Best Star Real Estate

Haverstock Hill

Fire Statement

HH-ARP-REP-502

Rev A | 09 July 2021

Job number 268265-00

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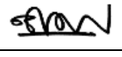
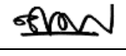
		Signature	V.Callaghan.		
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Appendices

1 Introduction

This Fire Statement has been produced by Arup to support the planning application for the comprehensive redevelopment of 5-17 Haverstock Hill ('the Site') to deliver a high-quality mixed-use development incorporating 35 residential units and an 118 bedroom hotel (use class C1). The Site is located immediately adjacent to Chalk Farm London Underground Station.

A separate Fire Strategy has been developed for the project in line with the life safety goals of the Building Regulations using fire safety guidance documents BS 9999:2017- 'Fire safety in the design, management and use of buildings – Code of practice' and BS 9991: 2015 – 'Fire Safety in the design, management and use of residential buildings – Code of practice'.

This Fire Statement has been produced to describe how the fire strategy design of the building meets Policy D12 (Fire Safety) of the London Plan 2021. As the development includes both hotel and residential uses, this Fire Statement is written such that the requirements for both uses are in separate sections:

- Hotel building – Section 2
- Residential buildings – Section 3

All work has been undertaken by a competent engineer with relevant experience of fire safety in hotel and residential buildings and has been approved by a Chartered Fire Engineer (CEng):

David Stow

BSc(Hons) CEng MIFireE

Associate Director

1.1 The Development

The Haverstock Hill development is located directly North of Chalk Farm Underground Station at the junction of Chalk Farm Road, Adelaide Road and Haverstock Hill. The proposed development consists of the following:

Block	Description/ Building use	No of floor including ground floor	Height of the top storey* (over 18m or under 18m)	Depth of basement storey
Hotel	Hotel building houses a small plantroom (~160m2) at basement level, with the ground floor being used for a restaurant and reception areas as well as some BoH staff area. The mezzanine will house another small plantroom (~60m2), kitchen and staff facilities. The first to sixth floors will house the guest accommodation.	8 storeys above ground and 1 basement	>18m, approximately 20.8m	Approximately 3.5m
Affordable residential	The affordable residential building contains a retail unit, switchroom, substation and a refuse store at ground floor. All apartments are located on the mezzanine and levels 1 to 4.	6 storeys	<18m, approximately 16.3m	NA
Private residential	The private residential building will house a café and a refuse store as ground floor whilst all apartments are located in mezzanine and levels to 5.	7 storeys	>18m, approximately 19.4m	NA

*Note: The floors being above or below 18m have been confirmed by the Architects (Sheppard Robson) on 20.10.2020 and the approximate heights of the top storey have been measured from the section and elevation drawings issued on 11.09.2020. The height of the topmost occupied storey has been measured from fire-fighting access level to the finished floor level of the topmost occupied storey

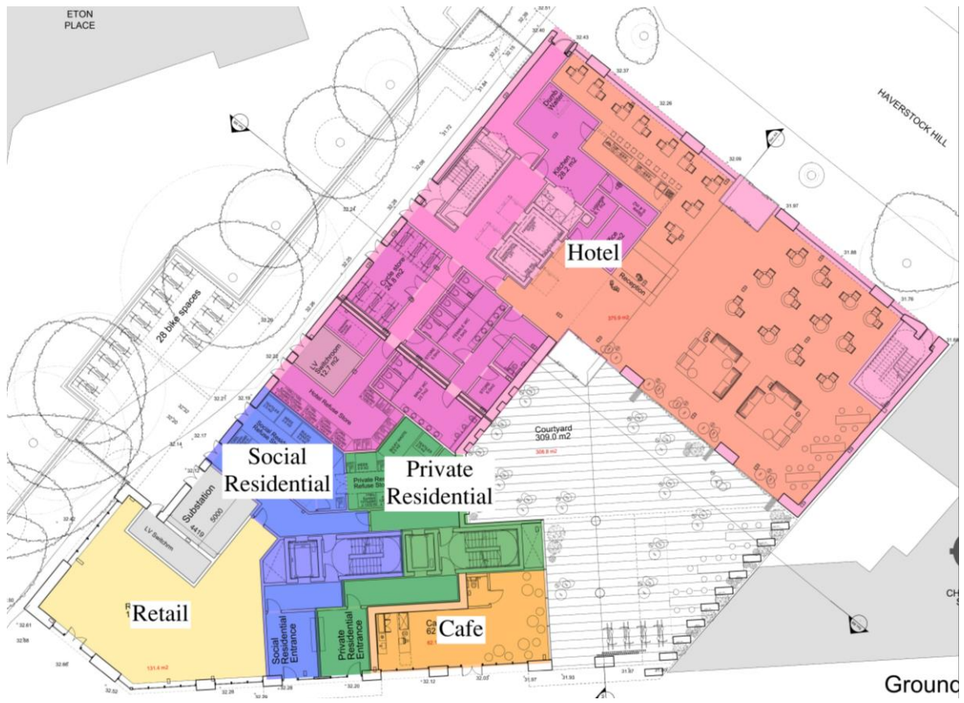

Figure 1: Haverstock Hill location – Ground floor arrangement

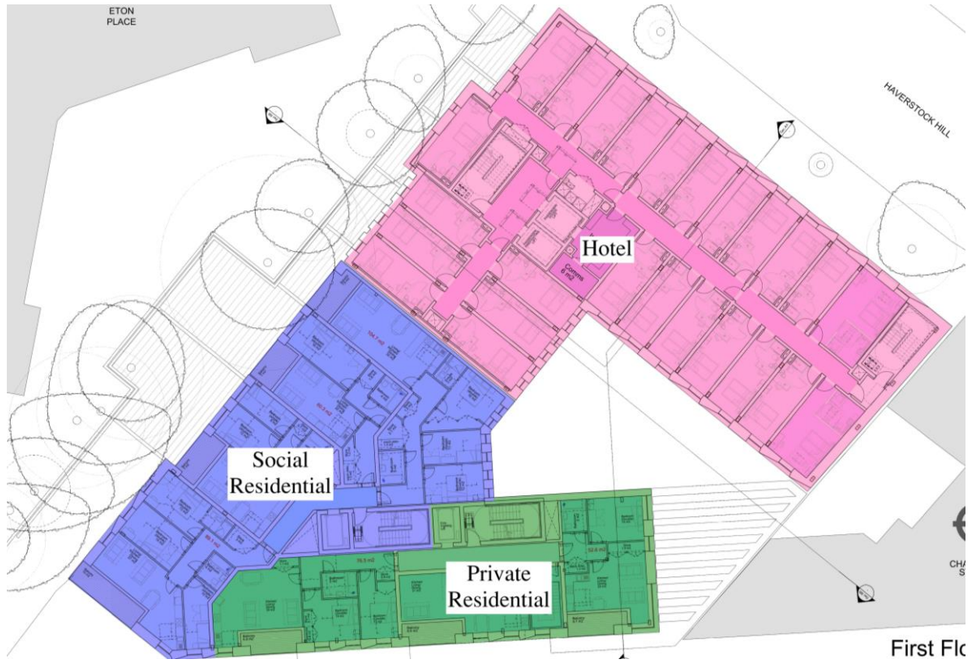

Figure 2: Haverstock Hill location – General floor arrangement (first floor)

1.2 Risk Profile

1.2.1 Hotel building

Guidance within BS 9999 is based on a risk-based approach to design. Within this method a risk profile is allocated for the hotel building. Risk profiles are given as a combination of occupancy characteristic and fire growth rate.

The occupancy characteristic is based on whether occupants are familiar or unfamiliar with the building and whether they are likely to be awake or asleep. The fire growth rate reflects the likely speed at which a fire is estimated to grow based on the available fuel load. Risk profiles are used to determine appropriate means of escape and appropriate design features for building life safety. The following criteria have been applied:

- Occupants within the hotel rooms are likely to be asleep. The building will be mainly occupied by hotel guests who will be unfamiliar with the building as they are short term occupants.
- Occupants within the staff areas are likely to be awake and familiar with the building.
- Occupants in the reception/restaurant space are likely to be awake and unfamiliar with the building.
- The likely fire growth rate for the building has been assessed to be medium. This is typically adopted for hotel rooms. An automatic sprinkler system will be provided in the building as discussed in Section 2.3.2. This allows for reduction of the growth rate by one level in accordance with Section 6.5 of BS 9999 i.e. from medium to slow.
- The likely fire growth rate for the plant rooms in the basement has been assessed to be fast. This rate is reduced to medium with the sprinkler system provision.

Based on the above, the below risk profiles apply to the hotel building, these risk profiles have been assigned considering the sprinkler system provision in the hotel building:

- Hotel rooms – Ciii1
- Staff areas – A1
- Plant rooms – A2
- Reception/Restaurant– B1

1.2.2 Residential blocks

Risk profiles do not apply to the design of the residential blocks which follow the recommendation of BS 9991.

It should however be noted that the retail unit and cafe at ground floor of the residential buildings are considered to be of risk profile B1 in the same way as the reception/ restaurant area of the hotel building.

2 Hotel Building

2.1 B.1 - Building Construction

B.1. The building's construction: methods, products and materials used, including manufacturers' details.

2.1.1 Structural methods and materials

The structural system comprises of a concrete frame with concrete flat slab support on a typical column grid of 6 x 6m. The columns are of blade type construction to fit within the partition walls of the hotel and residential units. A number of transfer beams are located at L1 to reduce the number of columns at ground floor level which comprises retail spaces. Lateral stability of the building is achieved via the floor slabs acting as a diaphragm transferring lateral loads to the concrete structural cores.

No timber is proposed as part of the structure.

2.1.2 Structural fire resistance

The height of the top occupied storey above access level is greater than 18 m but not more than 30 m and the building is fitted with sprinklers conforming to BS EN 12845:2015 + A1:2019 (See Section 2.3.2). All elements of structure (including the floors) should achieve 60 minutes fire resistance in terms of load bearing capacity (R).

Due to the Ciii1 risk profile, BS 9999 requires all floors to be constructed as compartment floors. The floors are to achieve 60 minutes fire resistance (REI).

2.1.3 Compartmentation

The fire resistance requirements are outlined in Table 1. The requirement for each element to be provided with fire resistance in terms of loadbearing capacity (R, where applicable), integrity (E) and insulation (I).

Table 1: Summary of fire resisting construction performance requirements for hotel building

Element	Fire resistance requirement
Construction separating the fire-fighting shaft from the rest of the building.	REI 120
Construction separating fire fighting stair, firefighters lift and fire fighter's lobby.	REI 60
Lift shaft	REI 60
Construction separating hotel rooms and corridor	REI 30
Protected stair	REI 60
Risers passing through compartment floor	REI 60
Plant room (LV plant)	REI 30
Storage room less than 450m^2	REI 30
Kitchens	REI 30
Sprinkler pump room	REI 120
Refuse store	REI 60

Any penetrations passing through a compartment wall or floor shall be adequately fire stopped to maintain the period of fire resistance of the element through which it passes.

2.1.4 Internal Fire Spread

Wall and ceiling linings shall be provided in line with Table 33 of BS 9999: 2017 and shall achieve the following European classifications in accordance to BS EN 13501-1.

2.1.5 External fire spread

An evaluation of the risk of fire spread to and from neighbouring buildings using the Enclosing Rectangle methodology has been undertaken, following the principles and acceptance criteria of BR 187 (External fire spread: Building separation and boundary distances, BRE 2014).

All floors in the hotel building block will be provided as compartment floors, therefore it is assumed only one compartment is on fire for a given fire scenario. The assessment shows that with the exception of the North elevation (no protection required), most elevations are required to be provided with some level of fire resistance (60 minutes for integrity and insulation), this ranges from 0% to 30% of the compartment facade. The East elevation is <1m from the site boundary and is therefore required to be provided with 60 minutes fire resisting construction in both directions (for integrity and insulation).

The complete assessment including details and results is described in the Stage 2 Fire Strategy issued on 02.11.2020.

2.1.6 Construction of external walls

Hotels are currently not considered to be a 'relevant building'. However, based on the current climate and evolving regulations associated to fire safety in buildings with sleeping risks, it is proposed that the hotel meets the same external wall requirements as those for relevant buildings. This will future proof the building in the event that the regulations change to include all buildings with a sleeping risk.

Materials which are used as part of the external wall, or specific attachments, shall achieve European Classification of A2-s1,d0 or Class A1, classified in accordance with BS EN 13501-1:2007+A1:2009. The only exceptions are minor elements of the façade build-up such as membranes (see below requirements for membranes), seals, gaskets, sealants, cavity trays (if required), etc. The full list of exemptions can be found under paragraph (3) of Regulation 7 of the Building Regulations.

Any membrane material must achieve a minimum fire performance of B- s3, d0 as per the current guidance in Approved Document B (which has been updated on this item more recently than BS 9999 and hence it is considered appropriate to use this guidance).

Cavity barriers should be provided in accordance with Clause 19.1 of BS 9991.

2.2 B.2 - Means of Escape

B.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.

2.2.1 Evacuation strategy

A simultaneous evacuation strategy shall be adopted where the entire building is to evacuate immediately on activation of the alarm system.

It is recommended that an investigation period is allowed for within the building, allowing staff to investigate an alarm to minimise disruption caused by false alarms.

2.2.2 Building occupancy

The building occupancy is proposed to be assessed on the below occupancy factors:

- Hotel rooms - 2 occupants per hotel bedroom
- Reception/restaurant area - 2m^2/person
- Plant areas - 30m^2/person
- Kitchen areas - 7m^2/person

2.2.3 Travel distances

Travel distances shall be provided in line with Table 11 of BS 9999 for the appropriate risk profile (Section 1.2.1).

The internal layouts are still under development however, travel distances are generally within the limits of BS 9999. Any areas which cannot meet the recommendation of BS 9999 will be reviewed to determine if an adequate level of safety can still be achieved or whether design changes are needed.

2.2.3.1 Means of escape

Every floor shall be provided with a minimum of two exits. For the above ground floors this is achieved via the provision of two storey exits leading into the two 1,200mm clear width stairs – the stair forming part of the fire-fighting shaft and a separate protected stair (see Figure 3).

The fire fighting shaft also extends to serve the hotel basement. The stair clear width should be no less than 1,200mm clear width.

The storey exits are sited at the far extents of the corridor which provides horizontal separation so that a single fire event would not result in both exits being discounted simultaneously during the early stages of a fire.

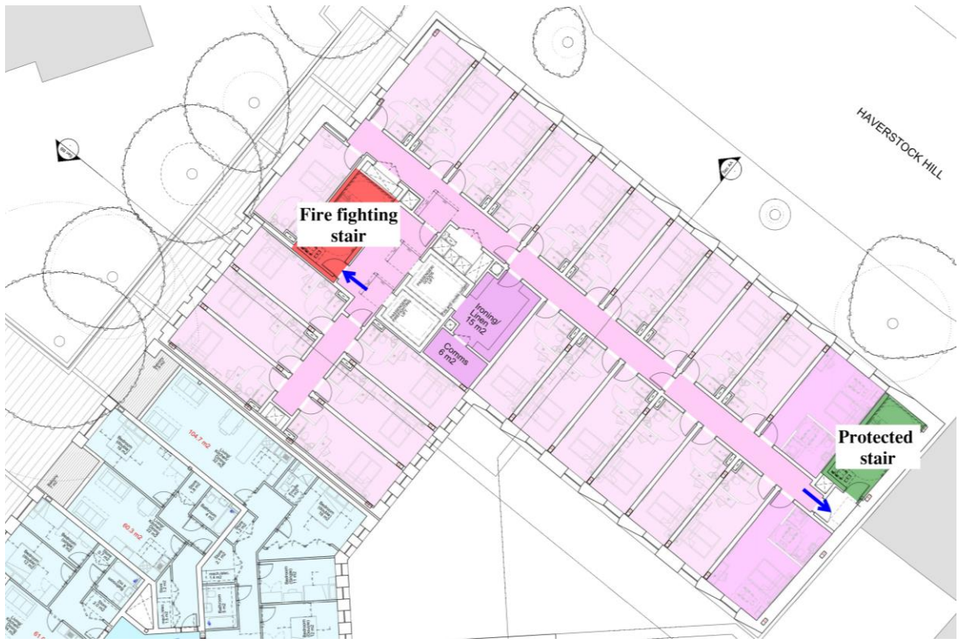

Figure 3: Hotel stair locations

At ground floor, the horizontal means of escape is via the final exits directly to the outside provided along the perimeter of the building as shown in Figure 4.

Figure 4: Hotel ground floor final exits

Doors on escape routes shall generally open in the direction of escape where routes serve more than 60 people.

2.2.4 Evacuation of People with Reduced Mobility (PRMs)

It is proposed that evacuation lifts are provided for the building to serve the evacuation of PRMs on all floors. Both the fire fighting lift and passenger lift in the firefighting core are to be designed to be suitable for use for evacuation. The evacuation lifts shall comply with Annex G of BS 9999:2017 and be designed in accordance with the relevant provisions in BS EN 81-20:2020 and BS EN 81-70:2018.

The above arrangement will need to be discussed and agreed with the Planning Authority as there are different interpretations of the London Plan 2021 in relation to evacuation lifts. The London Plan 2021 requires that *one evacuation lift per core* is provided however, no definition of core is given (i.e. lift core or stair core).

In the case of the hotel, evacuation lifts are provided within the main lift core with no associated evacuation lift provided for the protected stair. This is considered acceptable based on the protected stair being connected to the main lift core by a fire sterile corridor which is fire separated from the hotel bedrooms. It is therefore, considered unlikely that a fire from a bedroom will breach the compartmentation during the early stages of a fire, meaning that someone taking refuge in the protected stair could potentially be transferred over via the protected corridor to use the evacuation lifts, either at that floor, or on a floor below. Occupants taking refuge in the main lift core will be able to use the evacuation lifts.

Refuge spaces shall be provided in both protected stair cores. Refuge spaces should measure at least 900x1,400mm. They should also be provided with emergency voice communication (EVC) devices, designed and installed in accordance with BS 5839-9:2011.

2.2.5 Emergency lighting and signage

Emergency lighting should be provided in accordance with BS 5266-1:2016. Escape signage should be provided in accordance with BS 5499-1:2002.

2.3 B.3 - Fire Safety Systems

B.3. Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans.

2.3.1 Alarm and detection

A category L1 fire detection and alarm system shall be provided throughout the hotel building in accordance with BS 5839-1:2017.

Provision should be made for an investigation period within the building allowing staff to investigate a fire to minimise evacuations caused by a false alarm. The alarm and detection system should activate immediately on:

- Activation of two detectors
- Activation of single manual call point or sprinkler activation
- Timing out of the acknowledgement period
- Timing out of investigation period

2.3.2 Automatic sprinkler system

The building shall be provided with an automatic sprinkler system in line with BS EN 12845:2015+A1:2019 and Annex F provisions (formerly known as life safety requirements).

In line with Table A.2 of BS EN 12845:2015+A1:2019 a building used as a hotel shall be provided with an OH1 system however, as there are areas which contains plant rooms, an OH3 system may be needed. This should be confirmed by the services engineer.

2.3.3 Backup power supply

A back-up power supply is required to all life safety systems. In accordance with BS 9999: 2017 Section 37.2.3.3, a back-up power supply should be provided to all life safety systems, including (but not limited to) the following:

- Automatic fire detection and alarm system
- Emergency voice communication
- Emergency lighting system
- Smoke control systems
- Fire-fighting lift
- Evacuation lift
- Sprinkler pumps

2.3.4 Basement ventilation systems

A system of smoke and heat ventilation should be provided if the basement level is more than 3m below the ground floor or the basement has a floor area over 200m^2. This can be either by natural or mechanical means.

2.4 B.4 - Fire Fighting Facilities

B.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.

As the height of the topmost storey exceeds 18m and the floor area is less than 900m^2, a single firefighting shaft shall be provided comprising a fire-fighting stair, a ventilated firefighting lobby provided with a fire main (dry riser) and firefighting lift. An additional dry riser is also provided in the protected stair.

The West stair core of the hotel building is designed as the firefighting shaft (see Figure 5)

One of the passenger lifts is designed as a fire fighting lift. Both lifts are dual entry lifts opening to the reception at ground floor with the passenger / goods lift also opening into the

linen / iron rooms on all other levels. Due to lift doors usually not having smoke seals, to prevent smoke spread into the firefighting lobbies via the lift shafts, it is proposed to provided fire curtains to the dual entry lifts on the non-firefighting lobby side at all levels.

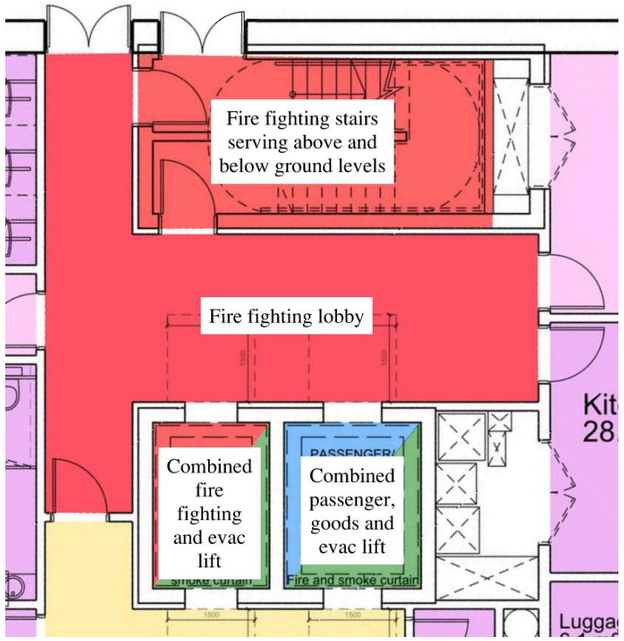

Figure 5: Fire fighting shaft arrangement

The firefighting shaft will be ventilated by a mechanical smoke ventilation system. A mechanical vent shaft will be provided in the firefighting shaft with vents opening to firefighting lobbies at all levels. The make-up air will be through the automatic opening vent (AOV) provided at the top of the firefighting stair.

The firefighting shaft shall serve every floor in the building including the basement level.

To prevent smoke from the basement storey penetrating the stair enclosure above ground level, the basement stair will be separated from the firefighting stair serving above ground levels by fire resisting construction.

The firefighting shaft, including the stairs and lobby shall be enclosed in fire resisting construction as discussed in Section 2.1.3 and must not contain any services that are not associated with the requirements of the fire-fighting shafts.

2.4.1 Water supply for fire fighting operations

The building shall be provided with dry fire mains (one in the fire fighting core and one ion the escape stair). Every part of the floor plate is no more than 60m from the fire main outlets (measured on a route suitable for laying a hose), thus achieving adequate hose coverage.

External hydrants should be provided within 90m of an entry point to the building and not more than 90m apart. This will be confirmed as the design develops.

2.5 B.5 - Fire Vehicle Access

B.5. How provision will be made within the curtilage of the site to enable fire appliances to gain access to the building.

Fire vehicle access is provided to within 18m of the fire main inlet connection point, and the inlet will be visible from the appliance.

It is currently proposed that the vehicle access for the Hotel will be via Haverstock Hill as shown in Figure 11.

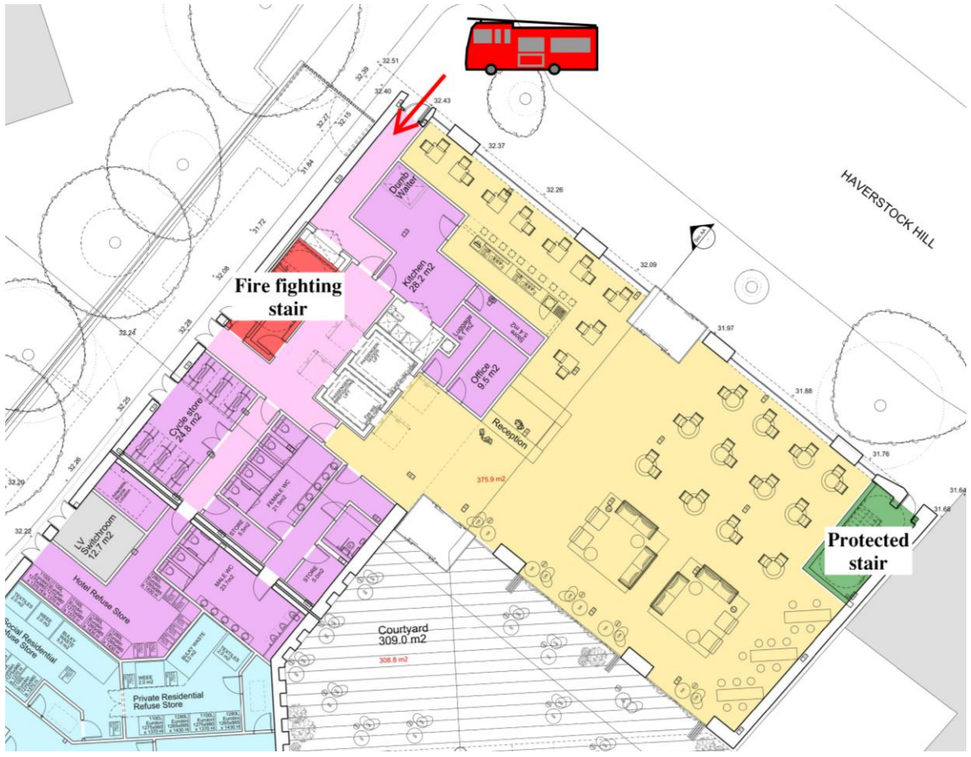

Figure 6: Fire vehicle access

2.6 B.6 - Future Building Changes

B.6. Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.

Any changes to the building design or use type will need to be assessed with regards to the proposed fire strategy to ensure the strategy satisfies the functional life safety requirements of the Building Regulations 2010 (as amended). The responsible person as defined in the RR(FS)O will be responsible for ensuring that this assessment is undertaken.

2.7 Fire Safety Management

As the design develops, aspects of the fire strategy that rely on ongoing fire safety management will be developed and clearly identified in the fire strategy report. A fire safety management plan will then need to be developed by the eventual operator to incorporate these requirements and demonstrate compliance with the Regulatory Reform (Fire Safety) Order 2005.

At this early stage of design development the following management procedures have been identified as requiring to be highlighted to the client:

- **Managing and maintaining fuel load throughout the buildings**: There are several areas within the building where building management will need to manage fire load on an ongoing basis.

  Building management are responsible for managing fire loads in areas designed to be fire sterile to keep escape routes free of fire load (no combustible materials). The on-site building management shall proactively manage the escape routes, protected stair and lobbies to ensure that there are no obstructions or combustible materials being stored in these areas.

- **Managing the evacuation of PRMs:** It is the responsibility of the hotel management to assist with the evacuation of PRMs.

  Evacuation lifts have been provided to be used for the evacuation of PRMs. However, the evacuation strategy of PRMs requires management assistance. Therefore, a management process must be put in place to ensure that any occupants requiring assistance can safely exit the building.

  In the event that the evacuation lifts are out of service or that a refuge space in the protected stair is in use, a contingency plan must be developed by the hotel management to assist PRMs to evacuate to a place of safety (e.g. via a ‘carry down’ strategy). this contingency plan must be developed by the hotel management prior to the occupation of the building.

3 Residential Buildings

3.1 B.1 - Building Construction

B.1. The building’s construction: methods, products and materials used, including manufacturers’ details.

3.1.1 Structural methods and materials

The structural system comprises of a concrete frame with concrete flat slab support on a typical column grid of 6 x 6m. The columns are of blade type construction to fit within the partition walls of the hotel and residential units. A number of transfer beams are located at L1 to reduce the number of columns at ground floor level which comprises retail spaces. Lateral stability of the building is achieved via the floor slabs acting as a diaphragm transferring lateral loads to the concrete structural cores.

No timber is proposed as part of the structure.

3.1.2 Structural fire resistance

The building heights are greater than 5m but less than 30m and both residential blocks will be sprinklered (see Section 3.3.2), the loadbearing structure will be designed and constructed to provide a fire resistance period of 60 minutes (as per Section 16.2 and Table 4 of BS 9991:2015). The residential blocks will be separated from each other by 60 minutes fire resisting construction in terms of load bearing capacity (R).

All floors should achieve 60 minutes fire resistance in terms of loadbearing capacity (R), integrity (E) and insulation (I).

3.1.3 Compartmentation

A summary of the compartmentation requirements in accordance with the relevant sections of BS 9991:2015 is provided in Table 2. The requirement for each element to be provided with fire resistance in terms of loadbearing capacity (R, where applicable), integrity (E) and insulation (I).

Table 2: Summary of fire resisting construction performance requirements for residential blocks

Element	Fire resistance requirement
All floors	REI 60
Walls separating apartments from one another	REI 60
Walls separating the apartments from common areas and ancillary accommodation	REI 60
Construction separating the fire-fighting shaft from the rest of the building	REI 120
Construction separating fire-fighting stair, firefighting lift and firefighting lobby	REI 60
Lift shaft	REI 60

Element	Fire resistance requirement
Risers passing through compartment floor	REI 60
Refuse store	REI 60
Plant room (LV plants)	REI 30
Construction separating the apartments from the common corridors	REI 30
Construction separating the stairs and wall way from the habitable rooms in the duplex apartment	REI 30
Sprinkler pump room	REI 120
Substation	REI 240

Any penetrations passing through a compartment wall or floor shall be adequately fire stopped to maintain the period of fire resistance of the element through which it passes.

3.1.4 Internal Fire Spread

Wall and ceiling linings shall be provided in line with Table 33 of BS 9999: 2017 and shall achieve the following European classifications in accordance to BS EN 13501-1.

3.1.5 External fire spread

An evaluation of the risk of fire spread to and from neighbouring buildings using the Enclosing Rectangle methodology has been undertaken, following the principles and acceptance criteria of BR 187 (External fire spread: Building separation and boundary distances, BRE 2014).

All floors in the residential buildings will be provided as compartment floors, therefore it is assumed only one compartment is on fire for a given fire scenario. The assessment shows that with exception of the South elevation (no protection required), most elevations are required to be provided with some level of fire resistance, this ranges from 0% to 43%. The South East elevation is <1m from the site boundary and is therefore required to be provided 60 minutes fire resisting construction in both directions (for integrity and insulation).

The complete assessment including details and results is provided in the Stage 2 Fire Strategy issued on 02.11.2020.

3.1.6 Construction of external walls

In line with Regulation 7(4), the private block is considered to be a ‘relevant building’ as it is >18m in height and it includes one or more apartments. Whilst the affordable residential block is <18m in height, it’s façade will comply with the same requirements as those for the private residential to ensure that a consistent level of safety is achieved.

Under Regulation 7(2), materials which are used as part of the external wall, or specific attachment shall achieve European Classification of A2-s1,d0 or Class A1, classified in accordance with BS EN 13501-1:2007+A1:2009. The only exceptions are minor elements of the façade build-up such as membranes (see below requirements for membranes), seals, gaskets, sealants, cavity trays (if required), etc. The full list of exemptions can be found under paragraph (3) of Regulation 7 of the Building Regulations.

Any membrane material must achieve a minimum fire performance of B- s3, d0 as per the current guidance in Approved Document B (which has been updated on this item more recently than BS 9999 and it is considered appropriate to use this guidance).

Cavity barriers should be provided in accordance with Clause 19.1 of BS 9991.

3.2 B.2 - Means of Escape

B.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.

3.2.1 Evacuation strategy

The residential buildings will operate a defend-in-place strategy where only occupants of the apartment of fire origin are alerted to the fire and to evacuate.

However, it is proposed that the fire alarm system will be upgraded so that:

- Detection of a fire in a flat gets reported to the fire alarm panel at ground floor; and
- A full evacuation signal can be given to the whole residential block should the fire brigade deem this necessary depending on the nature of the incident, rather than relying on the fire service knocking on the door of each apartment to raise the alarm manually.

In the event of a fire within the retail and café as well as the ancillary accommodation of the residential blocks e.g. cycle store, plant room, etc. only occupants within the compartment of fire origin shall evacuate initially.

3.2.2 Building occupancy

The building occupancy is proposed to be assessed on the below occupancy factors:

- Retail/ café - 2m^2/person
- Apartment - 2 occupants per double room and 1 occupant per single room
- Plant areas - 30m^2/person

3.2.3 Travel distances

Both residential blocks are proposed to be sprinkler protected (Section 3.3.2), the travel distances in the common lobby are limited to 15m and the travel distance from the furthest point in the apartment to the apartment door is limited to 20m.

The retail unit and café units at ground floor and upper ground are to be provided with travel distances in line with Table 11 of BS 9999.

The internal layouts are still under development however, travel distances are generally within the limits of BS 9991 and BS 9999. Any areas which cannot meet the recommendation of BS 99991 and BS 9999 will be justified and subject to supporting documentation in the fire strategy.

3.2.4 Means of escape

Apartments

The horizontal means of escape from the apartments from above ground level is via the common lobby into the single stair (minimum 1,100mm). This arrangement is the same for both the affordable and private residential blocks.

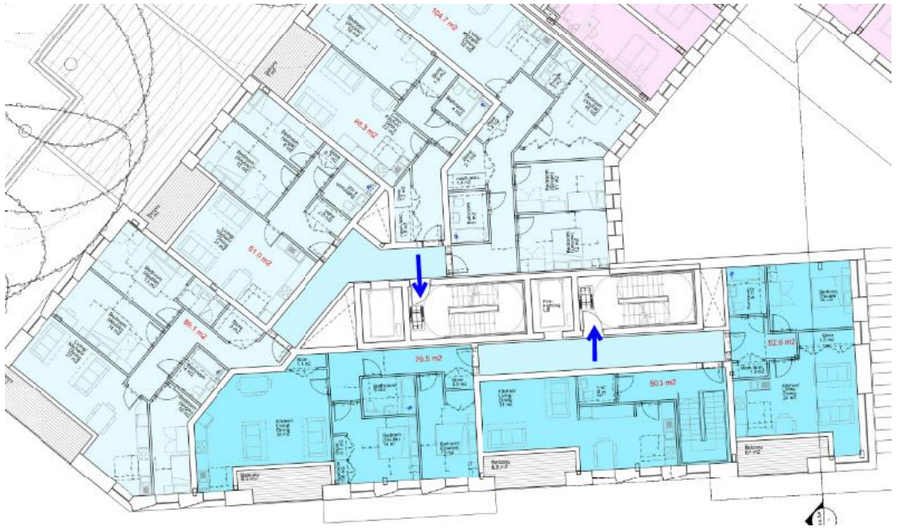

Figure 7: Horizontal means of escape from residential blocks

At ground floor, the main horizontal means of escape is via the entrance hall leading directly to the outside.

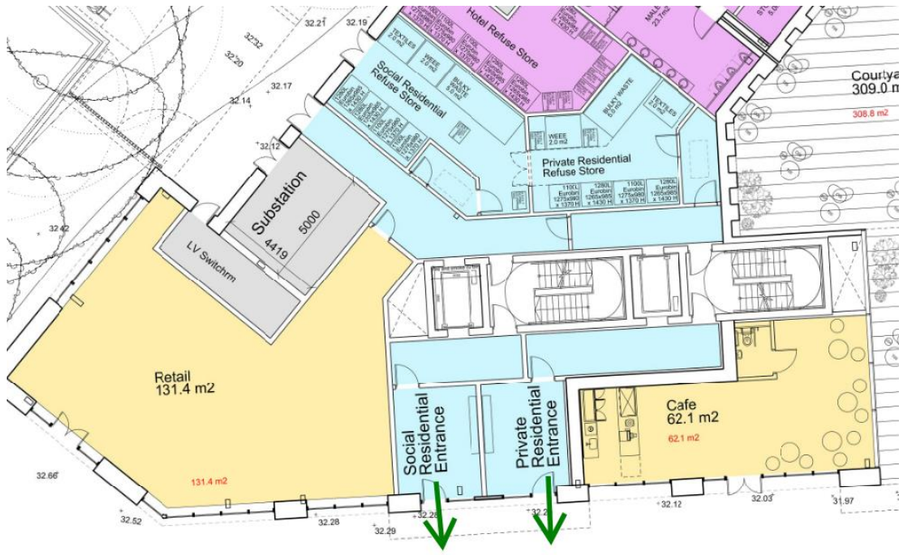

Figure 8: Residential blocks final exits

Retail & café

Final exits are provided directly to the outside from retail and café on the ground floor of the residential buildings. Due to a single exit provision for both the café and retail, the occupancy numbers will be limited to 60 people. If an occupancy number greater than this are desired, an alternative exit will need to be provided.

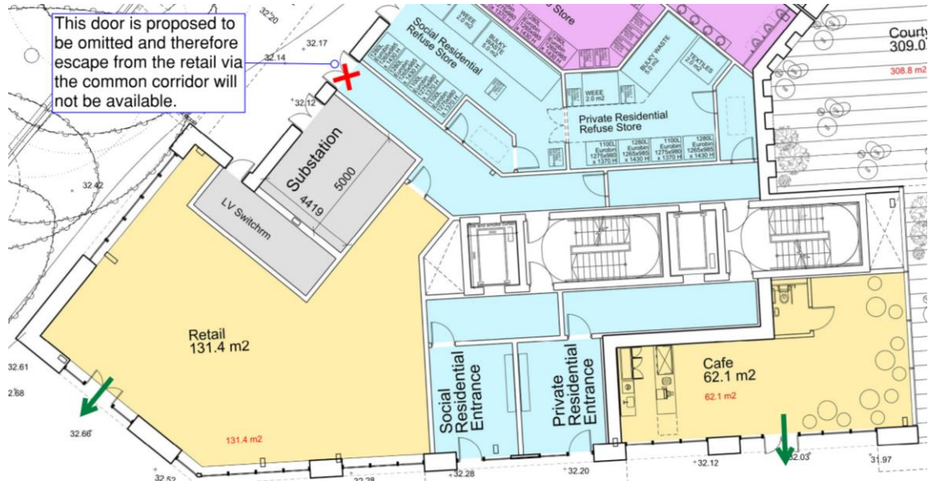

Figure 9: Retail and cafe final exits

Rooftop play area

Two storey exits are provided on the rooftop play area of the residential blocks. Both exits are accessible by PRMs. To prevent a single fire blocking both exits simultaneously, they should be located as far away from each other as possible (as indicated by blue arrows in Figure 10).

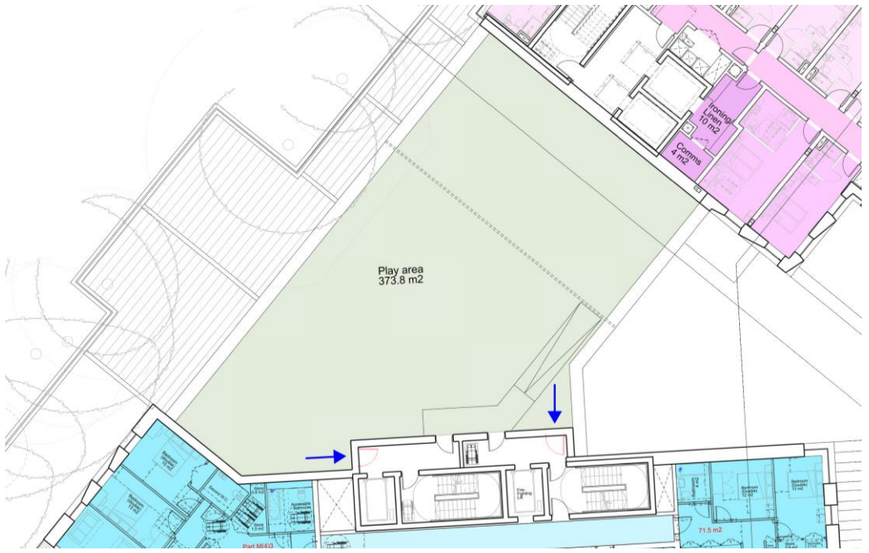

Figure 10: Horizontal means of escape from rooftop play area

Doors on escape routes shall generally open in the direction of escape where routes serve more than 60 people.

3.2.5 Flat layouts

Across the affordable and private residential blocks there are a combination of apartment styles including open-plan, duplex and more traditional layouts with a hallway. The layouts will meet the requirements set out in BS 9991.

3.2.6 Evacuation of People with Reduced Mobility (PRMs)

It is proposed to provide the passenger lifts in both residential blocks as evacuation lifts such that there is an evacuation lift associated to each stair. The evacuation lifts shall comply with Annex G of BS 9999:2017 and be designed in accordance with the relevant provisions in BS EN 81-20:2020 and BS EN 81-70:2018.

PRMs will be able to self-evacuate from the residential levels via the evacuation lifts. In addition, a refuge space will be allowed for at every level of the stairs in the residential blocks. The refuge spaces should measure at least 900x1,400mm.

3.2.7 Emergency lighting and signage

Emergency lighting should be provided in accordance with BS 5266-1:2016. Escape signage should be provided in accordance with BS 5499-1:2002.

3.3 B.3 - Fire Safety Systems

B.3. features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans.

3.3.1 Fire detection and alarm

A Category LD1 Grade D system (i.e. monitored by central panel) will be provided within all flats (BS 5839-6:2019) in both residential blocks.

The system needs to have the capability to allow the Fire Brigade to trigger the full evacuation of the block from the fire alarm panel, should they deem this necessary. A building wide alarm should not be activated automatically, it should only ever be under the control of the fire service.

The sounders required in the apartments to allow this should comply with the relevant decibel requirements in BS 5839-6:2019.

An L1 system designed and installed in accordance with BS 5839-1:2017 will be provided within all ancillary accommodation, landlord area and any other non-residential areas.

As a minimum, a manual detection and alarm system is recommended by BS 9999 for the retail and café spaces based on a risk profile of B1.

3.3.2 Automatic sprinkler system

Both residential blocks shall be provided with Category 2 automatic life safety sprinklers conforming to BS 9251: 2014. This includes the provision of sprinklers in individual flats.

Figure C.1 of BS 9991:2015 states that sprinkler protection should be provided to all ancillary accommodation in accordance with BS EN 12845:2015. Instead, it is proposed to extend the coverage of the residential sprinkler system (designed to BS 9251:2014) to the retail and café as well as the ancillary accommodation on ground floor and upper ground floor i.e. the bin store, the bike store and plant rooms.

3.3.3 Back-up power supply

A back-up power supply is required to all life safety systems. In accordance with BS 9999: 2017 Section 37.2.3.3, a back-up power supply should be provided to all life safety systems, including (but not limited to) the following:

- Automatic fire detection and alarm system
- Emergency voice communication
- Emergency lighting system
- Smoke control system
- Fire-fighting lift
- Evacuation lift
- Sprinkler pumps

3.4 B.4 - Fire Fighting Facilities

B.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.

3.4.1.1 Residential block - Affordable

As the topmost storey of the affordable residential block is less than 18m in height (but over 11m), a firefighting shaft is not required by BS 9991.

A dry riser main is proposed in the protected stair to provide hose coverage to each flat.

The lobby/common corridor will be ventilated by a mechanical smoke ventilation system, i.e. powered extract shaft serving the protected corridor at each level, with an AOV (1m^2 minimum free area) sited as high as practicable in the stair on the top storey.

3.4.1.2 Residential block - Private

As the topmost storey is the private residential block is over 18m in height, a firefighting shaft with firefighting lift is proposed.

A dry riser main should be provided in the firefighting stair to provide hose coverage to each flat.

The lobby/common corridor will be ventilated by a mechanical smoke ventilation system, i.e. powered extract shaft serving the protected corridor at each level, with an AOV (1m^2 minimum free area) sited as high as practicable in the stair on the top storey.

3.4.2 Water supply for fire fighting operations

The blocks shall be provided with dry fire mains. Every part of the floor plate will be no more than 60m from the fire main outlet (measured on a route suitable for laying a hose) to achieve adequate hose coverage.

External hydrants should be provided within 90m if an entry point to the building and not more than 90m apart.

3.5 B.5 - Fire Vehicle Access

B.5. How provision will be made within the curtilage of the site to enable fire appliances to gain access to the building.

Fire vehicle access will be provided to within 18m of the fire main inlet connection point, and the inlet will be visible from the appliance.

It is currently proposed that the vehicle access for the residential blocks will be provided via Adelaide Road as shown in Figure 11.

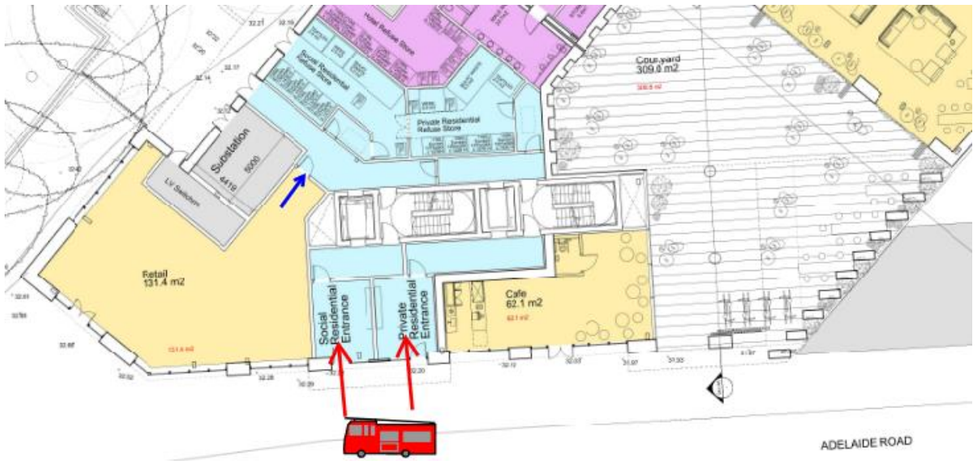

Figure 11: Fire vehicle access

3.6 B.6 - Future Building Changes

B.6. Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.

Any changes to the building design or use type will need to be assessed with regards to the proposed fire strategy to ensure the strategy satisfies the functional life safety requirements of the Building Regulations 2010 (as amended). The responsible person as defined in the RR(FS)O will be responsible for ensuring that this assessment is undertaken.

3.7 Fire Safety Management

As the design develops, aspects of the fire strategy that rely on ongoing fire safety management will be developed and clearly identified in the fire strategy report. A fire safety management plan will then need to be developed by the eventual operator to incorporate these requirements and demonstrate compliance with the Regulatory Reform (Fire Safety) Order 2005.

At this early stage of design development the following management procedures have been identified as requiring to be highlighted to the client:

- **Managing and maintaining fuel load throughout the buildings:** There are several areas within the building where building management will need to manage fire load on an ongoing basis.

  Building management are responsible for managing fire loads in areas designed to be fire sterile to keep escape routes free of fire load (no combustible materials). The on-site building management shall proactively manage the escape routes, protected stair and lobbies to ensure that there are no obstructions or combustible materials being stored in these areas.

- **Managing the evacuation of PRMs:** Both residential blocks are provided with evacuation lifts and refuse space with associated EVC system. A management plan should be developed by the building managements to assist PRMS to a place of safety.

4 Conclusion

This Fire Statement documents the aspects of the fire strategy to satisfy clause B.1 – B.6 of policy D12 (Fire Safety) of the London Plan 2021.

The full fire strategy for the development is documented in the RIBA Stage 2 fire strategy report, issued on 2 November 2020. The fire strategy has been developed in line with the life safety goals of the Building Regulations using BS9999:2017- “Fire safety in the design, management and use of buildings – Code of practice” and BS 9991: 2015 – ‘Fire Safety in the design, management and use of residential buildings – Code of practice’.

All work has been undertaken by a competent engineer with relevant experience of fire safety in hotel and residential buildings and has been approved by a Chartered Fire Engineer (CEng). Overall, it is considered that the life safety standards required for compliance with the London Plan 2021 can be achieved Haverstock Hill through the Fire Statement proposed.

Appendix A

Referenced Drawings and Documents

A1 Referenced Drawings and Documents

The Fire Statement has been developed based on the documents and drawings shown in Table 3.

It is noted that these drawings are intended to show the general building layout and use of areas. These will be subject to change as the design progresses through the subsequent design phases

Table 3 Referenced drawings and documents

Document/Drawing Number	Title	Revision	Date	Issued by
HH-ARP-REP-501	Haverstock Hill – Stage 2 Fire Strategy Report	Issue	02/11/2020	Arup
N/A	Haverstock Hill- Pre-application meeting 04-summary	N/A	01/06/2020	Sheppard Robson
SK_050	Lower Ground GA	N/A	09/10/2020	Sheppard Robson
SK_051	Ground Floor GA	N/A	09/10/2020	Sheppard Robson
SK_0059	Upper Ground Floor GA	N/A	09/10/2020	Sheppard Robson
SK_052	First Floor GA	N/A	09/10/2020	Sheppard Robson
SK_053	Second Floor GA	N/A	09/10/2020	Sheppard Robson
SK_054	Third Floor GA	N/A	09/10/2020	Sheppard Robson
SK_055	Fourth Floor GA	N/A	09/10/2020	Sheppard Robson
SK_056	Fifth Floor GA	N/A	09/10/2020	Sheppard Robson
SK_057	Sixth Floor GA	N/A	09/10/2020	Sheppard Robson
SK_0058	Seventh Floor GA	N/A	09/10/2020	Sheppard Robson
SK_0062	North Elevation	N/A	11/09/2020	Sheppard Robson
SK_0063	South Elevation	N/A	11/09/2020	Sheppard Robson
SK_0064	West Elevation	N/A	11/09/2020	Sheppard Robson
SK_0065	Section AA	N/A	11/09/2020	Sheppard Robson
SK_0066	Section BB	N/A	11/09/2020	Sheppard Robson
SK_0067	Section CC	N/A	11/09/2020	Sheppard Robson