



Manor Road, Richmond

London Plan Fire Statement

For Avanton Richmond Developments Ltd

For Issue

Revision 06

Date: 25 August 2023

Doc ref: 26439-HYD-XX-XX-RP-FE-0001

DOCUMENT CONTROL SHEET

Issued by	Hydrock Consultants Limited Over Court Barns Over Lane Almondsbury Bristol BS32 4DF Tel: 01454 619533 Fax: 01454 614125 www.hydrock.com	Client	Avanton Richmond Developments Ltd
		Project name	Manor Road, Richmond
		Title	London Plan Fire Statement
		Doc ref	26439-HYD-XX-XX-RP-FE-0001
		Project no.	26439
		Status	For Issue
		Date	25 August 2023

Issue Number	Status	Date
P01	Planning – For Issue	16 December 2022
P02	Planning – For Issue	22 December 2022
P03	Planning – For Issue	22 February 2023
P04	Planning – For Issue	2 June 2023
P05	Planning – For Draft	18 August 2023
P06	Planning – For Issue	25 August 2023

Prepared By	
Stephen McColgan MSc BEng (Hons) AIFireE – Fire Engineer	
Checked By	
Taj Shuriquie MSc BEng (Hons) AIFireE – Principal Fire Engineer	
Approved By	
Adam Eaton MEng (Hons) CEng MIFireE– Director of Fire Safety	

Additional Background Information of Authors

Stephen McColgan - Stephen is an Associate member (AIFireE) of the Institute of Fire Engineers (IFE) and has a Master's degree of Science and a Bachelor (Honours) of Engineering degree in Fire Safety Engineering. Stephen has over two years' experience in developing and advising on fire safety design spanning across various sectors including but not limited to mixed-use, residential, industrial, commercial, assembly and recreation schemes across both the UK and Internationally.

Taj Shuriquie - Taj is an Associate member (AIFireE) of the Institution of Fire Engineers (IFE) and is into his fourth year of working in a fire safety consultancy role. Taj has a Bachelors (with honours) degree in Architecture and Environmental Engineering. Taj has also completed a Masters in Fire Safety Engineering at the University of Central Lancashire. His experience in developing and advising on the fire safety design spans across various sectors, including residential, educational, and commercial.

Adam Eaton – Adam is Hydrock's Midlands, South West and Wales Director of Fire Safety and has significant Fire Engineering experience, working on a large variety of projects throughout the UK and Internationally – leading projects from 45,000-seater FIFA World Cup Stadia in Qatar to 160m tall residential buildings in the UK and a large scale 1,400 home development in Birmingham spanning over 30 mid to high rise apartment buildings. Adam is experienced in numerous Fire Engineering techniques/methods, such as Computational Fluid Dynamics (CFD), evacuation modelling and smoke control calculations. Adam is a Chartered Engineer with the Institution of Fire Engineers (IFE) and holds Member status (MIFireE).

Hydrock Consultants Limited has prepared this report in accordance with the instructions of the above-named client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

CONTENTS

1.	INTRODUCTION	3			
1.1	FIRE SAFETY GUIDANCE	3			
1.2	FIRE STATEMENT	3			
1.3	BASIS OF REPORT	4			
1.4	LIMITATIONS	5			
1.5	SINGLE STAIR BUILDINGS	5			
2.	PROJECT OVERVIEW	6			
2.1	BUILDING AND SITE DESCRIPTION	6			
3.	MEANS OF WARNING AND ESCAPE	9			
3.1	EVACUATION STRATEGY	9			
3.2	HORIZONTAL MEANS OF ESCAPE	10			
3.3	VERTICAL MEANS OF ESCAPE	13			
3.4	EVACUATION ASSEMBLY POINTS	15			
4.	ACTIVE FIRE SAFETY MEASURES	16			
4.1	FIRE DETECTION AND ALARM SYSTEMS	16			
4.2	SMOKE VENTILATION	17			
4.3	EMERGENCY SIGNAGE	17			
4.4	EMERGENCY LIGHTING	18			
4.5	AUTOMATIC WATER FIRE SUPPRESSION SYSTEMS (AWFSS)	18			
5.	PASSIVE FIRE SAFETY MEASURES AND CONSTRUCTION DETAILS	19			
5.1	ELEMENTS OF STRUCTURE	19			
5.2	COMPARTMENTATION	19			
5.3	ADDITIONAL FIRE RESISTANCE REQUIREMENTS	19			
5.4	FIRE DOORS	19			
5.5	INTERNAL LININGS	19			
5.6	FIRE STOPPING	20			
5.7	CAVITY BARRIERS	20			
5.8	EXTERNAL WALL CONSTRUCTION	20			
5.9	SPACE SEPARATION AND UNPROTECTED FAÇADE AREAS	20			
5.10	ROOF COVERINGS	21			
5.11	GREEN ROOFS	21			
6.	ACCESS AND FACILITIES FOR THE FIRE AND RESCUE SERVICE	22			
6.1	SITE ACCESSIBILITY	22			
6.2	FIREFIGHTING ACCESS AND FACILITIES	22			
6.3	FIRE HYDRANTS	24			
6.4	WAYFINDING SIGNAGE	24			
6.5	PREMISE INFORMATION BOX (PIB)	24			
7.	FIRE SAFETY MANAGEMENT AND FUTURE DEVELOPMENT	25			
7.1	THE REGULATORY REFORM (FIRE SAFETY) ORDER 2005	25			
7.2	REGULATION 38	25			
7.3	FUTURE DEVELOPMENT	25			

1. INTRODUCTION

Hydrock has been commissioned by Avanton Richmond Developments Ltd to provide a London Plan Fire Statement document for the proposed development of residential scheme which shall be located on the existing Homebase site located at 38 Manor Road, Richmond, London TW9.

1.1 Fire Safety Guidance

This Fire Statement has been developed to satisfy the requirements of the London Plan Policy D12 (A and B). BS 9991:2015 – ‘Fire safety in the design, management and use of residential buildings – Code of practice’ and BS 9999:2017 – ‘Fire safety in the design, management and use of buildings – Code of practice’, where appropriate, will be used to demonstrate compliance with the Part B (Fire Safety) functional requirements of the Building Regulations 2010 (as amended). However, this document is not for construction and is not for Building Regulations submission/approval, with the fire strategy for the development to be produced as the design develops through the relevant RIBA stages.

It is noted that this guidance document does not set out statutory requirements; it is intended to provide guidance only for generic building designs. An alternative approach can be applied to achieve an acceptable level of safety commensurate with the functional requirements of the Building Regulations 2010 (as amended). Whilst alternative methods have been based on accepted codes of practice, they will be subject to the agreement of the Approving Authorities. Where not explicitly stated within this document, it is assumed that in all other respects, the development will be designed in accordance with the prescriptive guidance documents outlined above, or the supporting British Standards referenced within.

The Fire Statement demonstrates that the development will provide a sufficient level of fire safety in regard to the life safety of occupants and firefighters.

1.2 Fire Statement

The purpose of this Fire Statement is to outline the fire safety design of the development and to demonstrate that all structures, systems, and components related to the Manor Road development based in Richmond, London are designed from an early stage to reduce the risk to life and the risk of serious injury in the event of a fire. Additionally, the Fire Statement will demonstrate that the fire safety design of the development will enable duty holders to consider and manage the risk of fire, as well as enabling suitable provisions for the Fire and Rescue Service and firefighting operations.

This Fire Statement sets out the following objectives:

- Demonstrate that the development at this early stage of design meets Part B (Fire Safety) functional requirements of the Building Regulations 2010 (as amended);
- Demonstrate that the fire safety of the development has been considered from the outset and satisfies the requirements of the London Plan Policy D12(A) and D12(B);
- Identify any fire safety risks of the development and to outline mitigatory measures in place;
- Identify any risks to Fire Service access and provisions for firefighting and to outline mitigatory measures in place;
- Present a clear, concise overview of the fire safety design of the development which provides sufficient information to the relevant authorities and duty holders.

Policy D12(B) of The London Plan states that “all major development proposals should be submitted with a Fire Statement, which is an independent fire strategy, produced by a third party, suitably qualified assessor”. Policy D12(B) further specifies that the Fire Statement should detail how the development proposal will function in terms of:

1. The building’s construction: methods, products, and materials used, including manufacturers details;
2. The means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach;
3. Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures, and associated management and maintenance plans;
4. Access for Fire Service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and positioning of equipment, firefighting lifts, stairs and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these;
5. How provision will be made within the curtilage of the site to enable fire appliances to gain access to the building; and
6. Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.

Each of the above points have been considered within this Fire Statement, however, this document outlines the ‘strategy’ for the development only and, therefore, some of the elements noted in Item 1 above (i.e., specific products, materials and manufacturers details) have not been provided within this document, as it is the responsibility of others producing/procuring such information/products to comply with the strategy set out within this Fire Statement and the supporting British Standards.

1.3 Basis of Report

This Fire Statement has been developed based on the following drawings provided by Assael Architecture, as outlined in Table 1.

Table 1 Information on which the Fire Statement is based

Description	Drawings / Document No.	Revision	Date
GA Plans Proposed Basement Floor Drawing	MNR-AA-ALL-B1-DR-A-1999	R21	18/08/2023
GA Plans Proposed Ground Floor Drawing	MNR-AA-ALL-GF-DR-A-2000	R37	18/08/2023
GA Plans Proposed First Floor Drawing	MNR-AA-ALL-01-DR-A-2001	R30	18/08/2023
GA Plans Proposed Second Floor Drawing	MNR-AA-ALL-02-DR-A-2002	R26	18/08/2023
GA Plans Proposed Third Floor Drawing	MNR-AA-ALL-03-DR-A-2003	R25	18/08/2023
GA Plans Proposed Fourth Floor Drawing	MNR-AA-ALL-04-DR-A-2004	R27	18/08/2023
GA Plans Proposed Fifth Floor Drawing	MNR-AA-ALL-05-DR-A-2005	R26	18/08/2023
GA Plans Proposed Sixth Floor Drawing	MNR-AA-ALL-06-DR-A-2006	R26	18/08/2023
GA Plans Proposed Seventh Floor Drawing	MNR-AA-ALL-07-DR-A-2007	R25	18/08/2023
GA Plans Proposed Eighth Floor Drawing	MNR-AA-ALL-08-DR-A-2008	R24	18/08/2023
GA Plans Proposed Ninth Floor Drawing	MNR-AA-ALL-09-DR-A-2009	R24	18/08/2023
GA Plans Proposed Tenth Floor Drawing	MNR-AA-ALL-10-DR-A-2010	R14	18/08/2023

1.4 Limitations

It should be noted that there are some architectural amendments required to the floor plan drawings, mainly to the upper floor levels of the blocks within the Manor Road development. Hydrock have provided comments on how these should be resolved and Hydrock have been assured by the architectural team that these shall be updated and reviewed at the subsequent design stages.

Additionally, there are some deviations from prescriptive guidance within the general arrangements in some aspects, for example for firefighting shaft and evacuation lift discharge. Hydrock have provided justification for why these can be considered acceptable/justifiable however, these would be subject to discussion and agreement with the Approving Authorities as the design develops at the subsequent RIBA stages.

Hydrock have undertaken a review of the latest architectural GA floor plans, as referenced within Table 1, and have been provided the following points for consideration:

General Comment (Multiple Blocks)

- No provision of inlet air for the corridor Mechanical Smoke Ventilation Systems (MSVS) due to a single smoke shaft provided within the corridor and the inward opening stair doors (i.e. unable to obtain inlet air via the AOV at head of stair) – Consideration to be given to the provision of an inlet air shaft or flipping to stair door (to open into corridor) at detailed design development stage.

Block AD

- Cycle store located adjacent to South core to be provided with protected permanently ventilated lobby (not less than 0.4m²) separation from the residential demise (or internal door connection to be omitted).

Block DA

- Missing smoke extract shaft from ground floor however, potential justification on the basis that the two units are provided with multiple possible escape routes and have direct access to outside via their private terrace – To be considered at detailed design stage.

Blocks AC, AD, DA, DB and CA

- Due to close proximity of apartment door to door to escapes stair, there is a concern with the extraction of smoke past the entrance door to the stair as this presents a risk of smoke becoming stagnant and entering the stair enclosure – consultation to be undertaken with smoke control specialist at detailed design stage.

1.5 Single Stair Buildings

The National Fire Chiefs Council (NFCC) Single Staircases Policy – Position Statement (14th December 2022), believes all new residential buildings greater than 18m in height should be provided with two staircases.

The Department of Levelling Up, Housing & Communities (DLUHC) published an open consultation regarding Approved Document B (23rd December 2022), which will likely introduce a threshold whereby residential buildings above 30m in height should be designed and built with two staircases.

The Greater London Authority (GLA) announced (10th February 2023), that all planning applications which involve residential buildings over 30m in height will need to be designed to provide two staircases.

Recently, the Department of Levelling Up, Housing & Communities (DLUHC) will impose a requirement for second staircases on all new buildings that are taller than 18 metres (Michael Gove has confirmed, 24th July 2023).

To align with current industry best practice, and at the request of the client, all blocks which exceed 18m in height within Manor Road will incorporate two staircases.

2. PROJECT OVERVIEW

2.1 Building and Site Description

The site for the proposed residential dwellings within the Manor Road residential development located on the existing Homebase site located at 38 Manor Road, North Sheen, Richmond, London TW9.

The Manor Road is a proposed development consisting of two residential and two mixed-use buildings (also including residential accommodation).

An overview of the proposed development is as follows:

- One building is referenced as 'Block A' and consists of four cores (AA, AB, AC and AD) and three self-contained townhouses.
- One building is referenced as 'Block B' and consists of a single core (BA).
- One building is referenced as 'Block C' and consists of three cores (CA, CB and CC).
- One building is referenced as 'Block D' and consists of two cores (DA and DB).

The building heights of each core can be seen presented within Table 2 below.

Table 2 Summary of residential block heights

Core	Number of Storeys	Height of top storey above ground level (m) ^[1]
AA	8	23.5 m
AB	4	10.2 m
AC	4	10.2 m
AD	8	23.8 m
BA	11	31.8 m
CA	10	29.7 m
CB	8	23.1 m
CC	8	23.1 m
DA	4	10.0 m
DB	8	23.7 m

Notes:

1. For the purposes of the Fire Safety Statement, this is used to inform the height of each building. These have been rounded to one decimal place for simplicity (building heights as per email confirmation received on 20.12.2022).

Figure 1 is an illustrative diagram reflecting the siting of the respective proposed buildings/units within the development.

The site is located in Richmond and sits between Manor Road, the North London railway line and the South Western railway line, this can be seen illustrated in Figure 1.



Figure 1 Site illustration

Across the different blocks, four different types of residential units are provided. These can be summarised as follows:

- Open-plan: These units are provided with bedrooms (enclosed sleeping areas) which are accessed directly off a kitchen/lounge (or similar non-sleeping area) and which are not provided with an alternative means of escape.
- Studio: A studio unit is provided with a shared living and sleeping area with no internal partitioning (except for enclosing bathrooms and storage areas).
- Entrance hallway: These units are provided with an entrance hallway, from which all areas of the flat are accessed (i.e., bedrooms, kitchens, living areas etc.).
- Houses: This is typically a multi-level unit with an internal staircase

The breakdown of each storey and building can be summarised as follows:

Block A

- Ground floor: the ground floor consists of all of the different types of residential units and ancillary accommodation such as cycle stores and refuse stores. The floor also contains commercial floor space.
- Upper levels: the upper levels consist of open-plan, studio and entrance hallway flats.

Block B

- Ground floor: the ground floor consists of two flats (one open-plan and one with an entrance hallway) and ancillary accommodation such as cycle stores and a refuse store.
- Upper levels: each of the upper levels consist of one and two-bedroom flats served by communal lobbies providing access to the two protected stairways.

Block C

- Ground floor: the ground floor consists primarily of one-bedroom flats and ancillary accommodation such as cycle stores and refuse stores.
- Upper levels: the upper levels consist primarily of one and two-bedroom flats. Level 07 also contains a roof terrace which connects cores CA and CB.

Block D

- Ground floor: the ground floor consists primarily of one and two-bedroom flats and ancillary accommodation such as cycle stores and refuse stores. The floor also contains commercial space.
- Upper levels: the upper levels consist primarily of one and two-bedroom flats.

Following the Government's announcement in July 2023 confirming the intention to mandate second staircases in new residential buildings above 18 metres, the proposals have been revised to ensure all buildings above 18 metres meet these standards and present the highest standard of fire safety.

This has been accommodated through internal changes, including improving the efficiencies of circulation space and reductions in unit sizes, and minor external changes, including marginal increases in building footprint. The full extent of the changes are set out in the accompanying DAS Addendum, but are summarised as follows:

- **Block A, Core A:** a 450mm (or 45cm) extension in footprint to the south;
- **Block A, Core AD:** a 225mm (or 22.5cm) extension in footprint to the south;

- **Block B:** a 112.5mm (or 11.25cm) extension in footprint to the south and a 112.5mm (or 11.25cm) extension to the north;
- **Block C, Core A:** a 225mm (or 22.5cm) extension in footprint to the north and north-east and a 112.5mm (or 11.25cm) extension to the east;
- **Block C, Core C:** an infill of the recessed part of the façade to the south-east;
- **Block D, Core B:** a 225mm (or 22.5cm) extension to the north and north-west.

The extensions in footprint have been accommodated to facades facing into the central landscaped area of the Site. There are no extensions in footprint proposed to the façades facing the site boundaries and, as such, there are no reductions in the distance of the proposed buildings to neighbouring residential receptors.

The footprint extensions have led to minor changes to the elevations of the affected blocks. The total floorspace of the proposed development has increased by 2,037.2 sqm (GIA). The number of homes and mix of unit types remains unchanged.

The ancillary accommodation provided at ground floor within the respective block of the development, other than Block AA, AD and B, are provided with direct access from outside/open stair.

It is noted that Blocks A and D contain flexible floor space and are sufficiently sized to accommodate a minimum of two and four individual units respectfully. However, it is acknowledged that these units are designed as shell and core and the number of end units will depend on tenant requirements.

At fit-out stage, the tenant should undertake an analysis to ensure that sufficient exits and escape routes are available based on the maximum likely number of occupants and number of units occupied by such tenant.

The location of each block on the Manor Road site can be seen illustrated in Figure 2.

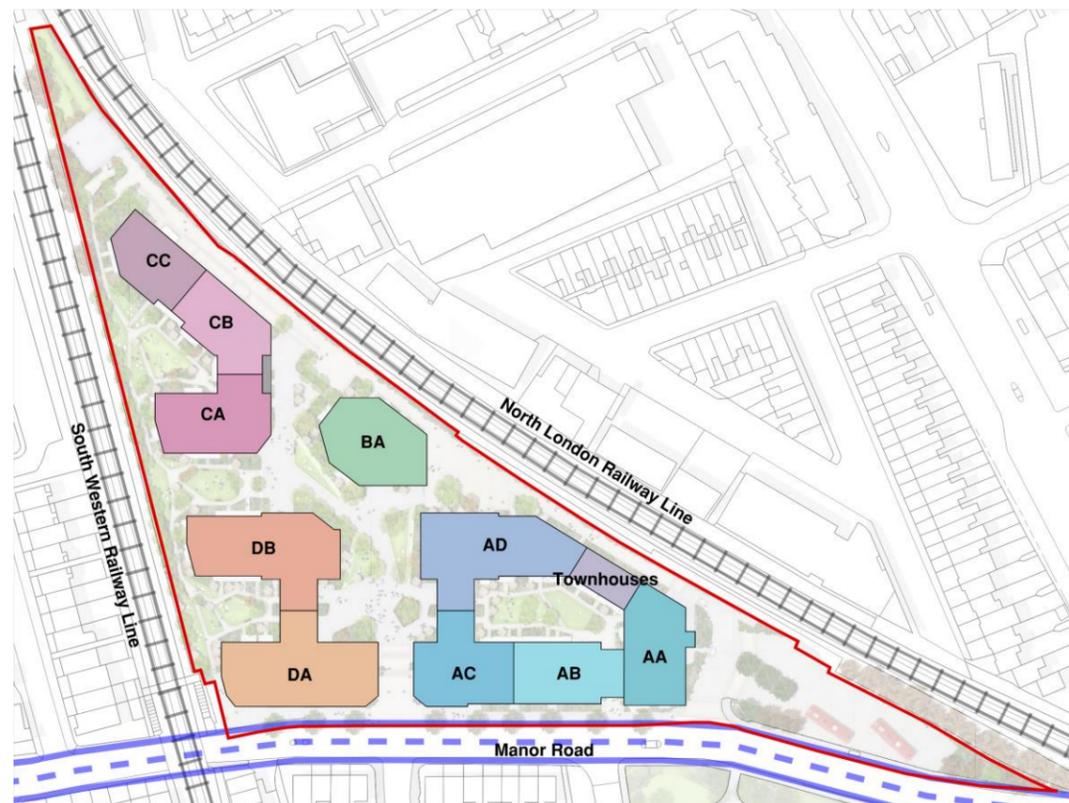


Figure 2 Site block plan

3. MEANS OF WARNING AND ESCAPE

This section of the Fire Statement is aimed at providing information in regard to the means of escape for occupants. In accordance with the London Plan 2021, the proposed means of escape satisfies the policy requirements as indicated in Table 3.

Table 3 Means of escape London Plan policy references

Policy Reference	Policy Requirement
Policy D12 – Clause A1	[Development proposals must ensure that they] identify suitably positioned and unobstructed outside space: <ul style="list-style-type: none"> For fire appliances to be positioned on (See section 6.1) Appropriate for use as an evacuation assembly point
Policy D12 – Clause A4	[Development proposals must ensure that they] provide suitable and convenient means of escape, and associated evacuation strategy for all building users.
Policy D12 – Clause A5	[Development proposals must ensure that they] develop a robust strategy for evacuation which can be periodically updated and published, and which all building users can have confidence.
Policy D12 – Clause B2	[The Fire Statement should detail how the development proposal will function in terms of] 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.
Policy D12 – Clause 3.12.5	Developments, their floor layouts and cores need to be planned around issues of fire safety and a robust strategy for evacuation from the outset, embedding and integrating a suitable strategy and relevant design features at the earliest possible stage, rather than features or products being applied to pre-determined developments which could result in less successful schemes which fail to achieve the highest standards of fire safety.
Policy D12 – Clause 3.12.7	The provision of stair cores which are suitably sized, provided in sufficient numbers and designed with appropriate features to allow simultaneous evacuation should also be explored at an early stage and provided wherever possible.
Policy D5 – Clause B5	[Development proposals should] be designed to incorporate safe and dignified emergency evacuation for all building users. In all developments where lifts are installed, as a minimum at least one lift per core (or more subject to capacity assessments) should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building.

3.1 Evacuation Strategy

The evacuation strategy for the residential units is based on a ‘stay-put’ evacuation strategy where only the occupants within the unit of fire origin are to be alerted/evacuate and all other occupants within the building are to remain in place, unless they are directly affected by fire or smoke.

This does not preclude the event that occupants may self-evacuate at any time, should they wish to do so. Any additional evacuation is at the discretion and direction of the London Fire Brigade where they feel it is necessary to do so during operational procedures.

Any occupants situated on the communal terraces and the commercial units (or any other non-residential areas of the buildings) are to evacuate simultaneously upon detection (i.e., all occupants proceed to evacuation upon sounding of alarm).

3.1.1 Provisions for Disabled Occupants

Evacuation Lifts

An evacuation lift is to be provided within each block of the Manor Road, Richmond development which shall serve all upper floor levels/storeys of the block in which they are provided.

In accordance with the recommendations of the London Plan (Policy D5 – Clause B5), development proposals should be designed to incorporate safe and dignified emergency evacuation for all building users. In all developments where lifts are installed, as a minimum at least one lift per core (or more subject to capacity assessments) should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building.

Where blocks exceed 18m in height and are provided with two stair cores, it is deemed reasonable to consider that a single fire evacuation lift, forming part of the primary stair core, would be considered acceptable and would be sufficient to serve the escaping occupants given the implementation of a ‘stay put’ evacuation policy, meaning that the occupants of the flat of fire origin need only escape – **This would be subject to discussion and agreement with the GLA.**

Evacuation lifts are to be designed and provided in accordance with the guidance of Annex G of BS 9999: 2017, and be designed and installed in accordance with BS EN 81-76: 2019.

The evacuation lifts are to be designed to meet the following requirements:

- The evacuation lifts are to remain operational during a fire and can be operated independently by an occupant, without management override;

- A secondary power supply is to be provided to the evacuation lifts to ensure the lifts remains available for use in the event of loss of power.

3.2 Horizontal Means of Escape

The following sections present the initial planning conditions which are deemed to satisfy the means of horizontal escape from the proposed residential development within the Manor Road, Richmond scheme.

3.2.1 Residential Units – Internal Layouts

Single-Level / Open-Plan Flats

All single-level residential units/apartments within the Manor Road development are to be designed in accordance with the recommendations of subclause 9.7 of BS 9991:2015 and considered as “open-plan flats”. These units are to be provided with Category LD1 fire detection and alarm system in accordance with BS 5839-6:2019 + 2020 and an AWFSS (i.e., sprinklers in accordance with BS 9251: 2021 or water mist in accordance with BS 8458: 2015).

Open-plan flats are also to meet the following requirements:

- The size of the flats should not exceed 16m x 12m (192m²);
- The flats should be situated on a single level only;
- The ceiling height within the flats should be at least 2.25m;
- Occupants are to be capable of independent evacuation/escape;
- Kitchen within flats exceeding 8m x 4m (32m²) should be enclosed. Kitchen within flats less than the 8m x 4m area need not be enclosed. However, the cooking facilities should not be located adjacent to the flat entrance door (i.e., they should be located remote from the escape routes from the units).

Research conducted by NHBC on the design of open-plan flats concluded that the size of flats does not make a great deal of difference in the time needed to escape. Travel distances within large flats may be longer, larger flats will also increase the duration of tenable conditions due to the enlarged volume (i.e., longer period to smoke fill time) and where kitchens are unenclosed, the activation time of any detectors is expected to be quicker.

Therefore, despite the arrangement of some of the open-plan flats within the Manor Road development deviating from the recommendations provided within BS 9991:2015 they do align with apartment types forming part of researched by NHBC etc., thus they are considered to satisfy the function requirements of the

Building Regulations 2010 (as amended). **The provision of the unenclosed kitchen/cooking area in flats greater than 8m x 4m requires agreement with the Approving Authorities.**

Townhouse / Dwellings Houses

It is acknowledged that there are a number of townhouse dwellings located within block A of the Manor Road development. Where these dwellings are provided with more than one floor level, they are to be designed to meet the recommendations of clause 6 of BS 9991:2015.

Where single storey/level dwellinghouses are provided, they shall meet the recommendations outlined within subclause 9.4.2 of BS 9991:2015. They shall be treated as flats accessed on the same level and be provided with 30-minutes fire resisting construction between the living and sleeping areas of the flat with an alternative exit provided from the bedroom area. This can be seen illustrated in Figure 3.

Where dwellinghouse consist of two or more storeys with a floor level greater than 4.5m above ground level, they are to be designed and provided with internal staircase that is constructed as a protected escape stairs achieving a minimum fire resistance of 30-minutes and provided with FD30 fire doors.

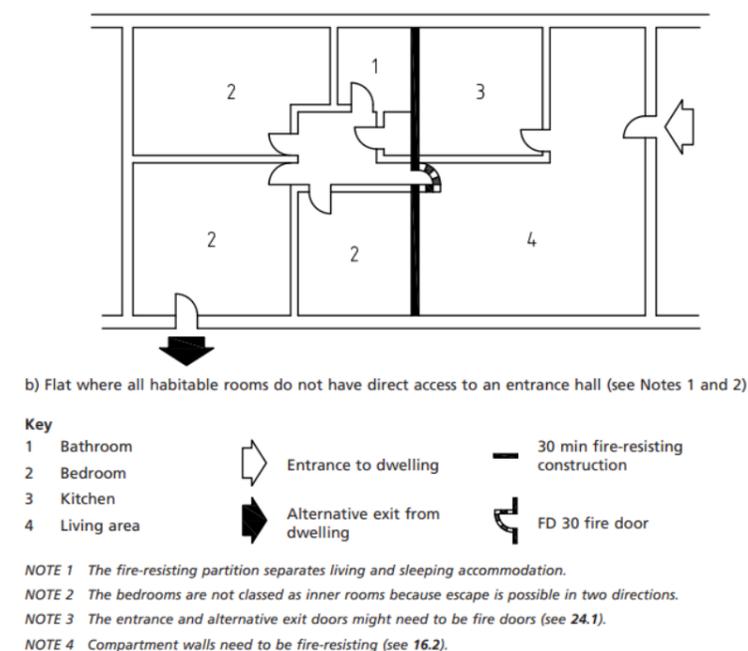


Figure 3 Flats provided with alternative means of escape from bedroom

3.2.2 Residential Units – Common Lobbies / Corridors

The cores within the respective blocks of the Manor Road development shall either be provided with two protected escape stairs or, a single protected escape stair where the block does not exceed 18m in height. The common stairs and escape routes of the residential demise shall be designed in accordance with the relevant recommendations of BS 9991:2015.

Small single stair buildings

Small single stair buildings are defined as single stair buildings that do not have a storey at a height greater than 11m and have no more than three storeys above the ground storey. Therefore, cores AB, AC and DA are considered small single stair buildings.

As such, in accordance with Figure 8a) and subclause 14.1.2 of BS 9991:2015, the maximum permissible distance within the common lobby is 4.5m. However, where the travel distances exceed 4.5m, the buildings are to be treated and designed as single stair buildings with a floor more than 11m above ground.

Single stair buildings with a floor level more than 11m above ground

For single stair buildings with floor levels more than 11m above ground, but not more than 18m, the common corridor arrangement is to follow the recommendations presented in Figure 6 of BS 9991:2015. This can be seen illustrated in Figure 4 below.

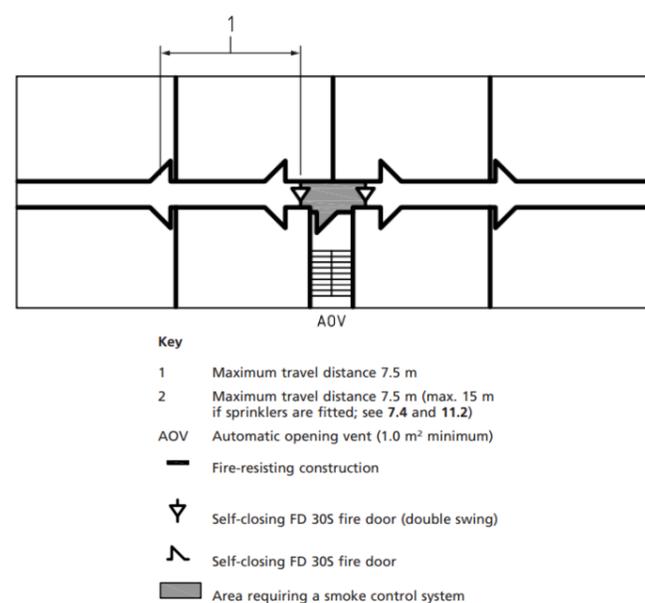


Figure 4 Dwellings provided with corridor access (Single stair buildings)

All residential units on the upper levels of the buildings that do not exceed 18m in height, shall be accessed via a common residential corridor. However, the travel distances within the corridors exceed 7.5m, or in some instances, 15m, where sprinklers are provided to the residential apartments.

Therefore, mechanical smoke ventilation shall be provided to the common residential corridors to justify the extended travel distances beyond the permissible travel distance limits outlined above. This shall be undertaken by the system designer (smoke control specialist) at detailed design stage to demonstrate that the system is sufficient/appropriate to maintain tenable conditions within the corridor for the duration of means of escape and firefighting operations.

The results of the CFD analysis shall be analysed in accordance with the criteria outlined within the SCA (Smoke Control Association) Guidance (“Guidance on Smoke Control to Common Escape Routes in Apartments”, Rev 3.1, July 2020).

Single stair buildings with a floor level more than 18m above ground

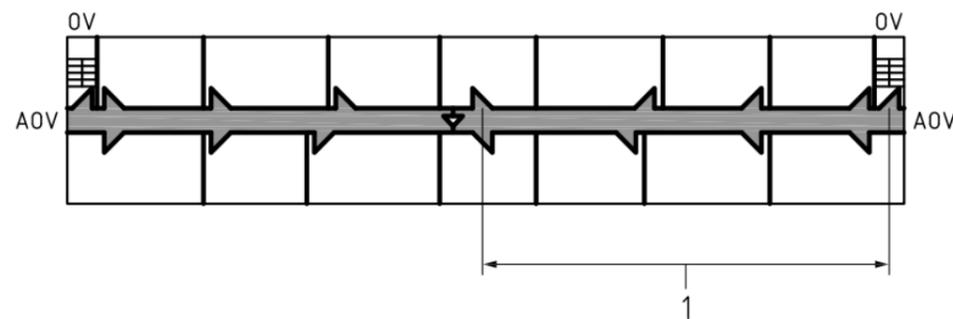
The Greater London Authority (GLA) has consistently expressed concerns that the fire safety requirements in the national Building Regulations are not fit for purpose. The GLA has strongly supported the proposed strengthened requirements and clear direction at the national level by the Department for Levelling Up, Housing and Communities and Lee Rowley MP (Published 23 December 2022).

The GLA recognise that the earlier statement by the National Fire Chiefs Council (NFCC), published on 14.12.2022, referenced all new high-rise residential buildings over 18 metres or seven storeys in height are to have more than one staircase.

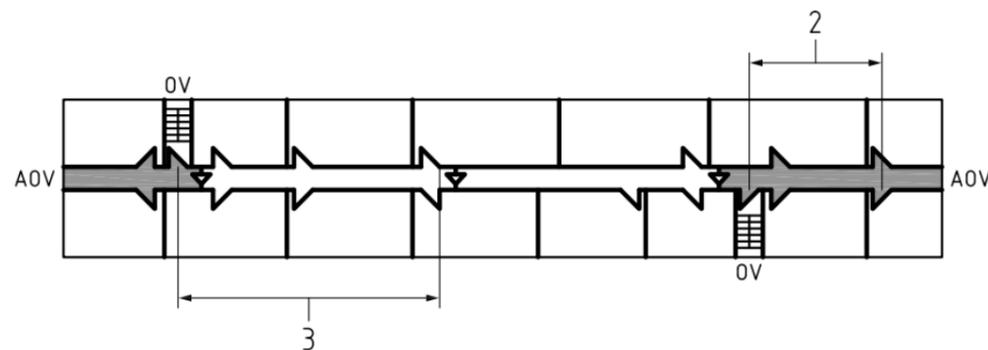
Furthermore, following a recent announcement from Michael Gove, the Secretary of State for the Department for Levelling Up, Housing and Communities (DLUHC) on 24th July 2022, which outlines any residential buildings that have a floor level of greater than 18m above ground level are mandated to be provided with second escape stairs.

Although a date or timeline from the implementation and enforcement of this mandate has not yet been released, at the request of the client, all residential blocks/buildings within the Manor Road, Richmond development that exceed 18m in height shall be provided with two protected escape stairs to future proof the design align with upcoming changes in legislation for buildings of which height.

Therefore, all blocks within the Manor Road development that exceed 18m in height, shall be designed as buildings having common escape routes in multi stair buildings are outlined within Figure 7 of BS 9991: 2015, which can be seen outlined within Figure 5 below.



a) Dwellings with corridor access and without dead ends



b) Dwellings with corridor access and with dead ends (see Note 1)

- Key**
- 1 Maximum travel distance 30 m (max. 60 m if sprinklers are fitted; see 7.4 and 11.2)
 - 2 Maximum travel distance 7.5 m (max. 15 m if sprinklers are fitted; see 7.4 and 11.2)
 - 3 Maximum travel distance 30 m
 - 4 Maximum travel distance 7.5 m
 - AOV Automatic opening vent (1.5 m² minimum)
 - OV Openable vent for fire and rescue service use (1.0 m² minimum)
 - Self-closing FD 30S fire door (double swing)
 - Self-closing FD 30S fire door
 - Area requiring a smoke control system

Sprinkler systems used to permit extended travel distances should be in accordance with BS 9251:2014 or BS EN 12845 (see 7.4 and 11.2, Table 2).

NOTE 1 The central fire door may be omitted where the maximum travel distance does not exceed 15 m.

NOTE 2 Where all dwellings on a storey have independent alternative means of escape, there are no limitations on travel distance. All parts of the building, however, need to be within 45 m of a fire main, measured along a line on which hose can be laid.

NOTE 3 The openable vents to the stairway may be replaced by an openable vent over the stair.

NOTE 4 The arrangements shown also apply to the top storey.

Figure 5 Common escape routes in multi stair buildings

3.2.3 Ancillary/Non-Residential Areas

On the ground floor of each block within the Manor Road development, ancillary areas (engineering services/plant rooms, storage rooms, boiler rooms etc.) are provided. In addition to this, within Blocks A (Core AC) and D, flexible independent commercial spaces are provided, the number of which shall be determined by tenants needs/requirements during fit-out.

The ancillary/non-residential areas located at ground floor within all the respective blocks, with the exemption of Blocks AA, AD and B, are provided with direct access from external and open-air with no internal connection between the residential demise and the ancillary accommodation.

The means of escape provisions to these ancillary areas within the Manor Road development shall be provided as per the following subsections of this report.

3.2.3.1 Travel Distances

The travel distances within the ancillary areas of the residential demise of the buildings shall be in accordance with those outlined within Table 14 of BS 9991:2015 which can be found illustrated in Table 4 below.

Table 4 Maximum permitted travel distances; Ancillary Accommodation

Area / Space	Maximum Permitted Travel Distance (m)			
	With Only One Escape Route Available		With Alternative Escape Routes Available	
	Layout Known	Layout Unknown	Layout Known	Layout Unknown
Plant Room (High Risk)	9m	18m	18m	45m
Plant Room (Low Risk)	18m	45m	18m	45m
Cycle Store	18m	45m	18m	45m
Refuse Room	18m	45m	-	-

The maximum permissible travel distances within the independent/standalone commercial units provided within Block A and D of the Manor Road development shall be in accordance with the relevant risk profile from BS 9999: 2017. This can be seen outlined within Table 5 below.

Table 5 Maximum permitted travel distances of commercial units (BS 9999)

Area / Space	Risk Profile	Maximum Permitted Travel Distance (m)			
		Single Escape Route		Alternative Escape Route Available	
		Layout Known	Layout Unknown	Layout Known	Layout Unknown
Commercial Units	B2 ^[1]	20m	13m	50m	33m

Notes:

1. Reduced from risk profile B3 on the basis of the area being provided with a BS EN 12845 sprinkler compliant system.

3.2.3.2 Number of Escape Routes

In the event of a fire within the building, occupants should be provided with sufficient number of exits to ensure a prompt evacuation of the building prior to escape routes becoming blocked by the effects of fire and/or smoke.

In accordance with subclause 16.3.1 and Table 10 of BS 9999:2017, where more than 60 people are likely to be present within a space at one time, a minimum of two escape routes should be provided. The minimum number of escape routes required, depending on the number of occupants served, can be seen outlined within Table 6 below.

Table 6 Minimum number of escape routes

Maximum Number of Occupants	Minimum Number of Escape Routes / Exits
Up to 60	1
61 - 100	2
More than 600	3

It has been determined, using floor space factors, that none of the ancillary areas within the residential demise of the Manor Road development are likely to have an occupancy greater than 60 people at any one time.

On this basis, a single escape route would be permissible from all the ancillary areas within the Manor Road development and can be considered acceptable.

3.2.3.3 Minimum Required Exit Widths

In accordance with BS 9999:2017 exit widths are to be:

- Not less than required to serve the expect occupancy; and
- Not less than 850mm where unassisted wheelchair access is necessary; and
- Not less than 800m where unassisted wheelchair access is not necessary.

All escape doors from rooms are to achieve an effective width of at least 850 mm (or 800 mm where the door may be expected to solely serve able-bodied persons; e.g., maintenance access only). Where the occupancy of a room may be expected to exceed 60 persons, it should be ensured that the provided door width is sufficient to serve the expected occupancy and that the door is arranged to open in the direction of escape.

However, as previously stated, none of the rooms or ancillary spaces within Manor Road are expected to have a maximum occupancy over 60 persons.

3.2.4 Fire Alarm and Detection

The fire detection and alarm system (covered in section 4.1 – Active Fire Safety Measures) will have interfaces and links as necessary to operate equipment/devices so as to not impede on the safe escape of occupants.

3.3 Vertical Means of Escape

3.3.1 Protected Escape Stairs

A protected stairway needs to be relatively free of potential sources of fire and be maintained as a sterile area. In accordance with subclause 21.1 of BS 9991:2015, access hatches should be situated within an escape stair unless provided with means of smoke control or pressurisation within the stair enclosure itself.

3.3.2 Stair and Evacuation Lift Discharge

In accordance with clause 34 of BS 9991:2015, residential escape stairs are to discharge directly to the external or via a protected route which is lobby protected from all adjacent accommodation. Due to the provision of evacuation lifts within the Manor Road development, a protected discharge route from the lifts is also to be designed to ensure that lifts can be safety used by occupants.

In blocks where two common escape stairs are adjoining or, where exit passageways from two common escape stairs adjoin one another, they should be separated by imperforate construction (i.e. there should be no openings, doors, etc.) in the separating element common to both stairs and their associated passageways.

It is noted that discharge from the primary escape stairs/cores incorporating evacuation lifts in a number of cores, including cores AA, AC, AD, DA and DB (see Figure 2), are to an external space beneath an external undercroft area. The scenario/arrangement is considered acceptable as the external undercroft areas are

considered to be well-ventilated spaces, achieved by the open fencing provided to its perimeter on either end of the external undercroft area. Additionally, the route from the protected cores remains enclosed in at least 60-minute fire rate construction (or 120-minute where a firefighting shaft is provided). **This arrangement is considered acceptable, but would be subject to discussion and approval with the Approving Authorities.**

The evacuation lift within Block B discharges into the same common corridor as a residential apartment unit and a number of ancillary areas, which are provided with protected lobby separation. This is considered a deviation from prescriptive guidance which states that evacuation lifts should discharge into a protected sterile space or directly to the outside. However, Hydrock deem this arrangement to be acceptable on the basis that within a prescriptively compliant common corridor arrangement, for a single stair above 11m in height, there is an allowance for a 7.5m travel distance through an unventilated portion of common corridor before an occupant reaches a ventilated lobby in front of the stair.

Therefore, by extension, there is a prescriptive arrangement which allows escaping occupants to be exposed to a smoke-filled corridor for a travel distance up to 7.5m.

Hydrock would deem the proposed arrangement to be acceptable on the basis that the building is served by two escape stairs, the ancillary areas shall be separated from the residential demise via a permanently ventilated (minimum 0.4m²) protected lobby and the common residential corridors shall be served by mechanical smoke ventilation extract systems that shall be capable of maintaining tenable conditions with the corridor for an extended period of time suitable for means of escape.

Discharge routes from evacuation lifts should be maintained as sterile areas, free from any potential sources of fire and have no service risers opening into them. It is suggested that the location of service risers in a number of cores are reconsidered at a detailed design stage. Where these cannot be relocated, they are to be separated from the discharge route via fire rated construction and kept locked at all times when not in use or when access is not required.

3.3.3 *Escape Stair Arrangement*

Single escape stairs serving residential units in buildings greater than 11m in height, but less than 18m, are deemed acceptable, provided that the travel distances within the common areas of the building (i.e., residential corridor or lobby) are limited and/or appropriate means smoke ventilation are provided to the common escape routes in accordance with the recommendations of BS 9991:2015.

In accordance with Clause 38 of BS 9991:2015, where a common escape stair forms part of the only escape from a residential floor level, unless it is designated as a “small single stair building” (i.e., building with no storey

height greater than 11m or no more than three storeys above ground having a single escape stair) as per Subclause 7.5 of BS 9991:2015, it should not serve any ancillary accommodation or areas of a similar fire risk.

In accordance with subclause 7.5 of BS 9991:2015, it is considered acceptable for a single stair in a “small single stair building” to serve ancillary accommodation, if these spaces are separated from the stair by a protected lobby that is provided with permanent ventilation of not less than 0.4m² for the prevention of smoke ingress, or be protected by a mechanical smoke control system alternative.

However, following recent consultation with the Health & Safety Executive (HSE), the connections between ancillary accommodation and escape stairs, providing the only means of escape from buildings (i.e. single escape stair conditions) was flagged as a risk. As a result of this consultation, all ancillary accommodation within blocks containing single escape stairs have been redesigned to be accessed direct from outside/external, as such there are no connections between ancillary accommodation and residential demise.

All the ancillary areas that within the ground floor within the residential blocks including those that are provided with two escape stairs, with the exemption of Block AA, AD and B, are accessed directly from outside/open-air with no connection to the residential demise.

Following the recent announcement from Michael Gove, the Secretary of State for the Department for Levelling Up, Housing and Communities (DLUHC) on 24th July 2022, which outlines any residential buildings that have a floor level of greater than 18m above ground level are mandated to be provided with second escape stairs to comply with the requirements of London Plan Policy D12 and achieve the highest level of fire safety.

There all blocks that exceed 18m in height (Cores AA, AD, BA, CA, CB, CC and DB), shall be provided with a minimum of two internal protected escape stairs.

Additionally, as all blocks greater than 18m in height are now provided with two protected escape stairways, the connections between ancillary accommodation and the residential demise are permitted at ground floor. Connections between the ancillary accommodation and the residential demise currently only exist in the Block AA, AD and B building of the Manor Road development.

This is considered acceptable on the basis that the ancillary accommodation shall be separated from the residential demise by permanently ventilated protected lobbies (having not less than 0.4m² permanent ventilation or mechanical alternative), the buildings are provided with automatic sprinkler protection and the residential common corridors are served by a mechanical smoke ventilation system that shall be capable of maintaining tenable conditions.

The proposed arrangements for each core are considered acceptable based on the implementation of design changes to the arrangements outlined within fire safety comments provided to the design team.

3.3.4 Required Stair Width

The unobstructed clear width (measured between the walls and/or balustrades) of each common stair is not to be less than 750mm, with this being increased to 1100mm where the stair is required to be a firefighting stair. The clear width should be kept clear for vertical height of minimum 2.00m.

As all escape stairs, except those within Blocks AB, AC and DA, within the Manor Road development are required to be firefighting stairs, they are to achieve a minimum clear width of 1100mm. Based on the measurement obtained from the latest floor plans, this appears to be achieved and is therefore acceptable.

All stairs are to be constructed in accordance with BS 5395-1: 2010 and have flights and landings constructed of materials of limited combustibility (Class A2-s3, d2) or better in accordance with BS EN 13501-1: 2018.

3.4 Evacuation Assembly Points

In principle, assembly points should be located sufficiently far from the premises to minimise interference with the Fire and Rescue service or danger from falling debris but should be accessible and not so far away as to discourage people from assembling. The assembly points will adhere to the following guidelines:

- Escape routes will allow for possible egress in cold weather as well as day and night-time conditions. i.e., emergency lighting on escape routes and suitable illumination of the assembly point.
- Final exit will not present an obstacle to wheelchair users and other people with disabilities. Where a final exit is accessed without the need to first traverse steps, then a level threshold and, where necessary, a ramp will be provided.
- Final exits will be apparent to persons who may need to use them. This is particularly important where the exit opens off a stair that may continue down, or up, beyond the level of the final exit.
- Final exits will be sited so that they are clear of any risk from fire or smoke in a basement (such as the outlets to basement smoke vents), or from openings to transformer enclosures, refuse chambers, boiler rooms and similar risks.
- A back up assembly will be established for use in the event that the primary location cannot be used.

The indicative/suggested location of the fire assembly points are marked up on the proposed site plan and can be seen illustrated in Figure 6.

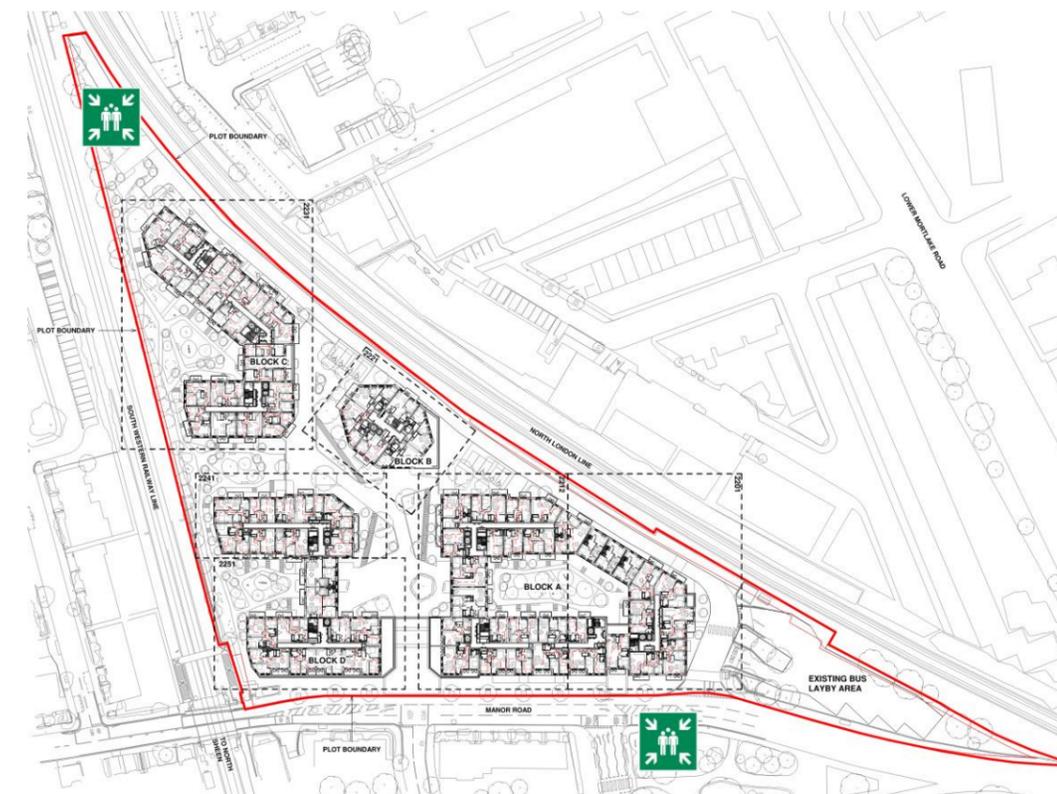


Figure 6 Illustrative Assembly points

It should be noted that the illustrated assembly points are for indicative purposes only however, it should be noted that the location of these would be the responsibility of the client and will require confirmation by the client at a later stage.

4. ACTIVE FIRE SAFETY MEASURES

This section of the Fire Statement is aimed at providing information in regard to the active fire safety measures recommended for the development. In accordance with the London Plan 2021, the proposed active fire safety measures satisfy the policy references as indicated in Table 7.

Table 7 Active fire safety measures London Plan policy references

Policy Reference	Policy Requirement
Policy D12 – Clause A2	<i>[Development proposals must ensure that they] are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire; including appropriate fire alarm systems and passive and active fire safety measures.</i>
Policy D12 – Clause B3	<i>[The Fire Statement should detail how the development proposal will function in terms of] features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans.</i>

4.1 Fire Detection and Alarm Systems

The fire detection and alarm systems that are to be provided within the various areas of the Manor Road development can be seen outlined within the following subsections of this report.

4.1.1 Residential Flats

All open-plan residential apartments/dwellings are to be provided with a Category LD1 fire detection and alarm system designed, installed and commissioned in accordance with BS 5839-6: 2019. The Category LD1 system is specified to provide detection coverage in all areas of the flats, except for bathrooms.

As the properties within the Manor Road development may be intended for rental usage, it is proposed to install a Grade D1 system within all flats/apartments. In accordance with clause C.6 of BS 5839-6:2019, Grade D1 systems consist of one or more mains-powered smoke and/or heat alarms, each with a sealed-in standby supply consisting of a battery or batteries.

4.1.2 Dwellinghouses

All three-storey dwelling houses are to be provided with a Grade D Category LD1 detection and alarm system. This system allows for increased future flexibility whereby it is possible to rent the units to tenants. This system is to be designed, installed, maintained, and commissioned in accordance with BS 5839-6:2019.

4.1.3 Communal Residential Areas

It is proposed to provide a Category L5 fire detection system within the common residential areas (i.e., residential common corridors, stairs, and stair discharge routes/lobbies). The purpose of this system is to activate any relevant smoke ventilation systems in a fire scenario.

Therefore, no sounders are to be provided in the communal residential areas (corridors and stairs). The fire detection and alarm system is to be designed and installed in accordance with BS 5839- 1:2017. Sounders and flashing beacons are to be provided on communal roof terraces, which are linked to the Category L5 fire detection system provided within the residential access corridor.

4.1.4 Evacuation Alert System

Whilst not a current requirement for the purposes of complying with BS 9991:2015, Hydrock would recommend the design team consider an evacuation alert system (EAS) that allows the Fire Service to facilitate evacuation of the full building/block from the ground floor upon the Fire Service’s discretion.

This system will be designed in accordance with BS 8629:2019 (Code of practice for the design, installation, commissioning and maintenance of evacuation alert systems for use by fire and rescue services in buildings containing flats).

4.1.5 Residential Ancillary Accommodation

In accordance with the minimum requirements of BS 5839- 1:2017 and BS 5839-6: 2019, it is not necessary to provide a fire detection and alarm system in the ancillary accommodation areas. However, it is recommended to provide Category L2 fire detection and alarm coverage to the following ancillary areas:

- Cycle stores;
- Internally access plant rooms;
- Refuse stores;
- Store rooms.

Each group of connected ancillary areas within each residential block of the Manor Road development will form a single alarm and evacuation zone. Non-communicating areas do not need to form part of the same alarm zone.

This is to be developed upon by the electrical engineer and fire alarm specialist sub-contractor as part of the cause and effect of the fire detection and alarm system.

4.1.6 Commercial Units

In accordance with Table 7 of BS 9999: 2017, a Category L2 fire detection and alarm system designed, installed and commissioned in accordance with BS 5839-1: 2017 shall be provided within each commercial unit, subject to fit-out of the unit.

4.2 Smoke Ventilation

4.2.1 Residential Common Corridors

A mechanical smoke ventilation system has been adopted for all corridor arrangements throughout the Manor Road development as a mitigation for the extended single travel distances within the common corridors, which exceed the permissible limits within prescriptive guidance. The specified system installed within the corridors shall be appropriate to ensure that tenable conditions are maintained for an adequate period of time during means of escape and firefighting operations phases.

Additionally, in accordance with industry best practice, the mechanical smoke extract systems should be designed so that the system does not extract smoke from an apartment fire past the door to the stair, as this increases the risk of smoke entering into the stair enclosure. This shall be considered and justified via a CFD modelling analysis, undertaken by a specialist sub-contractor at a later design stage.

CFD modelling for the mechanical smoke extract systems in the residential common corridors is to be undertaken to demonstrate a suitable level of fire safety has been achieved for the arrangement. Typically, this is to be undertaken by the specialist sub-contractor at a later design stage.

The type of mechanical smoke ventilation systems within the Manor Road development shall vary depending on the common corridor configurations within the respective blocks and number of shafts provided but shall consist of the following types of systems:

- Single shaft mechanical system (inlet air provided via AOV at head of stair);
- Double shaft mechanical system (inlet air provided from natural shaft with mechanical extract);
- Double shaft mechanical system (push/pull system – two mechanical shafts).

It is suggested that early consultation with the smoke control specialist is undertaken to ensure that the configuration and location of the smoke shafts are suitable to provide an appropriate system capable of maintaining tenable conditions within the corridors.

In accordance with subclause 14.2.4 of BS 9991:2015, the proposed mechanical smoke ventilation system should be verified by Computation Fluid Dynamics (CFD) analysis. The CFD analysis and smoke ventilation specifications/performance criteria shall be provided at a later design stage. The smoke ventilation system should also comply with the recommendations of the SCA (Smoke Control Association) Guidance (July 2020).

4.2.2 Ground Floor Lobbies (Ancillary Accommodation)

In accordance with clause 32 of BS 9991:2015, it may be considered acceptable for a stair to serve ancillary accommodation that is considered 'low to medium risk' with respect to fire load, provided that a protected lobby is provided at that level with permanent ventilation of not less than 0.4m².

In accordance with Clause 47 of BS 9991:2015, rooms provided for the storage of refuse should be approached internally only by way of a protected lobby having not less than 0.2m² of permanent ventilation.

It is noted that in most instances within the residential blocks, the buildings have been designed such that there are no connections between the ancillary accommodation and the residential demise, and all ancillary accommodation is accessed directly from outside following recent consultation with the HSE. Therefore no blocks regardless of height, with the exemption of Block B, contain no connections between the ancillary/non-accommodation and residential demise as they are all accessed direction from outside/open-air.

In accordance with Clause 37 of BS 9991:2015, ancillary accommodation should be separated from any stair by way by a protected lobby/corridor at the storey on which the accommodation is situated. Therefore, the protected stairways within the blocks that are greater 18m in height and provided with two escape stairs are permitted to connect to the ancillary accommodation provided the following are provided: permanently ventilated (not less than 0.4m² or mechanical equivalent) protected lobby separated between the demises, the buildings are provided with sprinkler protection, the buildings are provided with two escape stairs and the residential corridors (to which the ancillary accommodation connects) are served by a mechanical smoke ventilation system, capable of maintaining tenable conditions.

It should be noted that connections between the residential demise and ancillary accommodation only currently exist within Blocks AA, AD and B of the Manor Road development.

4.3 Emergency Signage

Escape signage is to be provided throughout the buildings designed and installed in accordance with BS 5499:2013. Signage utilised throughout the buildings is to be consistent and in accordance with BS ISO 3864-1:2011.

4.4 Emergency Lighting

Emergency lighting is to be provided throughout the development designed, installed and commissioned in accordance with BS 5266-1:2016.

4.5 Automatic Water Fire Suppression Systems (AWFSS)

Although BS 9991:2015 does not currently incorporate the amended requirements of sprinkler protection to residential buildings announced by the MHCLG, now known and referred to as DLUHC, which are provided in ADB1:2020. ADB1:2020 specifies that in buildings with a top storey more than 11m above ground level, a suitable automatic sprinkler system is to be provided 'throughout the building'; this includes all non-residential and ancillary areas.

Therefore, each block within the Manor Road development is to be provided with a Category 4 sprinkler system designed, installed, commissioned and maintained in accordance with BS 9251:2021.

It is not generally considered necessary to provide sprinkler protection to entrance lobbies as these are considered protected and sterile circulation routes; however, this relies on robust management strategies to ensure that these areas are retained as sterile.

Clause 5.4 of BS 9251:2021 specifically allows for omission of sprinklers to 'external balconies permanently open to the outside'; Therefore, as the winter garden balconies are considered as 'enclosed balconies' they are to be provided with sprinkler protection.

5. PASSIVE FIRE SAFETY MEASURES AND CONSTRUCTION DETAILS

This section of the Fire Statement is aimed at providing information in regard to the passive fire safety measures recommended for the development. In accordance with the London Plan 2021, the proposed passive fire safety measures satisfy the policy references as indicated in Table 8, with details subject to development by others.

Table 8 Passive fire safety measures London Plan policy references

Policy Reference	Policy Requirement
Policy D12 – Clause A2	<i>[Development proposals must ensure that they] are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire; including appropriate fire alarm systems and passive and active fire safety measures.</i>
Policy D12 – Clause A3	<i>[Development proposals must ensure that they] are constructed in an appropriate way to minimise the risk of fire spread.</i>
Policy D12 – Clause B1	<i>[The Fire Statement should detail how the development proposal will function in terms of] the building's construction: methods, products and materials used, including manufacturers' details.</i>
Policy D12 – Clause B3	<i>[The Fire Statement should detail how the development proposal will function in terms of] features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans.</i>

5.1 Elements of Structure

The top most habitable storey of the buildings within the Manor Road development varies between circa 10.5m and 32.6m between blocks therefore, the blocks will have different requirements with respect to fire resistance of the elements of structure.

In accordance with the recommendations of BS 9991:2015, the required fire resistance of the elements of structure of each block can be seen summarised as follows:

- Block A = 90 minutes (R90)
- Block B = 120 minutes (R120)
- Block C = 90 minutes (R90)
- Block D = 90 minutes (R90)

The roofs of the blocks within the Manor Road development are to support plant equipment (including several life safety mechanical smoke extract systems) and are therefore considered to perform a load-bearing floor

function. Each roof slab, and its supporting structure, should achieve the same level of fire resistance as required for elements of structure.

5.2 Compartmentation

In accordance with clause 17 of BS 9991: 2015 the following compartmentation is to be provided within the Manor Road development:

- All floors within the development are to be designed and constructed as compartment floors achieving the same level of fire resistance as required of the elements of structure;
- All residential units are to be separated from each other and from other areas of the building by at least 60-minute fire rated construction (FD30S fire doors provided between residential units and common residential corridor);
- All protected corridors and lobbies are to be provided with a minimum fire resistance of 30-minutes.
- All shafts (e.g., risers and lift shafts) are to be designed as protected shafts and achieve a minimum fire resistance as for the compartment floors through which they pass.

5.3 Additional Fire Resistance Requirements

Ancillary accommodation is to be enclosed with fire resisting construction where applicable or specified by the recommendations outlined within Table 15 of BS 9991:2015.

5.4 Fire Doors

Fire doors are to meet the requirements outlined within BS 9991:2015.

5.5 Internal Linings

The interior wall and ceiling surfaces in a building may have a significant influence on how fast a fire may develop. The Building Regulations require that internal linings shall adequately resist the spread of flame over their surfaces and, if ignited, have either a heat release rate or a rate of fire growth which is reasonable in the circumstances.

It is particularly important that in circulation spaces, where the rapid spread of fire is most likely to prevent occupants from escaping, the surface linings are restricted by making provision for them to have low rates of heat release and surface spread of flame.

The surface linings are to be in accordance with Table 9 throughout the development.

Table 9 Internal lining requirements

Location	National Performance (British Standard) Class ^[1]	European Performance Class ^[2]
Non-residential room having an area of not more than 30m ²	3	D-s3, d2
Residential rooms having an area not more than 4m ²	3	D-s3, d2
All other rooms	1	C-s3, d2
Circulation spaces within dwellings	1	C-s3, d2
Other circulation spaces	0	B-s3, d2

Notes:

1. Relates to performance measures in BS 476 Parts 6 and 7 criteria.
2. Relates to performance determine in accordance with BS EN 13501-1: 2018.

The surface linings of the walls and ceilings should generally conform to the classification outlined in Table 9. Parts of walls in rooms may be of a lower class but not lower than Class 3 (National Class) or Class D-s3, d2 (European Class) provided that the total of those parts in any one room does not exceed 50% of the floor area of the room (subject to a maximum of 60m²).

5.6 Fire Stopping

Fire stopping elements are to be implemented in order to maintain the level of fire resisting construction in all walls and ceilings. In every joint, imperfection of fit, and opening to allow services to pass through the walls, fire stopping elements should achieve the same level of fire-resisting construction as required for the floor/wall it replaces.

5.7 Cavity Barriers

Cavity barriers should also be provided in accordance with clause 19 of BS 9991:2015. Cavity barriers will be provided in the cavities of the following:

- An external wall at all cavity edges and around all openings in the external wall (i.e., windows);
- An external wall in line with a compartment floor where it meets the external wall;
- An external wall in line with a compartment wall where it meets the external wall;
- An internal cavity wall at the junction with a fire rated wall/floor.

5.8 External Wall Construction

In accordance with the Building (Amendment) Regulations 2018, where a building contains a storey 18 m above ground level and contains one or more dwellings, it is deemed as a 'relevant building' and is required to meet the provisions outlined within the regulation. Clause 4b of the regulation gives the following definition for the measurement of the top storey:

“above ground level in relation to a storey means above ground level when measured from the lowest ground level adjoining the outside of a building to the top of the floor surface of the storey.”

All buildings (blocks A, B, C and D) are considered single buildings with regards to external wall construction because the cores within them are not structurally independent. Therefore, every block has a top storey more than 18 m above ground level and is classified as a 'relevant building'.

Regulation 7(2) requires that all materials which become part of an external wall or specified attachment achieve Class A2-s1, d0 or Class A1, other than those exempted by Regulation 7(3). The external wall is defined as 'anything located within any space forming part of the wall' – refer to the Building (Amendment) Regulations 2018 [SI 2018/1230] for further information, definitions, and permitted exceptions.

5.9 Space Separation and Unprotected Façade Areas

An external fire spread analysis is to be undertaken to ensure that adequate separation and protection of the external walls is achieved so as to inhibit the spread of fire from one building to another.

Based on the currently proposed arrangements of the units on the site an initial external fire spread analysis has been conducted, the findings of which can be seen outlined in Table 10 below. It should be noted a detailed analysis is to be undertaken to verify these calculations at a detailed design stage as the design develops.

Table 10 Initial external fire spread analysis

Elevation	Distance to the relevant boundary (m)	Compartment size (m x m)	Enclosing Rectangle Size (m x m)	Permitted unprotected area (%)
Block A				
North	>10.0m	n/a	n/a	100%
South	Refer to North Elevation of Block D			
East (non-resi)	9.8m	17.7m x 3.8m	18.0m x 6.0m	100%
East (resi)	9.8m	11.0m x 3.1m	12.0m x 6.0m	100%
West	Refer to North West Elevation of Block B – deemed to be worse than this boundary condition			
Block B				
North	>5.0m	n/a	n/a	100%
North West (non-resi)	12.4m	15.4m x 3.8m	18.0m x 6.0m	100%
North West (resi)	12.42m	9.7m x 3.1m	12.0m x 6.0m	100%
South	Refer to North Elevation of Block C			
South West	Refer to North Elevation of Block C			
South East	7.2m	7.4m x 3.8m	9.0m x 6.0m	100%
East	>5.0m	n/a	n/a	100%
West	>5.0m	n/a	n/a	100%
Block C				
North (non-resi)	8.59m	6.57m x 3.14m	9.0m x 6.0m	100%
North (resi)	8.59m	8.85m x 3.10m	9.0m x 6.0m	100%
South	Refer to North West Elevation of Block B – deemed to be worse than this boundary condition			
East	8.98m	7.57m x 3.13m	9.0m x 6.0m	100%
North West	Refer to North West Elevation of Block B – deemed to be worse than this boundary condition			
Block D				
North (non-resi)	5.13m	18.10m x 3.74m	21.0m x 6.0m	100%
North (resi)	9.04m	8.19m x 3.08m	9.0m x 6.0m	100%
South	Refer to North West Elevation of Block B – deemed to be worse than this boundary condition			
East (non-resi)	9.94m	37.15m x 3.71m	40.0m x 6.0m	100%
East (resi)	9.94m	10.99m x 3.09m	12.0m x 6.0m	100%
West	Refer to East Elevation of Block C			

5.10 Roof Coverings

The roof coverings for each of the buildings/blocks within the Manor Road development is to be determined based on the proximity of the buildings to relevant boundaries. The roof coverings of all blocks are to achieve a classification of B_{ROOF}(t4) in accordance with BS EN 13501-5.

This classification is to extend to the communal podium roof terraces which are also to achieve a classification of B_{ROOF}(t4).

5.11 Green Roofs

Due to the proposals of plants/vegetation at the terrace and roof level, the roofs are considered as 'green roofs', which also include sections of planting and organic material. The design of a green roof is to follow the recommendations of 'Fire Performance of Green Roofs and Walls' published by Department for Communities and Local Government (now DLUHC) in 2013, and the 'GRO Green Roof Code' [2021].

The primary requirements for green roofs are as follows:

- Succulent plants are recommended as the main type of plant as these are better at retaining water and this reduces the risk of the substrate drying out;
- For all types of green roof, the depth of the growing layer is to be a minimum of 80mm and the organic content should not exceed 50%;
- Fire breaks are to be used around all openings and vertical elements on all types of green roofs. The guidance recommends that the fire breaks should consist of paving slabs or non-vegetated strips of pebbles with a depth of 75mm and a diameter between 20-50mm for a width of 500mm. The width of the fire break is to be reduced to 300mm where used around pipe/duct penetrations through the roof.

6. ACCESS AND FACILITIES FOR THE FIRE AND RESCUE SERVICE

This section of the Fire Statement is aimed at providing information in regard to firefighting accessibility and facilities provided for Fire Service. In accordance with the London Plan 2021, the proposed access and facilities for the Fire Service satisfies the policy references as indicated in Table 11.

Table 11 Firefighting provisions London Plan policy references

Policy Reference	Policy Requirement
Policy D12 – Clause A6	[Development proposals must ensure that they] provide suitable access and equipment for firefighting which is appropriate for the size and use of the development.
Policy D12 – Clause B4	[The Fire Statement should detail how the development proposal will function in terms of] 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.
Policy D12 – Clause B5	[The Fire Statement should detail how the development proposal will function in terms of] how provision will be made within the curtilage of the site to enable fire appliances to gain access to the building.

6.1 Site Accessibility

The nearest fire station to the Manor Road development is the Richmond Fire Station (H42) located at 323 Lower Richmond Road, Richmond TW9 4PN, approximately 0.3 miles from the site (approximately 2-minute driving time). The Fire Service are to approach the site via Manor Road. Figure 7 is an extract from Google Maps (Date: 25.10.2022) which illustrates a potential route for the Fire and Rescue Service to access the Manor Road site.

The primary fire service access point to the site can be seen indicated by the blue arrow within Figure 7.

Where the length of a dead-end fire tender accessible roadway exceeds 20m, the lot has been provided with turning facilities (hammerhead).

Hydrock are not aware of any restrictions to site access for fire appliances, although this will require to be confirmed.



Figure 7 Fire Service site access – closest fire station

6.2 Firefighting Access and Facilities

Each core within the Manor Road development with a storey more than 18m above external ground level (Cores AA, AD, BA, CA, CB, CC and DB) is to be provided with a firefighting shaft consisting of the following:

- Firefighting stair with a minimum effective clear width between walls of 1100mm (excluding handrails intruding into the stair not more than 100mm);
- Fire-fighting lift designed, installed, and commissioned in accordance with BS EN 81-72;
- Dry rising main accessible from the fire-fighting stair enclosure.
- Fire-fighting stairs are to be accessed on all levels via a ventilated fire-fighting lobby only. At residential levels, the ventilated residential common corridor may act as the fire-fighting lobby.

A single firefighting shaft within the blocks that exceed 18m in height is considered acceptable on the basis that the all points of the floor plate are reachable within 60m of the dry riser landing valve within the firefighting stair enclosure (measured on route suitable for laying hose), the buildings is provided with sprinkler protection and the floor area does not exceed 900m² as outlined within the recommendations of Clause 50.2.1 and 50.2.2 of BS 9991:2015.

It is noted that the floor area within the East block of Block C (Cores CB and CC) is greater than 900m², measuring circa 940m². This is due to the merging of Cores CB and CC to provide two escape stairs as the building exceeds 18m in height. However, both cores within this part of the building shall be designed and constructed as firefighting shafts and therefore, sufficient facilities and access for the Fire and Rescue Service is considered to be provided.

The Manor Road development access point for fire tendering appliances attending the site is provided via Manor Road. The primary access route then cuts through the middle of the site and gives access to all four blocks of the development (Blocks A, B, C and D).

The access route through the site to all blocks is illustrated in Figure 8 below.

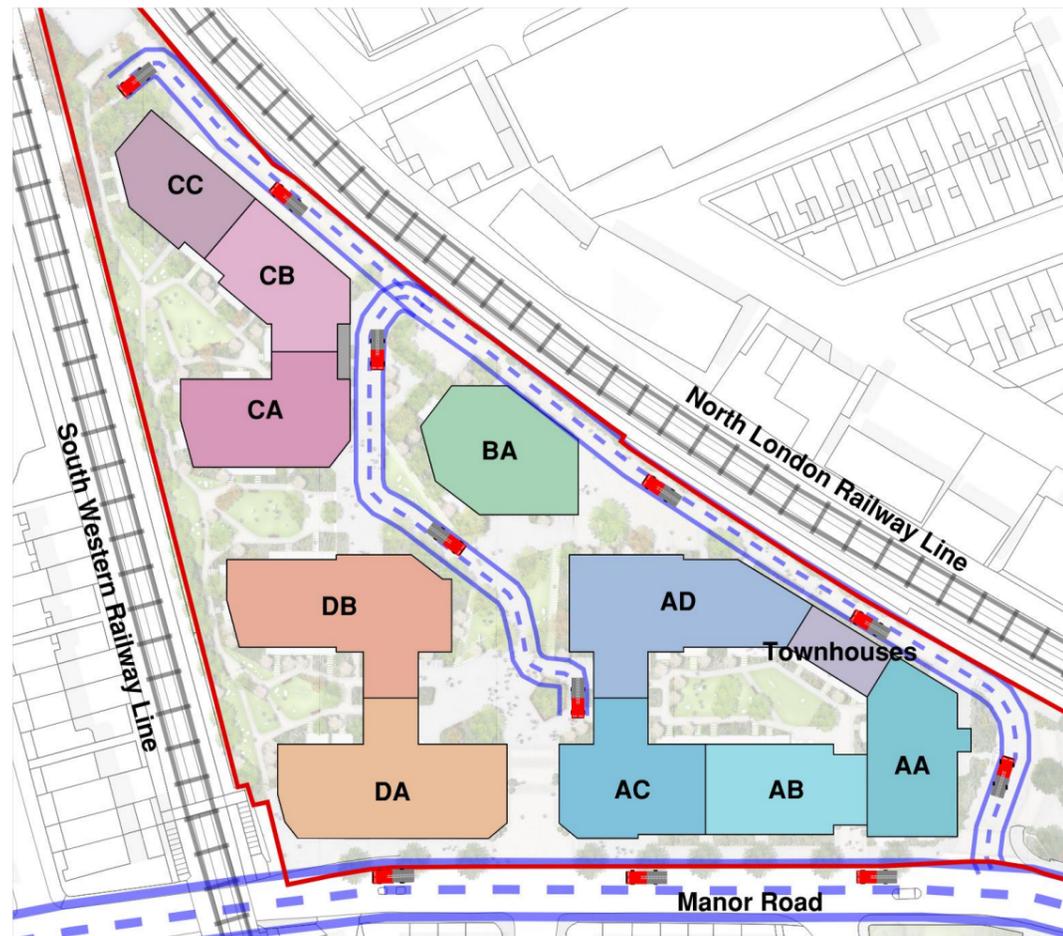


Figure 8 Fire Service access to the Manor Road development

All the primary stair cores within the blocks of the Manor Road development are to be provided with dry riser fire mains, such fire mains are to be designed and installed in accordance with BS 9990.

Dry riser fire mains can be omitted from the secondary stair cores (non-firefighting stairs) in the buildings that are greater than 18m in height (Cores AA, AD, BA, CA and DB) on the basis that all points on the floor plate are reachable within 60m of the dry riser outlet/landing valve located within the firefighting stair enclosure in accordance with Section 50.2.2 of BS 9991:2015 as the buildings are provided with sprinkler protected throughout, measured on a route suitable for laying hose.

As all primary cores (i.e. those incorporating lifts) are provided with fire mains, fire service access for a pumping appliance should be provided such that a dry riser inlet connection valve on the external face of each building is reachable and clearly visible from the pumping appliance (i.e., within 18m). This access can also be seen illustrated above in Figure 8.

Fire service access roadways suitable for fire tender pump appliances should be designed in accordance with the criteria outlined in Table 12.

Table 12 Fire tender appliance roadway dimensions

Appliance Type	Min. width of roadway between kerbs (m)	Min. width of gateways (m)	Min. turning circle between kerbs (m)	Min. turning circle between walls (m)	Min. clearance height (m)	Min. carrying capacity (t)
Pump	3.7m	3.1m	16.8m	19.2m	3.7m	12.5 t ⁽²⁾
High Reach	3.7m	3.1m	26.0m	29.0m	4.0m	17.0 t

Notes:

1. The size and mass of fire appliances is not standardised, and the local fire service authority should be consulted to ascertain their recommendations relating to access roads.
2. It should be noted that London Fire Brigade (LFB) require more onerous carrying capacity of 14 tonnes.

In accordance with the recommendations of subclause 50.3 of BS 9991:2015, only services associated with the firefighting shaft, such as ventilation systems and lighting for the shaft, should pass through or be contained within the firefighting stair. This is to be considered by the design team at a detailed design stage as the design develops.

6.2.1 Fire Mains

As outlined previously, all the cores within the Manor Road development are to be provided with dry riser fire mains, such fire mains are to be designed and installed in accordance with BS 9990.

In accordance with subclause 50.2.2 of BS 9991:2015, as the building is to be provided with sprinkler protection in accordance with BS 9251: 2021, firefighting shafts provided with fire mains are to be sited such that every

part of every storey is no more than 60m from a fire main outlet in a firefighting shaft, as measured on a route suitable for laying hose.

In accordance with subclause 4.2.2 of BS 9990:2015, any run of connecting pipe between the inlet and the vertical run of the main should be kept to a minimum and should be given a fall towards the drain valve. The note states that for typical building applications, the run of horizontal connecting pipe is a maximum of 18 m in length. Therefore, the horizontal pipe run from the fire main inlet to the outlet within the stair should be limited to a maximum of 18 m, where practicable.

6.3 Fire Hydrants

It is to be ensured a fire hydrant is provided within 90m of the dry riser inlet serving each development. Fire hydrants are also to be located so that they are not greater than 90m apart from each other.

Should sufficient existing fire hydrants not be available on the site, additional hydrants may be required which can be either a private system or extension from the town mains, complying with the criteria outlined above from BS 9991 and BS 9990.

Fire hydrants are required to provide a minimum water supply flow rate of not less than 1,500 l/min in accordance with subclause 6.1 of BS 9990: 2015.

6.4 Wayfinding Signage

To assist the Fire Service in identifying each floor in a core with a top storey more than 11 m above ground level, floor identification signs and flat indicator signs should be provided within cores AA, AD, BA, CA, CB, CC and DB on all floors. Information on wayfinding signage is not currently included in BS 9991:2015, but full details on the specifications of wayfinding signage is provided in paragraphs 15.13–15.16 of Approved Document B – Volume 1 (2019, inc. 2020 amendments).

6.5 Premise Information Box (PIB)

The provision of a PIB was a recommendation from the Dame Judith Hackitt review following the Grenfell Tower tragedy. PIB's offer a recognised focal point for the provision of premises plans and information to attending fire crews in the event of an incident.

PIB's should be strategically located, be simple, easily accessible and contain key information needed by operational fire crews at the time of an incident. It is proposed to provide a PIB at the main entrance to each core of the blocks (this can be located internally or externally). The following are the essential items:

- Operational Contingency Plans;
- Simple plans and or schematic representations of the building and any relevant information relating to equipment/fixed installations design and operation provided for means of escape or fire-fighting operations;
- Basic operating instructions for fire protection and fixed fire-fighting equipment (isolation switch locations etc.).

Simple single line plans should be provided of typical floor plan layouts and any relevant fire resistance, access, fire-fighting facilities, equipment, services and hazards etc. should be shown.

7. FIRE SAFETY MANAGEMENT AND FUTURE DEVELOPMENT

This section of the Fire Statement is aimed at providing information in regard to the management of fire safety within the Manor Road, Richmond development. In accordance with the London Plan 2021, the proposed fire safety management plan satisfies the policy references as indicated in Table 13.

Table 13 Fire safety management and ‘golden thread’ London Plan policy references

Policy Reference	Policy Requirement
Policy D12 – Clause B4	<i>[The Fire Statement should detail how the development proposal will function in terms of] 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.</i>
Policy D12 – Clause B6	<i>[The Fire Statement should detail how the development proposal will function in terms of] ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.</i>

The ongoing management of the building and its fire safety provisions is vital in ensuring a safe and usable building. Maintenance procedures will be developed to ensure that all equipment and services are able to operate effectively and that the building’s systems perform as intended.

Reference is to be made to clause 4 of BS 9999:2017 for the relevant information on the management of fire risk.

7.1 The Regulatory Reform (Fire Safety) Order 2005

The Regulatory Reform (Fire Safety) Order (RRFSO) regulations shall apply to this development and are the responsibility of the Responsible Person. The RRFSO applies to all workplaces and other non-domestic areas and premises, requiring the ‘Responsible Person’ to undertake an assessment of the fire risk in their premises and to keep this assessment under review.

7.2 Regulation 38

In conjunction with the RRFSO, Regulation 38 requires that information relating to the fire safety provisions within a building is provided to the ‘Responsible Person’ so that they (or an appointed ‘Competent Person’) can undertake the Fire Risk Assessment required under the RRFSO. The Fire Safety Strategy of the building will form part of the information provided to the ‘Responsible Person’ in order for them to undertake and maintain the Fire Risk Assessment for the development.

7.3 Future Development

The Fire Safety Strategy for the development will outline the proposed design and operation for the building. Where there are any proposed changes in the future, reference is to be made to the Fire Safety Strategy to ensure any changes meet the requirements of the Fire Safety Strategy and do not have an adverse effect on the safety of occupants.

Where there is an alteration to the design of the building, it is strongly recommended that the Responsible Person commissions the update and development of a new Fire Safety Strategy in order to reflect the proposed changes and fire safety design.