups in cyan colour is the stair at the ground floor level. All the stores, BOH and kitchens should be lobbied and provided with 0.4m² permanent ventilation directly to the outside or a mechanical equivalent.

As discussed in the meeting with the Architect/Design team on 24/08/2023 the design team will amend the final means of escape route from the stairs (except the stair located in the centre of the Hotel building) for both the Hotel and Aparthotel buildings.

The basement spiral stair of the hotel building should not be used as a means of escape as per Clause 17.2.9 of BS 9999.

- 5.3.5 The stair of the Hotel building at the bottom will remain as it is at the ground floor level to keep the open stair feature. As per Section 3.3, BB7 has undertaken escape capacity calculations to confirm that two 1200mm clear width stairs will be sufficient (i.e. if a fire occurs in the lobby on the ground floor and discount the open stair).
 - Should there be a fire in one of the hotel rooms, the open stair could be used as an escape;



- Should there be a fire in the lobby reception, smoke will enter the stair. There should be dynamic/intelligent signage above the stair door on the upper floor levels to tell people not to use this stair.
- 5.3.6 All the travel distances within the Hotel development are acceptable in both single and multiple directions. The only exceptions are:
 - In the basement, there is a travel distance of approximately 26m from the far end of the plant room area to the stair. This will need to be justified and agreed with the Building Control Body. The justification will be based on:
 - Automatic fire detection providing early warning of a fire in the gym;
 - The plant rooms being accessed by a low number of occupants (1-2 persons)
 - The plant rooms being accessed on rare infrequent for maintenance. In the next design stage, we could have a maintenance schedule based on what type of equipment is in the plant room (e.g. AHU unit to be checked once every 6 months) to demonstrate the infrequent use of the room.
 - The travel distance of the amenity space on the first floor of the Hotel building should not exceed to 18m in single direction, currently it is 32.33m therefore an alternative exit is likely to be needed from the Amenity space to allow more people and to make the travel distance compliant.
- 5.3.7 The travel distance in Hotel building should be as follows:
 - Escape within bedrooms should be limited to 9m in a single direction of travel and 18m where an alternative escape route is provided.
 - Escape within the corridors serving the bedrooms should be limited to 9m in a single direction and 35m where more than one direction of escape is possible.
 - For all other areas, escape in a single direction is limited to 18m, whilst a 35m limit should be applied where escape is available in more than one direction.
 - Travel distance within ancillary accommodation should be 9m in single direction and 18m in more than one direction.
- 5.3.8 The travel distance in Aparthotel Building should be as follows:
 - The maximum travel distance in open plan flats should not exceed 20m from the remotest point to the flat to the flat entrance.
 - The maximum travel distance in the common corridor should be limited to 7.5m in a single direction with ventilated lobby.
 - Travel distance within ancillary accommodation should be 9m in single direction and 18m in more than one direction.
- 5.3.9 The Aparthotel rooms will be designed with a mixture of open-plan and studios. The aparthotels provided with an open-plan layout will follow the recommendations in Clause 9.7 of BS 9991:2015, except for the restriction in aparthotel rooms size with an open kitchen. All escape routes within the open plan aparthotel rooms and studio will be located a minimum 1.8m from the cooking appliance plus 0.5m wide escape route for able-bodied occupants or 0.9m wide escape route for mobility-impaired occupants.
- 5.3.10 All the open plan Aparthotel rooms should be provided with a residential sprinkler system designed and installed to BS 9251:2021.
- 5.3.11 The drawings of both developments (Hotel and Aparthotel) show a lift serving the upper floor levels and also accessible bedrooms; therefore mobility impaired persons may be located on the upper floors.
- 5.3.12 Under current fire safety legislation, it is the responsibility of the person(s) having responsibility for the building



to provide a fire safety risk assessment that includes an emergency evacuation plan for all people likely to be in the premises, including disabled people, and how that plan will be implemented. Such an evacuation plan should not rely upon the intervention of the Fire and Rescue Service to make it work.

- 5.3.13 Refuge points should be provided within the protected staircase enclosures at all upper-floor levels and where level access to the external is not available. This will ensure any mobility-impaired person have a place of relative safety away from any fire.
- 5.3.14 A refuge should be of sufficient size both to accommodate a wheelchair and to allow the user to manoeuvre into the wheelchair space without undue difficulty. To accommodate the wide variety of wheelchairs in use, including powered wheelchairs, the scape provided for a wheelchair in a refuge should be not less than 900mm × 1400mm allowing for manoeuvring. It is essential that the location of the refuges does not have any adverse effect on the means of escape provided in the building.
- 5.3.15 The refuge point should be provided with an emergency voice communication (EVC) system complying with BS 5839-9. It should consist of Type B outstations communicating with a master station located next to the fire alarm panel and/or at the access level of the stair.
- 5.3.16 Refuges should only ever be treated as temporary waiting areas, where people requiring assistance can wait until they can complete their evacuation to a place of ultimate safety. Refuges should not be used as a place to leave people to await rescue by the fire and rescue service.
- 5.4 Policy D12 (B3)

Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans

5.4.1 The following active fire safety systems will be provided:

Hotel Building

- A Category L1 fire alarm and detection system, in accordance with BS 5839-1:2017, will be fitted throughout the Hotel building. This means that automatic fire detectors will be installed in all rooms and areas of high risk which will include kitchens and plant rooms.
- Manual break-glass call points should also be provided along escape routes and adjacent to all storey exit
 and final exits from the building. The distribution of manual call points should be such that no one is
 required to travel more than 45m to reach the nearest call point.
- The fire alarm must be audible throughout the premises with the provision of supplementary visual beacons in locations where the background noise level necessitates the use of ear defenders (e.g. plant rooms). Consideration should also be given to altering people with hearing and/or visual impairments. Personal Emergency Evacuation Plans (PEEPs) should be put in place for hotel staff and visitors with disabilities including those with sensory impairments.
- It is recommended that the main fire alarm control panel be situated within the reception, where it will be easily accessible to the attending Fire Service.
- In the event that the control room is of necessity located from the initial point of arrival of the fire and rescue service, or there are two or more fire and rescue service access points, repeater panels should be provided at the fire and rescue service access points.

Aparthotel Building

 An automatic water sprinkler system will be provided in the proposed aparthotel development designed and installed in accordance with BS 9251-2021. The development will require a sprinkler system that achieves a Category 2 system, with 30 minutes duration in accordance with BS 9251-2021.



- The Aparthotel building will be provided with a Category LD1 Grade D1 for open plan, 1 bed room & 2 bed room aparthotels and Category LD2 Grade D1 for studios aparthotels. This fire alarm and detection system should be designed and installed in accordance with BS 5839-6:2019.
- All three stairs will be provided with a 1.0 m² Automatically Opening Vent (AOV) at the head. All the stairs are accessed from a smoke-ventilated lobby or corridor, this should be achieved through natural ventilated via a smoke ventilation shaft with a minimum cross-sectional area of 1.5m² (minimum dimension of 0.85m in any direction) which will conform to BS 12101-2. Some common corridors (except in front of the stairs) will remain unvented, in line with BS 9991:2015.

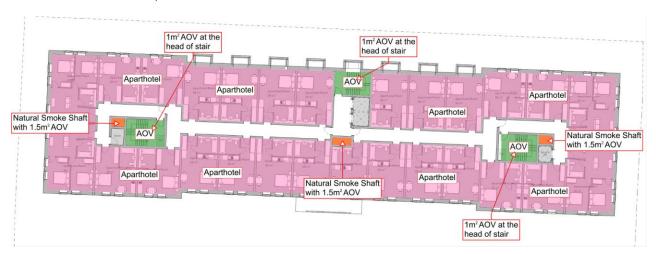


Figure 5.1 Smoke shaft and Stair AOV i.e. Aparthotel Building

 A Category L5 fire alarm and detection system designed and installed to BS 5839-1:2017 provided in the common corridors for the sole purpose of activating the smoke ventilation system. It will include smoke detectors only.

Hotel and Aparthotel Building

- Automatic hold-open devices are to be installed in the development subdividing doors within the corridors.
 It is essential that these hold-open devices release automatically in activation of the fire alarm system and
 failsafe to release the door in the event of a power failure. These hold open devices should comply with
 BS 5839 Part 3.
- Where dampers are provided to protect the primary means of escape corridors or staircases these will need to be automatic fire and smoke dampers linked to the main fire alarm to operate the dampers. Dampers should not be provided for within ductwork serving any kitchen as there will be likely build-up of grease within the duct, which can adversely affect the dampers. Kitchen extract should therefore be discharged directly from the compartment, constructed from fire-rated ductwork, or protected in a fire-rated shaft to external.
- All fire and smoke dampers are to be tested to BS EN 1366-2 and be classified to BS 13501-3. The dampers
 are to have the same fire resistance (integrity) as the wall or floor they penetrate (subject to a minimum fire
 resistance of 60 minutes).
- Fire and smoke curtains in the Hotel have been proposed to be provided in front of the lift at the Ground floor level, lobby side, to prevent any smoke from entering the evacuation lift as indicated in Figure 5.2. The fire and smoke curtain shall achieve 60 minutes fire resistance to maintain the fire resistance of the protected stair enclosure, with respect to 60 minutes resistance with respect to Integrity (E) and irradiation (EW) and be provided with smoke seals (Sa). The fire and smoke curtain should achieve a classification of

E60 EW60Sa in accordance with BS 8524-1. More information on the fire and smoke curtain should be provided within the RIBA Stage 3 Fire Strategy Report.

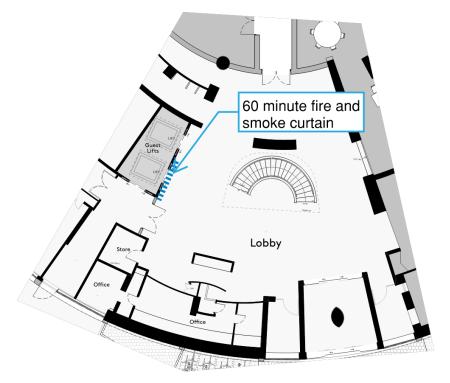


Figure 5.2 Fire Curtain Location – Ground Floor i.e. Hotel Building

- One lift in each core of the hotel building and one lift in Aparthotel will be provided with an evacuation lift.
- Several lobbies such as outside of the plant room will be provided with 0.4m² permanent ventilation directly to the outside or a mechanical equivalent.
- A generator or UPS will be provided in the development to provide a secondary power supply to all life safety systems such as evacuation lifts, fire detection and alarm system, and emergency lighting systems.

The following passive fire safety systems will be provided:

Hotel Building

- The elements of the structure will be provided with 60 minutes (REI) fire resistance.
- All floors within the building should be compartment floor with 60 minutes (REI) fire resistance. Since the floor will be a compartment floor all penetrations will be fire stopped accordingly so that the fire separating function of the floor is maintained.
- The wall between corridor and guest rooms will be provided with REI60.
- The lift shafts will be enclosed in REI60. The risers will also be enclosed in REI60.
- Protected stairway will be provided with REI60.
- Store rooms will be provided with REI30 based on ADB and REI60 based on Delta Hotel Guideline.
- Plant room and kitchen will be provided with REI30.
- Laundry and refuse store will be provided with REI60.



- Fire doors achieving the required fire resistance will be provided throughout the development.
- Cavity barriers and fire stopping will be provided in line with guidance within Approved Document B volume 2, 2019 edition incorporating 2020 and 2022 amendments.

Aparthotel Building

- The elements of the structure will be provided with 60 minutes (REI) of fire resistance.
- To accommodate the "stay put" each of the aparthotel rooms will be designed as their own fire compartment, with enclosing walls and floors rated to a minimum of 60 minutes (REI) fire resistance. Floors will also be designed as compartment floors and therefore all penetrations will be fire stopped accordingly so that the fire separating function of the floor is maintained.
- The wall between corridor and aparthotel rooms will be provided with REI60.
- The lift shafts will be enclosed in REI60. The risers will also be enclosed in REI60.
- Protected stairway will be provided with REI60.
- Store rooms will be provided with REI30 based on ADB and REI60 based on Delta Hotel Guideline.
- Plant room and pantry will be provided with REI30.
- Laundry will be provided with REI60.
- Fire doors achieving the required fire resistance will be provided throughout the development.
- A dry fire main will be provided in the Ground + Three floor levels.
- Cavity barriers and fire stopping will be provided in line with guidance within BS 9991:2015.
- 5.4.2 The management company will be required to develop management plans for both the Hotel and the Aparthotel building that will ensure that the fire safety systems are adequately maintained in accordance with the appropriate design guidance and manufacturer's expectations. This plan should be developed in line with Appendix I of BS 9999 and of the maintenance and testing section in each relevant British Standards for the fire safety measures.
- 5.4.3 This should be monitored and reviewed by the Responsible Person as a part of their duties under the Regulatory Reform (Fire Safety) Order 2005 (as amended).
- 5.5 Policy D12 (B4)
 - Access for fire service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and positioning of equipment, firefighting lifts, stairs and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these
- 5.5.1 Access to the development is provided from Bath Road and High Street Harlington, giving direct access into the main entrances to the Hotel and the Aparthotel developments. From here, the Fire Service has access towards each of the stairs that are accessed directly from external. This is indicated in Figure 5.3 below.

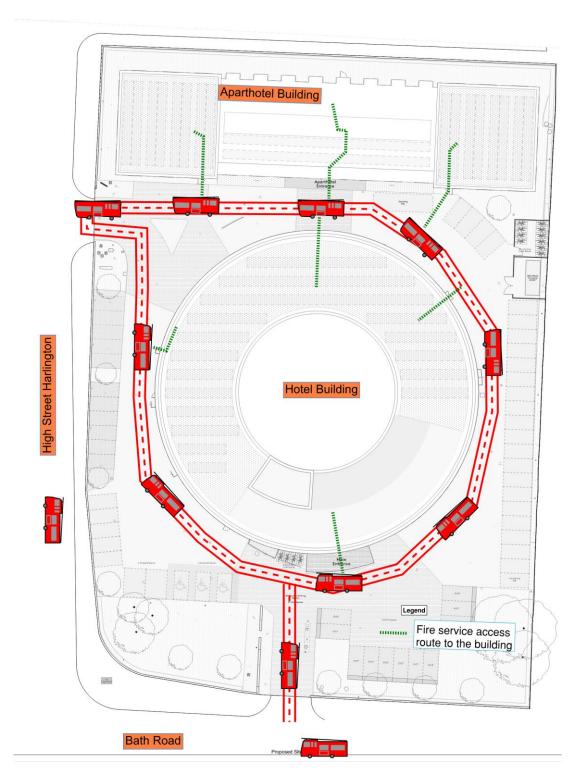


Figure 5.3 Fire Service Access to the building

5.5.2 Firefighting shafts are not required in either the Hotel or Aparthotel buildings because the height of the buildings measured from the lowest ground floor level to the topmost occupied floor both being less than 18m.



Hotel Building

5.5.3 Due to the height and use of the building, fire mains are not required only perimeter access is required. The building has a total floor area between 8000m² - 16000m² (approximately 12900m²) hence, 50% perimeter access should be provided. Perimeter access is available along 100% of the rounded elevation (fire vehicle access way) and is considerably more than the 50% requirement therefore this is considered suitable. The minimum amount of perimeter access required is 85m (170m x 50%), as shown in Figure 5.4 the current site plan suggests that this has been achieved.

Aparthotel Building

- 5.5.4 Vehicle access is required within 45m of all points within each of the residential buildings in accordance with the requirement outlined in BS 9991. As the distance from the fire appliance parking position to the most remote point of the building is more than 45m, a dry rising main will be required in the proposed Aparthotel building. Each of the stairs should be provided with a dry fire main outlet located inside the protected stair at full landing. The dry riser inlet should be located on the façade, close to the entrance to the building and be visible from the fire appliance. The horizontal hose distance between the fire main inlet and outlet should be limited to 18m. The fire main should be designed and installed in accordance with BS 9990. Fire service vehicles can easily park in front of the Aparthotel building and the maximum horizontal distance from the fire service vehicle parking positions to the fire main inlet is within the 18m limit provided in BS 9991.
- 5.5.5 In terms of smoke control, the corridor of the Aparthotel building at each level should be provided with a 1.5m² smoke shaft (AOV) which will conform to BS 12101-2. The stair core will also be provided with 1m² AOV at the top of the staircase, which will also conform to BS 12101-2. The AOV on the fire floor and the head of the staircase should be operated automatically on detection of smoke in the common corridor by the L5 system as discussed in Section 5.4. The smoke control provision will be in accordance with the recommendations of BS 9991-2015.
- 5.5.6 The hydrants should be located within 90m of the proposed block entrances. Based on the information provided by the design team on 30/08/2023 via email, also a search was carried out through information available through satellite imagery. From the view, there are two nearest hydrant location appears one to be on the corner of the junction of Bath Road and High Street Harlington Road, and another to be on the entrance of Heath Close on High Street Harlington Road, the approximate locations have been marked on the site plan in Figure 5.4. The measurement from the dry fire main inlet of the proposed Aparthotel block to the approximate location of fire hydrant is within 90m which meets the recommendations of BS9991-2015. The measurement from the proposed Hotel block entrance to the approximate location of fire hydrant is found to be within 90m which also meets the recommendations of Approved Document B Volume 2: 2019 edition (incorporating 2020 and 2022 amendments). This should be further assessed and developed as the design progresses.

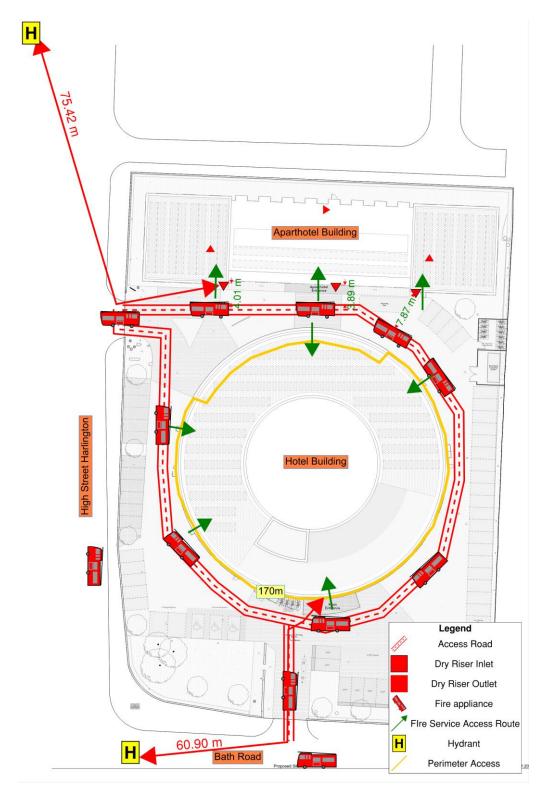


Figure 5.4 Fire Service Access

5.6 Policy D12 (B5)

How provision will be made within the curtilage of the site to enable fire appliances to gain access to the building



5.6.1 The existing highway infrastructure will be used to provide access to the developments. The requirements for the pump and aerial alliance access to the Aparthotel and Hotel developments respectively, are detailed in Table 5.2, that takes into account the requirements of LFB's Fire Safety Guidance Note 29 (GN29); should any works be undertaken to the existing highways.

Table 5.2 Fire Appliance Access Route Specification

Appliance Type	Minimum width of road between kerbs (m)	Minimum width of gateways (m)	Minimum turning circle between kerbs (m)	Minimum turning circle between walls (m)	Minimum clearance height (m)	Minimum carrying capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	14 ⁽¹⁾
Aerial	3.7	3.1	26.0	29.0	4.27	32.0

Note ⁽¹⁾: Although Guidance Note 29 (GN29) states that the minimum carrying capacity is 14 tonnes, this above table is subject to agreement with the local Fire Service, as some Fire Services have appliances of greater weight or different sizes.

- 5.6.2 These proposals do not adversely impact on neighbouring sites utilising the existing highway infrastructure combined with internal access route specifically for the development.
- 5.6.3 It is envisioned that access for the Fire and Rescue Service will not be impeded by escaping occupants at the time the Fire Service is expected to arrive at the scene, on the basis that the simultaneously evacuated areas would be out of the building by that time. Furthermore, the fire assembly point for the building is to be away from the development, where it is sited to cause no hindrance to the Fire Service access, nor will it endanger the escaping occupants once Fire Service operations commence as it would be expected for the fire and rescue service to travel via Bath Road or High Street Harlington Road.

5.7 Policy D12 (B6)

Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures

- 5.7.1 A requirement of the Building Regulations 2010 (Regulation 38) is that the fire safety information for the building is compiled and handed over to the Responsible Person upon completion. This would include the fire safety strategy reports and Operations & Maintenance manuals for the fire safety systems in the building.
- 5.7.2 When any building works will be undertaken (as defined under the Building Regulations) it will be a requirement that following the works the fire safety measures will be no less satisfactory than before. This will therefore require a thorough review of the existing fire safety measures and consideration given to how any works would impact on the fire strategy for the building.
- 5.7.3 Further to this, the Regulatory Reform (Fire Safety) Order 2005 (as amended) will be applicable when the building is occupied, and a requirement of this legislation is the management of fire risks and the requirement to document a fire risk assessment for the premises. The duties under this order extend to the maintenance of fire safety equipment as further reinforced recently by the introduction of the Fire Safety Act 2021 and the Fire Safety (England) Regulations 2022.

6. Statement of Compliance

6.1.1 Having reviewed the proposals BB7 confirm that the design for Ariel Hotel (Hotel and Aparthotel building), as it continues to be developed, will meet the requirements of The London Plan Policies D5(B5) and D12 A and B.

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