



# Berol Quarter Limited 2 Berol Yard

Fire Statement – Requirements for London Plan 2021



|                       |                                                                                                                                                                                                                 |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project Name</b>   | 2 Berol Yard                                                                                                                                                                                                    |
| <b>Proposal Title</b> | Fire Statement – Requirements for London Plan 2021                                                                                                                                                              |
| <b>Description</b>    | London Plan 2021 Requirements                                                                                                                                                                                   |
| <b>Ref. No.</b>       | BSD – BYH – FST – 01                                                                                                                                                                                            |
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| <b>Reviewed by</b>    | Ella Leslie / Holy Liang                                                                                                                                                                                        |
| <b>Approved by</b>    | Jianqiang Mai                                                                                                                                                                                                   |
|                       | <i>AESG has prepared this proposal in accordance with the instructions of their client for their sole and specific use. Any other persons who use any information contained herein do so at their own risk.</i> |



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## 1 Overview

### 1.1 Project Information

This fire statement has been prepared for inclusion in the planning application for the following project and signed off by our qualified fire consultant:

|                          |                                       |
|--------------------------|---------------------------------------|
| <b>Project Address</b>   | 2 Berol Yard, Ashley Road, London N17 |
| <b>Authors Name</b>      | Dr Jianqiang Mai                      |
| <b>Authors Signature</b> | <i>J Mai</i>                          |
| <b>Date</b>              | 17/10/2022                            |

### 1.2 Fire Consultant

This report has been signed off by Dr Jianqiang Mai, Technical Director of AESG UK Fire Engineering Division.

Dr Mai has Over 20 years of experience in fire engineering and related services. He specialises in fire safety strategy development and is skilled in performance-based design using fire dynamics, fire modelling and evacuation modelling. He is also skilled in using Eurocodes 1, 2, 3, and 4 for structural fire engineering analysis, fire & smoke movement, and smoke control modelling.

The London Plan 2021 places minimum requirements on qualifications, memberships and experience of individuals permitted to produce a Fire Strategy Statement. Dr Mai meets this criterion, a summary of his qualifications and experience is summarised in Table 1.

Table 1: Fire Consultant Qualification Summary

| Qualifications/Experience                  |                             |
|--------------------------------------------|-----------------------------|
| Chartered Engineer?                        | Yes - (CEng)                |
| Member of the Institute of Fire Engineers? | Yes - (MIFireE)             |
| Fire Engineering Experience?               | Yes - 20 years +            |
| Additional Qualifications/Experience       |                             |
| Additional Qualification - 1               | BEng, Hydraulic Machinery   |
| Additional Qualification - 2               | MEng, Fluid Machinery       |
| Additional Qualification - 3               | PhD, Mechanical Engineering |

### 1.3 Fire Safety Assessment

The document has carefully considered the relevant fire safety policies contained within the London Plan 2021. A summary has been provided in Table 2.



Table 2: Policy Summary

| Policy number                | Relevant section of report                  |
|------------------------------|---------------------------------------------|
| Policy D5, Subsection B5     | 4.3.5                                       |
| Policy number                | Relevant section of report                  |
| Policy D12, Subsection A1(a) | 8.1                                         |
| Policy D12, Subsection A1(b) | 4.5                                         |
| Policy D12, Subsection A2    | 4.2, 5.1, 5.2                               |
| Policy D12, Subsection A3    | 5.1                                         |
| Policy D12, Subsection A4    | 7 (whole section)                           |
| Policy D12, Subsection A5    | 4.1, 4.2, 4.3, 0, 4.5 and 9 (whole section) |
| Policy D12, Subsection A6    | 8.2, 8.3 and 8.4                            |
| Policy number                | Relevant section of report                  |
| Policy D12, Subsection B1    | 5.1                                         |
| Policy D12, Subsection B2    | 4.3 and 4.6                                 |
| Policy D12, Subsection B3    | 4.2, 5.1 and 5.2                            |
| Policy D12, Subsection B4    | 8 (whole section)                           |
| Policy D12, Subsection B5    | 8.1                                         |
| Policy D12, Subsection B6    | 9 (whole section)                           |

## 1.4 Aspirational Objectives

The building will be designed in accordance with the latest relevant guidance in order to support the safety and well-being of the occupants intended to use it. A clear fire strategy will be provided so that all parties associated with the design and/or construction are certain of the standards that must be achieved throughout the project. Deviations from the strategy such as alternative materials or techniques will not be permitted without consent from the relevant fire engineer, relevant building control body and the fire service. All parties associated with the project are expected to maintain the highest levels of service and workmanship at all times.



The design intends to provide a safe environment for occupants to live in. The objective of the strategy is to ensure a minimum level of fire risk to the building users, in the event of a fire it is required to provide safe routes for occupants to escape to a place of ultimate safety.

Reliance on a single measure to achieve these goals could make the strategy vulnerable should that measure fail to perform as intended. As such, the design intends to ensure that multiple measures are provided to maintain safety at all times.

The strategy ensures that emergency services can access the entry point and all areas within the building without undue delay or complication. The objective is to allow fire service personnel a clear route to reach a fire compartment and conduct firefighting operations.

The strategy considers the surrounding area, adjacent buildings and public areas which are located around the site boundary. A combination of internal compartmentation, smoke ventilation, and protection to external walls will prevent fire from spreading throughout the building or to neighbouring sites.

The intention of a fire statement, fire strategy and associated fire safety documentation is to provide detailed information which must be retained for the lifecycle of the building and referred to should any further works take place.

## 2 Introduction

### 2.1 Scope

AESG has been appointed by Berkeley Square Development to produce a Fire Strategy Statement in order to support the planning application for 2 Berol Yard in London.

This Fire Strategy Statement demonstrates that the requirements of Chapter 3, Policy D5 and D12 as detailed in the London Plan 2021 have been carefully considered as part of this application process.

As part of a methodical approach, AESG has assessed the proposed design with reference to the functional requirements of Part B - Schedule 1 of the Building Regulations 2010 (as amended in 2018):

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

This Fire Strategy Statement provides a summary of the proposed fire and life safety measures that will be incorporated into the design and should be retained as part of Gateway 1 and the golden thread of building information.



A Fire and Life Safety (FLS) Strategy report will be produced separately and submitted to an appropriate Building Control body or Approved Inspector for approval. The Fire and Rescue Service will also be consulted as part of this process.

The FLS Strategy relates to the design and construction stage of the project and must be retained by the building owner/responsible person as part of the Gateway 2 requirements. The FLS Strategy will be developed during the next stages of the project and is not required to be submitted as part of the planning application.

## 2.2 Basis of Design – Primary Guidance

The purpose of a Fire Statement is to demonstrate that fire safety has been considered at the earliest opportunity. It is not intended for the Fire Statement to demonstrate compliance with the functional requirements of the Building Regulations 2010 (Amended).

However, an assessment of the design must be completed to ensure that the scheme can feasibly achieve compliance with the Building Regulations, approval from the relevant Building Control Body and agreement with the relevant Fire Authority.

An assessment has been conducted in conjunction with the Guidance contained within DRAFT BS 9991:2021 (Draft version is used to account for impact from near future regulation and guidance changes) and BS 9999:2017.

## 2.3 Reference Drawings

Berkeley Square Development has provided AESG with the drawings listed in Table 3. It is understood that these are the latest set of drawings, accurate at the time this report was written. As such, the Fire Statement has been based on the drawing listed in Table 3.

Table 3: List of Drawings for 2 Berol Yard

| Block        | Drawing number          | Description                      | Drawing date | Architect               |
|--------------|-------------------------|----------------------------------|--------------|-------------------------|
| 2 Berol Yard | 22049_06_301            | Section B-B                      | 16/09/2022   | Allies and Morrison LLP |
| 2 Berol Yard | 22049_06_100 – Rev P7   | Ground Floor Plan                | 24/10/2022   | Allies and Morrison LLP |
| 2 Berol Yard | 22049_06_100_M – Rev P7 | Mezzanine Floor Plan             | 24/10/2022   | Allies and Morrison LLP |
| 2 Berol Yard | 22049_06_101 – Rev P6   | Typical Floor Plan – Level 01    | 24/10/2022   | Allies and Morrison LLP |
| 2 Berol Yard | 22049_06_102 – Rev P6   | Typical Floor Plan – Level 02-05 | 24/10/2022   | Allies and Morrison LLP |
| 2 Berol Yard | 22049_06_106 – Rev P7   | Typical Floor Plan – Level 06-16 | 24/10/2022   | Allies and Morrison LLP |



|              |                          |                                     |            |                            |
|--------------|--------------------------|-------------------------------------|------------|----------------------------|
| 2 Berol Yard | 22049_06_117 –<br>Rev P4 | Typical Floor Plan<br>– Level 17    | 20/10/2022 | Allies and<br>Morrison LLP |
| 2 Berol Yard | 22049_06_118 –<br>Rev P5 | Typical Floor Plan<br>– Level 18    | 25/10/2022 | Allies and<br>Morrison LLP |
| 2 Berol Yard | 22049_06_119 –<br>Rev P1 | Typical Floor Plan<br>– Level 19-24 | 25/10/2022 | Allies and<br>Morrison LLP |
| 2 Berol Yard | 22049_06_125 –<br>Rev P4 | Typical Floor Plan<br>– Level 25-27 | 25/10/2022 | Allies and<br>Morrison LLP |
| 2 Berol Yard | 22049_06_128 –<br>Rev P5 | Typical Floor Plan<br>– Level 28-29 | 25/10/2022 | Allies and<br>Morrison LLP |
| 2 Berol Yard | 22049_06_130 –<br>Rev P5 | Typical Floor Plan<br>– Level 30    | 25/10/2022 | Allies and<br>Morrison LLP |
| 2 Berol Yard | 22049_06_131 –<br>Rev P1 | Typical Floor Plan<br>– Roof Plan   | 26/09/2022 | Allies and<br>Morrison LLP |

### 3 Building Description

2 Berol Yard will be a mixed-use residential building within the development of Berol Quarters in the London Borough of Haringey. The site is located between Ashley Road on the west and Watermead Way on the east.

The building constitutes six Blocks, A, B, C, D, E and stair core blocks that are connected internally. The building massing reduces at the upper levels as such Blocks A, B and E terminate at levels 17, 24 and 05 respectively. Blocks C and D extend to level 29 followed by the stair core block. The height of the building (as measured from the fire service access level to the highest occupied floor) is approximately 100 meters. No subterranean levels are incorporated within the design.

The building is provided with four retail units at the ground floor podium. An enclosed car park entered from Gessner Lane on the north is also located on the ground floor. An enclosed bicycle storage area is provided on the mezzanine floor.

Ancillary areas associated with the residential units and retail units are located on the ground and mezzanine floor.

All residents will have access to two community spaces of 157 m<sup>2</sup> and 164 m<sup>2</sup> that are provided at level 01 of Blocks A and E.

The building will comprise 210 residential units located on levels 01 to 29. All residential units on each floor will have a private balcony.



Shared Amenity space has been proposed within the building at level 01, level 25 and level 30.

It has been proposed to install PV arrays on the roof of Block B at level 27, on the roof of Block C at level 30 and the roof of Block E at level 06.

Green/Brown roofs are incorporated within the design. They are located on the roof of Blocks B, C and E at levels 27, 30 and 06 respectively.

The massing of the development is shown in Figure 1.

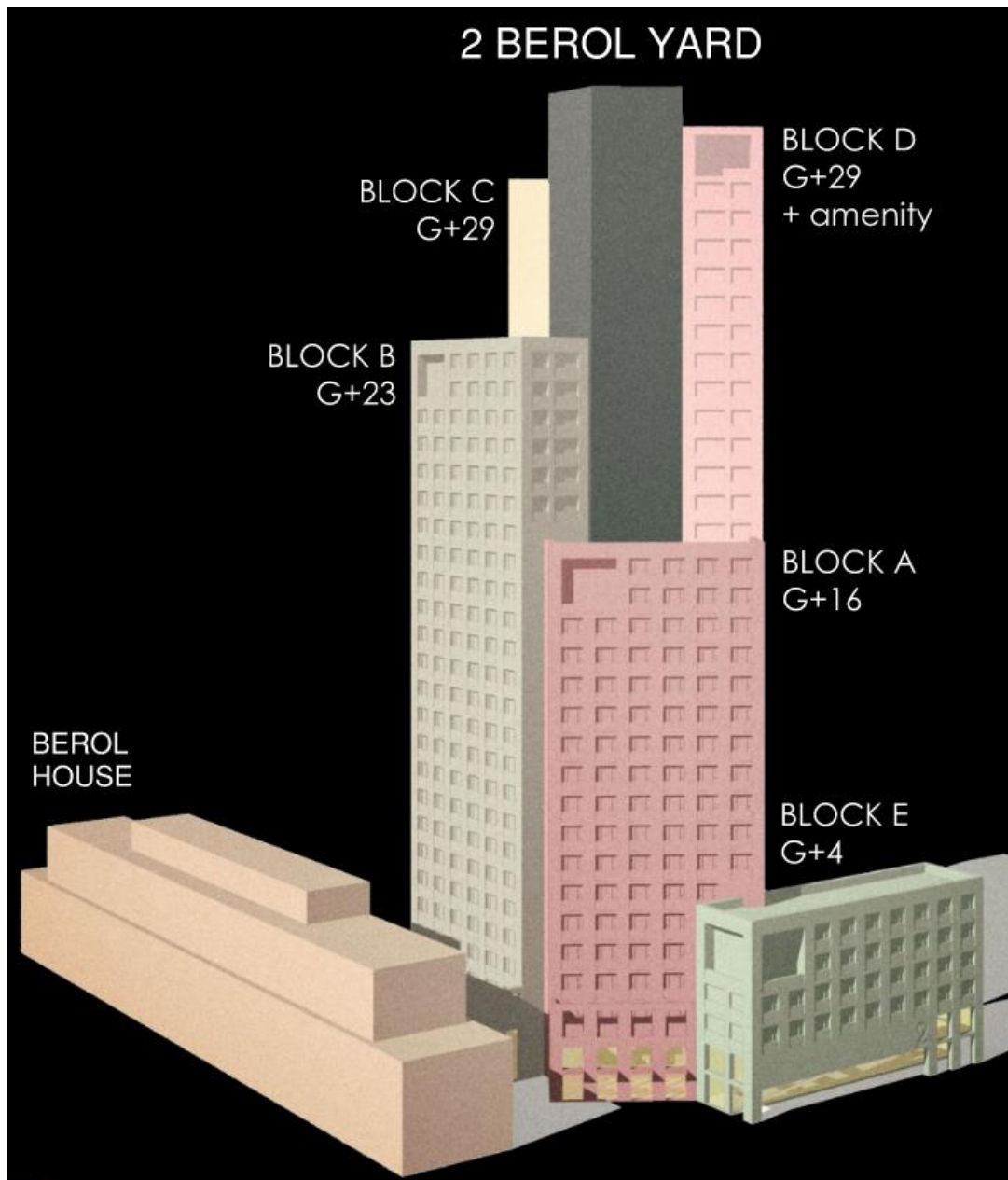


Figure 1: CGI of Berol Quarters (Berol House and 2 Berol Yard)



## 3.1 Building Description

### 3.1.1 Private Residential Dwellings

The building consists of a total of 210 residential units. All residential units are located on floors 1<sup>st</sup> to 29<sup>th</sup>. A summary of the residential units is shown in Table 4.

Table 4: Summary of Residential Units

| Unit Type (B – Bedroom, P – Person) | Number of units |
|-------------------------------------|-----------------|
| Studio                              | 20              |
| 1B                                  | 48              |
| 2B3P                                | 21              |
| 2B4P                                | 93              |
| 3B5P                                | 17              |
| 3B6P                                | 11              |

### 3.1.2 Commercial Space

The building is provided with four retail units only on the ground floor.

A summary is shown in Table 5.

Table 5: Summary of commercial units

| Unit type      | Number of floors | Area                 |
|----------------|------------------|----------------------|
| Retail Units 1 | Ground Floor     | 90.7 m <sup>2</sup>  |
| Retail Units 2 | Ground Floor     | 221.2 m <sup>2</sup> |
| Retail Units 3 | Ground Floor     | 131.8 m <sup>2</sup> |
| Retail Units 4 | Ground Floor     | 160.3 m <sup>2</sup> |

## 3.2 Risk Profiles

In order to determine the minimum package of fire safety protection provided within the building, an occupancy assessment had been conducted.

A summary of the conclusions is shown in Table 6.



Table 6: Occupancy Assessment

| Location                   | Familiar with building? | Sleeping Risk | Special risks identified |
|----------------------------|-------------------------|---------------|--------------------------|
| All residential apartments | Yes                     | Yes           | Yes <sup>[1]</sup>       |
| Commercial Space           | Retail Units - No       | No            | No                       |

Note [1]: 22 units within the proposed scheme are designed to be wheelchair-adaptable units and will be compliant with the guidance within Approved Document M4(3).

## 4 B1 - Means of Warning and Escape

### 4.1 Evacuation Strategy

Table 7 provides a summary of the evacuation strategies used throughout the building.

Table 7: Evacuation Strategies

| Building Use       | Area                                                          | Evacuation strategy | Comments                                                                                                                                                       |
|--------------------|---------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Residential Floors | Residential Units (1 <sup>st</sup> to 29 <sup>th</sup> floor) | Defend in place     | Occupants only in the flat of fire origin will evacuate. This is supported by robust compartmentation and smoke control strategies provided within the design. |
| Commercial Space   | Ground Floor                                                  | Simultaneous        | Alarm systems will not be interlinked with the residential demise. Upon activation of the fire alarm, all occupants within commercial areas will evacuate.     |
| Ancillary Areas    | Ground to 1 <sup>st</sup> floor                               | Simultaneous        | N/A                                                                                                                                                            |

#### 4.1.1 Measures to Support a Defend in Place Evacuation Strategy (Block A to Block D)

Residential units within the building will utilise a defend in place evacuation strategy. This strategy is supported by the passive and active measures described in Sections 5.1 and 5.2 of this report. A summary is listed below;

- All residential floors will be constructed as a compartment floor achieving 120 minutes of fire resistance.



- Compartment floors will also be used to separate commercial occupancy and residential occupancy. This commercial floor will achieve a minimum fire resistance of 120 minutes.
- The building is provided with two firefighting shafts achieving a minimum of 120 minutes of fire resistance. The escape stairs will be enclosed with a fire-rated construction, each achieving a minimum of 120 minutes of fire resistance, separating it from all other areas of the building. An AOV will be provided at the head of both stairs that will achieve a minimum free area of 1 m<sup>2</sup>.
- The stair enclosure will be separated from the dwellings via a combined ventilated corridor and lift lobby.
- Means of escape for residential floors are designed in accordance with Figure 9(b) of DRAFT BS 9991:2021. The design limits the travel distance to 15 m as sprinkler suppression is provided. Due to the height of the building the combined protected common corridor and the lift lobby will be provided with a mechanical smoke control system. A Computational Fluid Dynamics (CFD) study and a QDR will be conducted to demonstrate the effectiveness of mechanical ventilation during the developed design stage.
- To facilitate safe egress for the occupants who requires assistance to escape, two of the lifts will be designed for use as evacuation lift. Whilst the other two will be used as firefighting lifts.
- Means of Escape from the Podium Garden on level 1 is provided in two directions remote from each other. As such, in line with section F.6 of DRAFT BS 9991:2021, the maximum travel distance within the podium garden should not exceed 45 m. This has been fulfilled within the proposed design.

#### 4.1.2 Measures to Support a Defend in Place Evacuation Strategy (Block E)

Residential units within Block E will also utilise a defend in place evacuation strategy. This strategy is supported by the passive and active measures described in Sections 5.1 and 5.2 of this report. A summary is listed below;

- Block E will be structurally independent of the main tower (Blocks A to D). As such, due to the height of Block E, it is required to have a minimum fire resistance of 60 minutes.
- Compartment floors will also be used to separate commercial occupancy and residential occupancy. This commercial floor will achieve a minimum fire resistance of 60 minutes.
- Means of escape for the residential floors on Level 02 – 05 is designed in accordance with Figure 10 and clause 7.9 of DRAFT BS 9991 to facilitate the balcony approach or deck approach. It should be noted that once the occupants within the residential units of Block E have escaped their flats, they will escape into the tower (a separate fire compartment) via balcony approach which is considered a place of relative safety.

#### 4.1.3 Measures to Support a Simultaneous Evacuation Strategy

Simultaneous evacuation will only be incorporated in the commercial and ancillary parts of the building located on the ground floor to 1<sup>st</sup> floor. In an event of a fire on the ground floor, occupants



within this area will have an independent means of escape to the place of ultimate safety. Ancillary areas on the mezzanine floor will be separated from the common corridors by a ventilated lobby.

The community unit on the 1<sup>st</sup> floor within Block E will have an independent escape via separate stairs provided south of the block.

The number of occupants expected within the commercial unit will be established using a floor space factor. Once the estimated population of a given area is calculated, storey and final exits will be adequately sized to accommodate the number of occupants expected to use them. These are matters appropriate to be worked up at the RIBA Stage 3 and 4 which will achieve the functional requirements of Building Regulations 2010 as amended.

The commercial areas will operate independently from the residential areas, and the alarm system between these areas will not be interlinked, i.e. only the commercial unit will evacuate in the event of a fire.

## 4.2 Fire Detection and Alarm Systems

Table 8 provides a summary of the fire detection and alarm systems that will be incorporated into the design.

Table 8: Fire Detection and Alarm Summary

| Building Use     | Area                                      | Proposed system | Comments                                                                                                                                                                       |
|------------------|-------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Residential Area | Residential Units – Assisted Living       | Grade D LD1     | Smoke detectors provided in all circulation areas that form part of the escape route and in the principal habitable rooms.<br><br>Heat detection will be provided in kitchens. |
|                  | Residential Units – Open Plan Arrangement | Grade D LD1     | Smoke detectors provided in all circulation areas that form part of the escape route and in the principal habitable rooms.<br><br>Heat detector provided in kitchens.          |
|                  | Escape Stair                              | L5              | Detection linked to AOV within the stair.<br><br>No sounder required                                                                                                           |
|                  | Ancillary areas                           | L2              | Also, includes covered car park at the ground level.                                                                                                                           |



|                 |                    |    |                                                                                       |
|-----------------|--------------------|----|---------------------------------------------------------------------------------------|
| Commercial Area | Retail Units on GF | L2 | Smoke detectors provided in all circulation areas that form part of the escape route. |
|-----------------|--------------------|----|---------------------------------------------------------------------------------------|

## 4.3 Means of Escape – Residential Units

### 4.3.1 Internal Arrangement

The design incorporates open plan layouts with no protected entrance halls and bedrooms that are inner rooms to the living/kitchen area. These flats will be designed in accordance with section 9.5 of DRAFT BS 9991:2021.

Some flats are proposed to have an unenclosed kitchen in close proximity to the escape route. As such a hob assessment of the open plan kitchen will be conducted in the RIBA stage 3 Fire and Life Safety Strategy to ensure that. This is to ensure that a general distance of 1.8 m is maintained between the escape route within the apartment and the hob.

### 4.3.2 Balcony Escape, Block E – Level 01-05

Means of escape for the residential floors on Level 02 – 05 is designed in accordance with Figure 10 and clause 7.9 of DRAFT BS 9991 to facilitate the balcony approach or deck approach. Occupants in Block E will escape into the tower (Block A to D) via balcony approach. As Block E will be separated from the tower by fire rated constructions, once the occupants within the residential units of Block E have escaped from their flats, they will be in a separate fire compartment which is considered as a place of relative safety and where they can lead to outside, the place of ultimate safety, via protected escape cores within the tower.

The 3<sup>rd</sup> floor layout in Figure 2 below illustrates the means of escape from apartments within Block E.

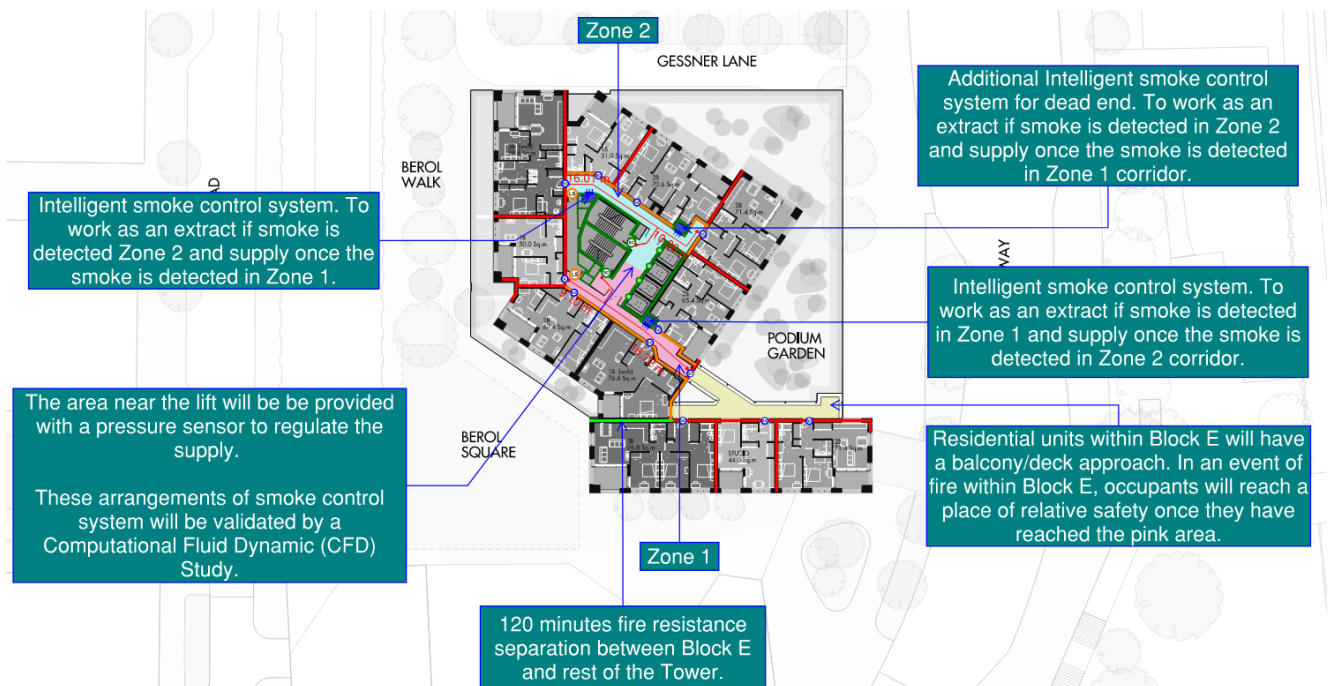


Figure 2: Means of Escape – Typical Floor Layout: Level 02-05

#### 4.3.3 Common Corridor

All apartments except in Block E will have direct access to the ventilated common corridor. The common corridor provides a protected route from the apartment entrance to the firefighting stair entrance.

#### 4.3.4 Escape Stair

The height of the building as measured from ground level is approximately 100 meters and it is served by two stairs. The stairs will be constructed as a firefighting stair with an enclosure achieving a minimum fire resistance of 120 minutes. An AOV will be provided at the head of both stairs that will achieve a minimum free area of 1m<sup>2</sup>.

#### 4.3.5 Evacuation Lift

The design incorporates four lifts and will have the corridor combined with the lift lobby without any separation. A ventilated common corridor is provided between apartment units and escape stairs.

In accordance with the London Plan 2021, occupants must be able to enter, use and exit a building safely and with dignity therefore a minimum of one lift per core should be suitably sized as an evacuation lift within the design. In accordance with Draft BS9991:2021, floor areas exceeding 900m<sup>2</sup> require two firefighting stair cores, therefore two evacuation lifts are required.

Evacuation lifts will be designed and installed in accordance with Annex G of British Standard 9999. In order to manage the lift operation adequately, a sufficient number of competent staff will be assigned within the building at all times. It should be noted this does not imply that the occupants



are not able to leave the flat to reach the storey exit or leave the lift and exit on the ground floor. The occupants requiring assistance will be prioritised in an evacuation via evacuation lifts.

#### 4.3.6 Refuge Requirements

One refuge should be provided for each escape stair. Refuges do not need to be located within the stair enclosure but should enable direct access to the stair.

The number of refuge spaces does not need to equal the number of wheelchair users who may be in the building. A single refuge may be occupied by more than one person during the evacuation procedure. A risk assessment should be conducted to ascertain if additional refuges are required due to the nature of the occupancy within the building.

### 4.4 Means of Escape: Commercial Space

The commercial units are located on the Ground floor only. These will have an independent means of escape directly to the street level. Internal layouts will be developed in the design stage and not yet assessed as part of the fire statement. As it is fire separated from the rest of the building, it is envisaged that this will not affect the proposed fire strategy for the rest of the buildings.

### 4.5 Emergency Assembly Points

Currently, there is no guidance document regarding the creation and location of assembly points, and it is not a requirement under the current building regulations. However, it is suggested that these be provided at a suitable distance from the building within Berol Quarter near Berol Walk to the south and Gessner Lane to the north.

Emergency assembly points in this location will allow occupants to move away from the scene of operations and to a place of ultimate safety. Assembly points in this location will also allow other emergency services such as the Ambulance Service to site their vehicles and provide treatment without compromising firefighting operations.

### 4.6 Final Exits

The design reasonably accommodates facilities for M4(3) occupants. This includes increasing door widths and providing evacuation lifts and suitably ramped egress routes instead of stepped routes. The force required to open doors will be reduced and push buttons, handles etc. will be located at a height suitable for occupants such as wheelchair users. A full list of design considerations will be provided as part of the Fire and Life Safety Strategy for each building.

## 5 B2 – Internal Fire Spread (Linings)

The design is intended to prevent uncontrolled fire spread within all buildings. To achieve this, a number of passive and active systems will be provided. A summary of the systems used has been provided in Sections 5.1 and 5.2.



## 5.1 Passive Fire Protection

### 5.1.1 Compartmentation and Fire-Resistant Enclosures – Residential and Non-residential Units

Table 9 provides a summary of the fire resistance required for compartmentation and fire-resistant enclosures.

Table 9: Compartmentation and Fire-Resistant Enclosure Summary

| Element within the building             | Fire Resistance (Loadbearing, Integrity, and Insulation) | Fire Door Type | Closing Mechanism |
|-----------------------------------------|----------------------------------------------------------|----------------|-------------------|
| Elements of structure                   | 120 minutes                                              | N/A            | N/A               |
| Compartment floors                      | 120 minutes                                              | N/A            | N/A               |
| Party walls (Block E and the Tower)     | 120 minutes                                              | N/A            | N/A               |
| Firefighting Stairs                     | 120 minutes                                              | FD60S          | Self-closer       |
| Lift shafts                             | 120 minutes                                              | FD60           | N/A               |
| Service risers                          | 120 minutes                                              | FD60S          | Kept locked shut  |
| Walls separating different occupancies  | 60 minutes                                               | N/A            | N/A               |
| Walls between flats                     | 60 minutes                                               | N/A            | N/A               |
| Walls between flats and common corridor | 60 minutes                                               | FD30S          | Self-closer       |
| Plant areas                             | 60 minutes                                               | FD60S          | keep locked shut  |
| Cycle store                             | 30 minutes                                               | FD30S          | Self-closer       |
| Refuse store                            | 60 minutes                                               | FD30S          | Self-closer       |



|                                            |             |        |                  |
|--------------------------------------------|-------------|--------|------------------|
| <b>Areas housing life safety equipment</b> | 120 minutes | FD120S | Kept locked shut |
| <b>UKPN Substation</b>                     | 240 minutes | FD240S | Kept locked shut |

### 5.1.2 Linings

Linings will adequately resist the spread of flame over their surfaces. In addition, if ignited, linings will inhibit the rate of heat release or the rate of fire growth. In order to achieve this, limitations will be imposed on the classification of linings used in different areas of the building. A summary of minimum performance requirements is provided in Table 10.

Table 10: Minimum Classification of Linings

| Location                                                     | Minimum Classification (European Class) |
|--------------------------------------------------------------|-----------------------------------------|
| Circulation spaces within dwellings                          | C-s3, d2                                |
| Other circulation spaces                                     | B-s3, d2                                |
| Small rooms (< 4m <sup>2</sup> )                             | D-s3, d2                                |
| Sleeving where a pipe penetrates a compartment wall or floor | Non-combustible materials must be used  |
| Walls of a flue that penetrates a compartment floor or wall  | Non-combustible materials must be used  |

## 5.2 Active Fire Protection

### 5.2.1 Residential Units

All residential units will be provided with the following active systems;

- An automatic fire detection and alarm system.
- An AOV achieving a minimum free area of 1 m<sup>2</sup> at the head of each stair for smoke control.
- A protected common corridor will be provided with a mechanical smoke control system.
- The region near the lift will be provided with pressure sensors to regulate the supply.
- Emergency lighting along all common escape routes.
- A backup power supply will be provided to feed all life safety systems that require electricity to function as intended. The secondary supply will be appropriate for the life safety system concerned.

A Computational Fluid Dynamics (CFD) study and a QDR will be conducted to demonstrate the effectiveness of mechanical ventilation.



### 5.2.2 Commercial Spaces

All commercial spaces will be provided with the following active systems;

- An automatic fire detection and alarm system.
- Emergency lighting along all common escape routes.
- A backup power supply will be provided to feed all life safety systems that require electricity to function as intended. The secondary supply will be appropriate for the life safety system concerned.

### 5.2.3 Smoke Control System

The corridor will be interconnected and will however be divided into zones without any physical partitions or doors. The south corridor highlighted in pink will be Zone 1 whereas the north corridor highlighted in blue will be Zone 2 as shown in Figure 3. An intelligent mechanical smoke control system will be used within the corridor i.e., once the smoke is detected in zone 1, the shaft in this zone will serve as an extract whilst the shaft in zone 2 will provide makeup/supply air. Similarly, once the smoke is detected in zone 2, the shaft in this zone will serve as an extract whilst the shaft in zone 1 will provide makeup/supply air. The area near the lift will be provided with a pressure sensor to regulate the supply and limit the pressure differential. This is to ensure an effective smoke ventilation design and at the same time meet the daily access needs. The proposed push-pull system will not rely on opening of the stair doors to provide replacement air and therefore will protect the stairs better.

These arrangements of the smoke control system will be validated by Computational Fluid Dynamics (CFD). These are matters appropriate to be worked up at the RIBA Stage 3 and 4 which will achieve the functional requirements of Building Regulations 2010 as amended.

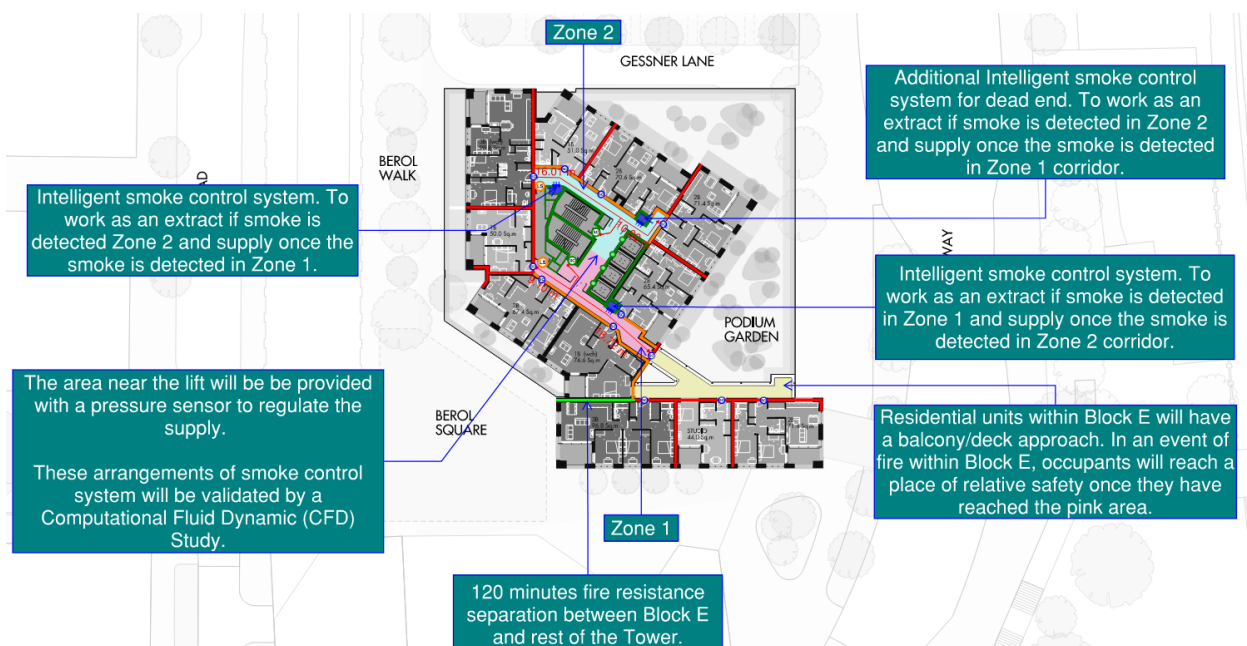


Figure 3: Typical Smoke Control Arrangement



#### 5.2.4 Sprinkler Suppression

The building will be fitted with a sprinkler protection system throughout. Residential areas will be protected in accordance with BS 9251 and non-residential areas will be protected in accordance with BS 12845.

## 6 B3 – Internal Fire Spread (Structure)

Elements of structure will be adequately protected to ensure that a fire will not cause any element to fail resulting in the collapse of the building. A summary of the minimum periods of fire resistance for the building is provided in Table 11.

AESG acknowledges that the specific guidance for elements of structure at 30 meters is 120 minutes. A consultation with the structural engineer will be conducted to assess if the fire resistance of the elements of the structure needs to be increased to deal with the height and loads of a tall building.

Due to the height of the building, a Qualitative Design Review (QDR) of the building will be conducted to determine if the building needs a fire resistance of more than 120 minutes. This will include coordination with the various stakeholders, structural engineers, and other specialists for the design under consideration.

Table 11: Fire Resistance for Elements of Structure

| Height of Building | Sprinklered | Minimum Period of Fire Resistance          |
|--------------------|-------------|--------------------------------------------|
| Block A-D > 30 m   | Yes         | 120 Minutes for load bearing               |
| Block E < 30 m     | Yes         | 60 Minutes for load bearing <sup>[2]</sup> |

Note 2: Block E will be structurally independent of the main tower (Block A - D)

## 7 B4 – External Fire Spread

### 7.1 External Wall Construction

The building is approximately 100m in height and therefore external wall limitations will be imposed on the materials which can be used as part of the external wall build-up or specified attachments. The external wall system will be designed to comply with Regulation 7.

All balconies and insulation materials on the building is required to be constructed of class A2-s1, d0 or better.



## 7.2 Unprotected Openings

To reduce the risk of external fire spread from one building to another, the amount of unprotected area that is allowed on an elevation may be limited, depending on the boundary distance.

To calculate the percentage of the unprotected area permitted within a given elevation, external fire spread calculations will be completed. The methodology described in 'BR 187 External fire spread: building separation and boundary distances' will be used to perform these calculations.

A full set of calculations will be included in the Fire and Life Safety Strategy document.

Where an elevation is within 1000 mm of a relevant/notional boundary, 100% of the elevation will be protected.

External wall fire spread assessment to the adjoining relevant site boundary will be conducted in RIBA Stages 3 and 4 which will achieve the functional requirements of building regulations 2010.

## 8 B5 – Access and Facilities for the Fire and Rescue Service

### 8.1 Site Access

Fire Service Access and Facilities will be designed and installed as per the guidance within section 50.1 of DRAFT BS 9991:2021.

Fire Service vehicles can approach the site from the west via Ashley Road or they can approach from the east via Watermead Way.

Access to the firefighting stair cores within the building is provided from both Ashley Road and Watermead Way. Fire service access to the commercial spaces within the building is via Ashley Road.

The access routes within the site are shown in Figure 4.

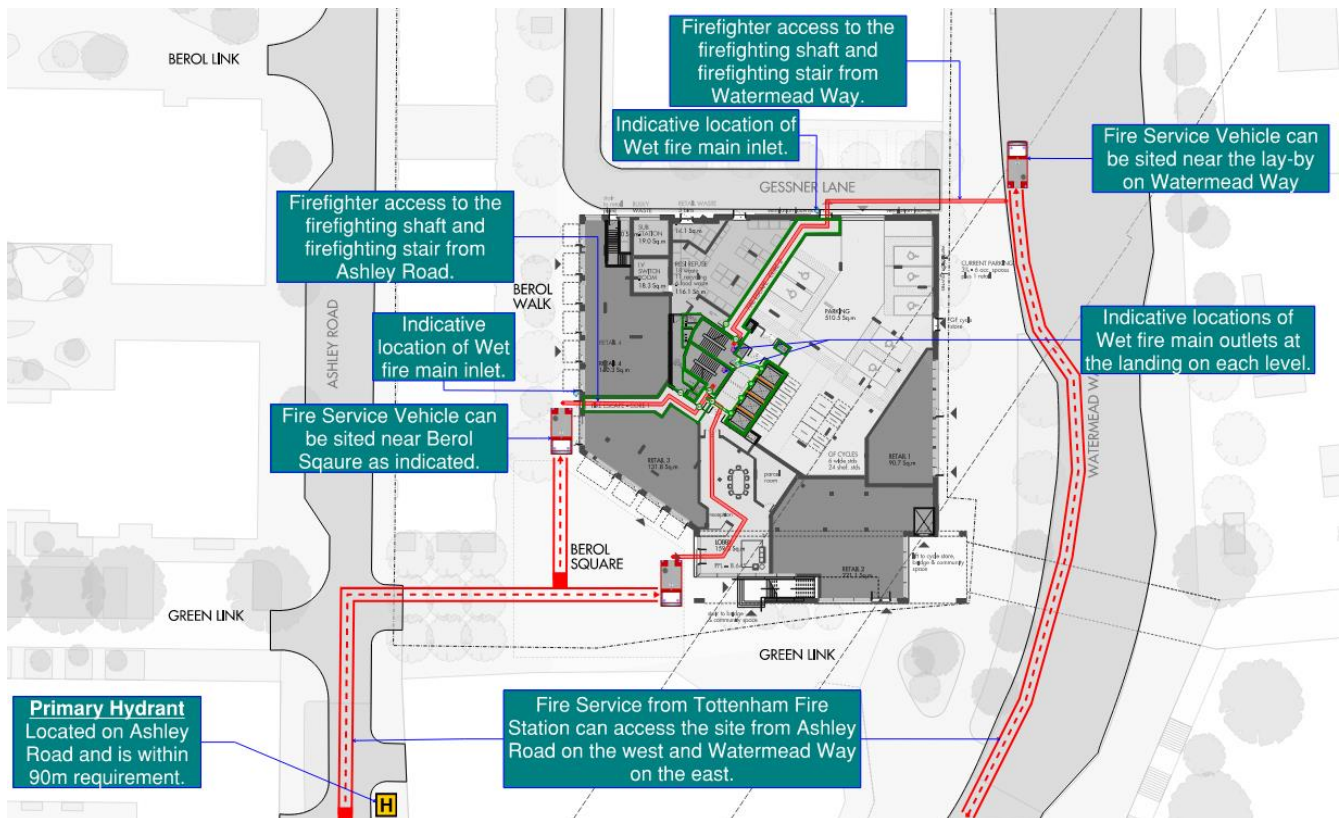


Figure 4: Site Access Map

The private access roads will meet the size and weight criteria as described in Table 20 of BS 9999:2017 and this is displayed in Table 12.

Table 12: Size and Weight Requirements

| Appliance type | Minimum width of the road (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                          | 12.5                               |
| High reach     | 3.7                           | 3.1                           | 26.0                                     | 29.0                                     | 4.0                          | 17                                 |

## 8.2 Building Access

The proposed building is above 50 meters and therefore it will be provided with a wet rising main within both the firefighting stair enclosure. The fire service can access all areas on each residential floor within 60 meters from the fire main provided at each level. This is compliant with the requirement of DRAFT BS 9991:2021.



Recent changes to the Building Regulations 2010 (Amended) require the installation and provision of 'wayfinding signage' for the fire service use in purpose group 1a (Residential (Block of Flats)) with a floor exceeding 11m above ground level, see MHCLG circular letter dated 26 May 2020. A suitable emergency lighting and signage strategy will be provided in all common escape routes and stairs in the commercial area, ancillary areas, and residential areas.

### 8.3 Firefighting Shafts

As the building is above 18 meters and will have storeys having an area of more than 900m<sup>2</sup>, it is required to be provided with two firefighting shafts containing firefighting stairs, a firefighting lift and a firefighting main. The firefighting stairs will be enclosed in a 120-minute fire-rated construction.

Two firefighting lifts will be provided within a protected and mechanically ventilated lift lobby. The lift shafts will be constructed to achieve 120-minute fire-resistant protection, with lift doors achieving FD60.

In accordance with the London Plan 2021, occupants must be able to enter, use and exit a building safely and with dignity therefore a minimum of one lift per core should be suitably sized as an evacuation lift within the design. 2 Berol Yard will be provided with 4 lifts, two of the lifts will be designed for use as evacuation lifts.

### 8.4 Water Supplies

The Fire and Rescue Service can use the existing public fire hydrant located on Ashley Road to replenish the water supply for use in firefighting operations. The hydrant is located within 90 meters of the fire main entry point.

## 9 Building Information

Fire and Life Safety Building information will be retained using electronic copies of all relevant documents. All documents will be saved on a central system where they can be reviewed as required. All information will be easily accessible to relevant parties throughout the building's life cycle.

If during its lifecycle the building undergoes any design modification or changes of use, the fire strategy must be reviewed. The document will provide details of all the components which are required to be maintained in order to support the existing strategy. Any changes to the existing design must be assessed against this information to ensure that the changes do not negatively impact the existing provisions.

Where internal layouts are modified, the fire strategy drawings must be reviewed to ensure that compartmentation within the building is not compromised. This is particularly important in residential buildings where a 'defend in place' evacuation strategy is used.



Where a building is being refurbished and no changes to the design are being made, it must be ensured that the works achieve the same performance criteria as detailed in the fire strategy.

Where necessary, a new fire strategy must be produced. Any changes to the building, or the fire strategy as a whole, must be discussed and agreed upon with planning authorities, building control and the fire service prior to work commencing.

With regard to this project, the particular items which must be reviewed as part of any future works are as follows;

- Do the changes affect the proposed means of escape?
- Do the stair cores of the building remain suitably protected from the effect of heat and smoke?
- Has the compartmentation within the building been maintained? (This includes any service penetrations which pass through fire-resistant construction).
- Do the common corridor and lift lobby fire sterile and have no combustible materials at all times?
- Has the protected route from the stair to a final exit been maintained and remains fire sterile?
- If additional floors are added, then the fire resistance of the structural elements will need to be reviewed. The existing fire resistance may not be sufficient if the building height is increased.
- Do any changes affect the distance a firefighter must travel in order to reach the most remote parts of the building?

This is not an exhaustive list; however, it highlights the particular aspects of the project which are critical to the current strategy.

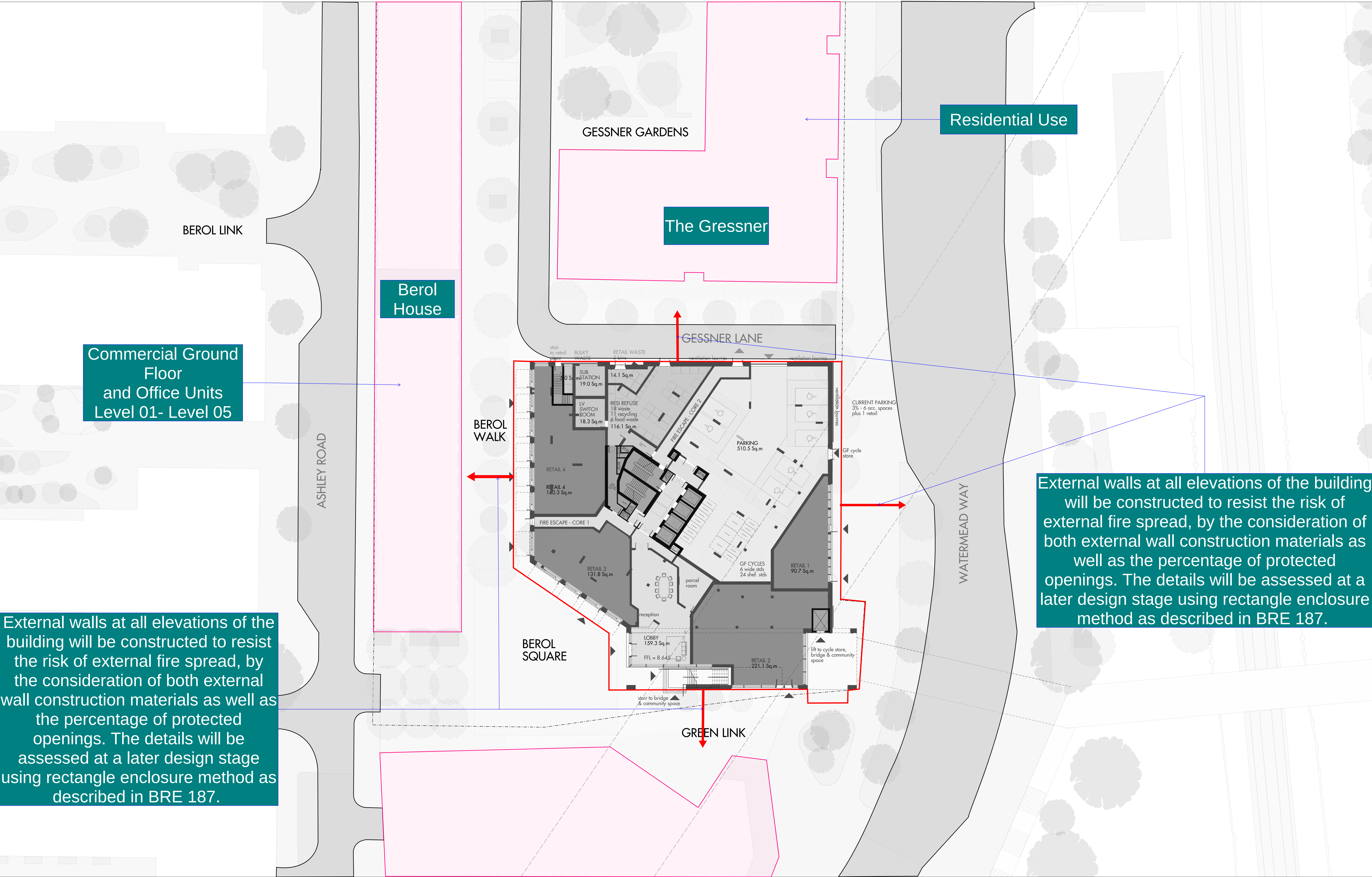
It must be noted that Changes to the building and its services (controlled services or fittings) may require submission of statutory notice under the building regulations and not just within the confines of a fire strategy.



# APPENDIX A

## FIRE STRATEGY DRAWINGS





External walls at all elevations of the building will be constructed to resist the risk of external fire spread, by the consideration of both external wall construction materials as well as the percentage of protected openings. The details will be assessed at a later design stage using rectangle enclosure method as described in BRE 187.

External walls at all elevations of the building will be constructed to resist the risk of external fire spread, by the consideration of both external wall construction materials as well as the percentage of protected openings. The details will be assessed at a later design stage using rectangle enclosure method as described in BRE 187.

## Fire Service Access to the Site

# GESSNER GARDENS

Firefighter access to the firefighting shaft and firefighting stair from Watermead Way.

Indicative location of  
Wet fire main inlet.

Fire Service Vehicle can be sited near the lay-by on Watermead Way

Firefighter access to the firefighting shaft and firefighting stair from Ashley Road.

Indicative  
location of Wet  
fire main inlet.

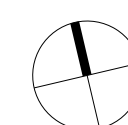
Fire Service Vehicle can be sited near Berol Sqaure as indicated.

Indicative locations of Wet fire main outlets at the landing on each level.

**Primary Hydrant**  
Located on Ashley Road and is within 90m requirement.

Fire Service from Tottenham Fire Station can access the site from Ashley Road on the west and Watermead Way on the east.

| REV | DATE       | DESCRIPTION                                                  | OKO | REV | DATE | DESCRIPTION | OKO |
|-----|------------|--------------------------------------------------------------|-----|-----|------|-------------|-----|
| P1  | 29.06.2022 | FOR INFORMATION                                              | AJC |     |      |             |     |
| P2  | 28.07.2022 | FOR INFORMATION                                              | VM  |     |      |             |     |
| P3  | 02.09.2022 | FOR INFORMATION                                              | JD  |     |      |             |     |
| P4  | 16.09.2022 | FOR INFORMATION                                              | AJC |     |      |             |     |
| P5  | 01.10.2022 | FOR INFORMATION - DESIGN FREEZE FOR ANALYSIS                 | AJC |     |      |             |     |
| P6  | 13.10.2022 | FOR INFORMATION - RETAIL 1 & 2 ADJUSTED FOR MEZZ CYCLE STORE | AJC |     |      |             |     |
| P7  | 24.10.2022 | FOR INFORMATION - AMENDED FOR FREE & Q&P COMMENTS            | AJC |     |      |             |     |



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A&M JOB NO: 22049

2 BEROL YARD  
GROUND FLOOR PLAN  
GENERAL ARRANGEMENT  
22049\_06\_100

SCALE 1:250 @A1 1:500 @A3

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