

# **FIRE SAFETY STATEMENT FOR PLANNING APPLICATION – JUNCTION APARTMENTS, UXBRIDGE, LONDON**

IBF2634-FSS-01.03.23  
Fire Statement for Planning  
Application – Junction  
Apartments, Uxbridge,  
London  
Rev. 3  
01 March 2023

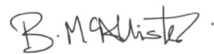
## FIRE STATEMENT FOR PLANNING APPLICATION

### Document Status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
Rev. 1	Fire Safety Statement	CB	BMcA	BMcA	24.02.23
Rev. 2	Fire Safety Statement	CB	BMcA	BMcA	28.02.23
Rev. 3	Fire Safety Statement	CB	BMcA	BMcA	01.03.23

### Approval for issue

Barry Mc Allister



01 March 2023

© Copyright RPS Group Plc. All rights reserved.

The report has been prepared for the exclusive use of our client and unless otherwise agreed in writing by RPS Group Plc, any of its subsidiaries, or a related entity (collectively 'RPS'), no other party may use, make use of, or rely on the contents of this report. The report has been compiled using the resources agreed with the client and in accordance with the scope of work agreed with the client. No liability is accepted by RPS for any use of this report, other than the purpose for which it was prepared. The report does not account for any changes relating to the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report. RPS does not accept any responsibility or liability for loss whatsoever to any third party caused by, related to or arising out of any use or reliance on the report.

RPS accepts no responsibility for any documents or information supplied to RPS by others and no legal liability arising from the use by others of opinions or data contained in this report. It is expressly stated that no independent verification of any documents or information supplied by others has been made. RPS has used reasonable skill, care and diligence in compiling this report and no warranty is provided as to the report's accuracy. No part of this report may be copied or reproduced, by any means, without the prior written consent of RPS.

Prepared by:

**RPS**

Barry McAllister

Technical Director – Structural and Fire Engineering

Elmwood House

74 Boucher Road, Belfast

Co. Antrim, BT12 6RZ

**M** +44 7779619452

**E** barry.mcallister@rpsgroup.com

Prepared for:

Dunmoore (West London) Limited

Brightwalton House,

Brightwalton

Newbury, RG20 7BZ

**T** 01488 639639

**E** Click or tap here to enter text.

## Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Overview.....	1
1.2	Description of Development .....	1
1.3	Main Author of Fire Statement.....	1
<b>2</b>	<b>STATUTORY OBLIGATIONS.....</b>	<b>2</b>
2.1	Building Regulations .....	2
2.2	Approved Document B .....	2
2.2.1	Overview .....	2
2.2.2	Purpose Groups .....	2
2.3	The Regulatory Reform (Fire Safety) Order 2005 .....	2
2.4	Regulation 7.....	2
2.5	Regulation 38.....	2
2.6	Fire Safety During Building Construction .....	3
2.7	The London Plan 2021 .....	4
<b>3</b>	<b>MEANS OF WARNING AND ESCAPE.....</b>	<b>6</b>
3.1	Evacuation Strategy .....	6
3.1.1	Residential Accommodation.....	6
3.2	Design Occupancy.....	7
3.2.1	Fourth Floor.....	7
3.2.2	Fifth Floor .....	7
3.3	Flat Layouts .....	7
3.3.1	Overview .....	7
3.3.2	Flats with Separate Habitable Rooms.....	7
3.4	Ancillary Accommodation .....	8
3.4.1	Overview .....	8
3.4.2	Proposed Arrangement .....	9
3.5	Travel Distances .....	9
3.5.1	ADB Recommendations .....	9
3.5.2	Proposed Arrangement .....	9
3.6	Exit Widths And Escape Routes.....	9
3.6.1	Building Regulations .....	9
3.6.2	Residential Door Widths.....	9
3.6.3	Storey Exits at Residential Floors .....	9
3.6.4	Measurement of Door Exit Width .....	9
3.7	Vertical Means Of Escape .....	10
3.7.1	Provision of Protected Stairs.....	10
3.7.2	Evacuation of Disabled Occupants .....	10
3.7.3	Fire Evacuation Lift Provision.....	10
3.7.4	Width of Stairs .....	11
3.8	Final Exits .....	11
3.8.1	Locations and Signage.....	11
3.8.2	Final Exit Width .....	11
<b>4</b>	<b>ACTIVE FIRE SAFETY SYSTEMS .....</b>	<b>12</b>
4.1	Fire Detection and Alarm .....	12
4.1.1	Code Recommendations.....	12
4.1.2	Mode of Alarm .....	12
4.1.3	Smoke Detection in Concealed Voids.....	12
4.1.4	Fire Alarm System Cause and Effect Schedule.....	12
4.2	Automatic Fire Suppression .....	12
4.3	Smoke Control Provisions .....	12

4.3.1	Overview .....	12
4.3.2	Residential Stairs and Lobbies.....	13
4.4	Automatic Opening Vents (AOVS) .....	13
4.5	Lighting Of Escape Routes.....	13
4.6	First-Aid Firefighting Equipment .....	13
4.7	Emergency Power Supplies .....	14
4.8	Mechanical Ventilation System.....	14
<b>5</b>	<b>INTERNAL FIRE SPREAD (LININGS) .....</b>	<b>15</b>
<b>6</b>	<b>INTERNAL FIRE SPREAD (STRUCTURE).....</b>	<b>16</b>
6.1	Resistance To Damage Of Fire Separating Construction .....	16
6.2	Structural Fire Resistance .....	16
6.2.1	Principal Aims.....	16
6.2.2	Fire Resistance Period .....	16
6.3	Independent Third Party Certification And Accreditation.....	17
6.4	Compartmentation .....	17
6.4.1	Construction of Compartment Walls and Floors .....	17
6.4.2	Junctions of Compartmentation .....	18
6.5	Residential Areas.....	18
6.6	Escape Stair .....	18
6.7	Protected Vertical Shafts .....	18
6.8	Pipe Penetrations .....	18
6.9	Ductwork Protection And Fire Dampers .....	20
6.10	Flues .....	20
6.11	Fire Stopping .....	20
6.12	Concealed Spaces .....	20
6.13	Fire Doors.....	21
<b>7</b>	<b>EXTERNAL FIRE SPREAD .....</b>	<b>23</b>
7.1	Regulation 7(2) of the Building Regulations 2010 .....	23
7.2	Construction Of External Walls.....	23
7.2.1	Definition of External Wall .....	23
7.3	External Surfaces .....	23
7.4	Cavity Barriers .....	23
7.5	External Wall Insulation .....	23
7.6	Metal Composite Materials .....	23
7.7	Resisting Fire Spread from One Building to Another .....	24
7.8	Relevant Boundaries .....	24
7.9	Space Separation .....	25
7.9.1	Radiation Intensity.....	25
7.9.2	Automatic Suppression System .....	25
7.9.3	Allowable Unprotected Areas.....	25
7.10	Roof Coverings .....	26
7.10.1	Performance Requirements .....	26
<b>8</b>	<b>ACCESS AND FACILITIES FOR THE FIRE SERVICE .....</b>	<b>27</b>
8.1	Dry Riser System.....	28
8.2	Provision Of Fire Hydrants .....	28
8.3	Wayfinding Signage For The Fire Services .....	29
8.4	Secure Information Boxes .....	29
<b>9</b>	<b>INFORMATION, LIMITATIONS AND ASSUMPTIONS .....</b>	<b>30</b>
9.1	Building Regulations .....	30
9.2	Fire Safety Management .....	30
9.3	Other Limitations.....	30

## FIRE STATEMENT FOR PLANNING APPLICATION

---

9.3.1	Possible Fire Scenario .....	30
9.3.2	Statutory Approval and Detailed Design .....	30
9.4	Drawings Used for Report .....	31
<b>10</b>	<b>KEY REFERENCES .....</b>	<b>32</b>
<b>11</b>	<b>THE LONDON PLAN 2021 .....</b>	<b>35</b>
11.1	Overview .....	35
11.2	Declaration of Compliance .....	36

### Tables

Table 1: The Junction Residential Floors Design Occupancy .....	7
Table 2: Tests for Partitions .....	16
Table 3: Rating of Internal Fire Doors .....	22
Table 4: Schedule of Drawings used for Report .....	31
Table 5: Policies set out in Planning Policy D12 (Fire Safety) .....	35

### Figures

Figure 1: Location of External Assembly Point .....	6
Figure 2: Flats with Separate Habitable Rooms (excerpt from Diagram 3.3 of ADB).....	8
Figure 3: Flat with a Protected Entrance Hallway (Diagram 3.2 of ADB) .....	8
Figure 4: Measurement of Door Width (Diagram D1 from ADB) .....	10
Figure 5: Classification of Wall and Ceiling Linings – Table 4.1 of ADB Vol. 1 .....	15
Figure 6: Maximum Nominal Internal Diameter of Pipes passing through Fire Separating Elements.....	19
Figure 7: Pipes Penetrating Fire Separating Elements (Diagram 9.2 from ADB).....	20
Figure 8: Distances to Relevant Boundaries.....	24
Figure 9: Recommended Distance to Relevant Boundary Based on Radiation Intensity .....	25
Figure 10: Limitations on Roof Coverings (Diagram 12.1 from ADB) .....	26
Figure 11: Fire Tender Access Dimensions (Table 13.1 of ADB Vol.1) .....	27
Figure 12: Fire Appliance Access .....	28

### Appendices

APPENDIX A.....	34
-----------------	----

# 1 INTRODUCTION

## 1.1 Overview

This Fire Statement has been developed to assist in supporting the planning application for a proposed residential development located in Uxbridge referred to as the Junction Apartments.

This report addresses, in APPENDIX A, the policies set out in the Planning Policy D5 (clause B5) and D12 (Fire Safety) which are required to be met by the new development in the London Borough of Uxbridge.

## 1.2 Description of Development

The works comprise the proposal to add two floors of residential accommodation comprising of flats to an existing four storey office building.

## 1.3 Main Author of Fire Statement

The development of this Fire Statement has been prepared under the supervision of Barry McAllister. Barry is a Technical Director in RPS with over 39 years' experience of which 27 years have been in the fire safety sector as a Fire Engineer.

Barry's academic qualifications are as follows.

- |                         |                                 |
|-------------------------|---------------------------------|
| • BSc Civil Engineering | Queen's University Belfast 1983 |
| • MSc Fire Engineering  | University of Ulster 1995       |

His professional qualifications are as follows.

- Chartered Engineer (CEng)
- Fellow of the Institution of Fire Engineers (FIFireE)
- Fellow of the Institution of Structural Engineers (FIStructE)
- Fellow of Engineers Ireland (FIEI)
- Member of the Institution of Civil Engineers (MICE)

Barry is a part-time lecturer in Fire Engineering Design at the University of Ulster and has held that post since 2004.

Barry has extensive experience in works like those proposed at Uxbridge including.

- |   |                          |
|---|--------------------------|
| • Altus House Student Residential Accommodation, Leeds          | Olympian Homes           |
| • Weaver's Court Coventry Student Residential Accommodation     | Olympian Homes           |
| • University of Hertfordshire Student Residential Accommodation | Bouygues UK              |
| • Myatt's Field Residential Development, Lambeth                | Higgins Homes            |
| • 2-12 Bow Common Lane Residential Accommodation, London        | Higgins Homes            |
| • Balmoral Castle, Pimlico                                      | Westminster City Council |
| • Westmead, London  | Westminster City Council |
| • Carlton Dene, London  | Westminster City Council |
| • Brunel Centre, London   | Westminster City Council |

## 2 STATUTORY OBLIGATIONS

### 2.1 Building Regulations

The proposed building must comply with Part B 'Fire Safety' of the Building Regulations 2010 [1], including Regulations B1 to B5.

This Fire Statement has not been developed to form part of a Building Regulations application but has been prepared in support of the planning application for the proposed scheme to demonstrate that fire safety matters relating to the development of the building have been considered prior to the planning application being lodged.

### 2.2 Approved Document B

#### 2.2.1 Overview

The proposed buildings will each comprise of two floors of residential accommodation above four floors of existing office space.

The building will have a top floor level that is below 18m above the lowest adjacent ground level i.e., the top floor level is at 17.9m above the lowest adjacent ground level.

The fire safety design of the proposed building will be based on the relevant recommendations in Approved Document B 'Fire Safety' Volume 1: Dwellings 2022 (ADB Vol. 1) [2]. This code provides guidance on how to meet the functional requirements of the Building Regulations.

#### 2.2.2 Purpose Groups

As the primary use of the new works will be to provide residential accommodation the fire strategy will be progressed based on a purpose defined as:

- Purpose Group1 (a) Residential (Dwellings) – Flats

### 2.3 The Regulatory Reform (Fire Safety) Order 2005

The Regulatory Reform (Fire Safety) Order 2005 [RRO] [3] imposes a general duty to take such fire precautions as may be reasonably required to ensure that premises are safe for the occupants and those in the immediate vicinity. This places an onus on the management of buildings to carry out risk assessments, as necessary, of the fire precautions during the building's operational life, and to have robust fire safety management procedures in place and documented in a Fire Safety Management Plan.

When the proposed building become a workplace, the 'responsible person', i.e., employer, must ensure that any duty imposed by the RRO, specifically Articles 8 to 22 or by regulations made under Article 24, is complied with. As management play a crucial role in complying with the RRO, the proposed building will be designed to ensure that the building can be effectively managed.

### 2.4 Regulation 7

This report is premised on the basis that the works will be carried out in a workmanlike manner using adequate and proper materials.

### 2.5 Regulation 38

Regulation 38 of the Building Regulations that requires a package of fire safety information be given to the 'responsible person' for the premises to assist in operating and maintaining the building safely. Under Regulation 38 the Contractor has a responsibility to confirm that the 'as built' building is consistent with the fire strategy. This would require that the installation of all key fire safety features have been appropriately certified, and third party checked with any variations appropriately documented.



## FIRE STATEMENT FOR PLANNING APPLICATION

---

As a minimum as-built plans of the building should be provided showing all the following, where appropriate.

- a) Escape routes – this should include exit capacity (i.e., the maximum allowable number of people for each storey and for the building).
- b) Location of fire-separating elements (including cavity barriers).
- c) Fire doorsets, fire doorsets fitted with a self-closing device and other doors equipped with relevant hardware.
- d) Locations of fire and/or smoke detector heads, alarm call points, detection/alarm control boxes, alarm sounders, fire safety signage, emergency lighting, fire extinguishers, dry or wet fire mains and other firefighting equipment, and hydrants outside the building.
- e) Any sprinkler systems, including isolating valves and control equipment.
- f) Any smoke control systems, or ventilation systems with a smoke control function, including mode of operation and control systems.
- g) Any high-risk areas.

Details should be provided of all of the following.

- a) Specifications of any fire safety equipment provided, including routine maintenance schedules.
- b) Any assumptions regarding the management of the building in the design of the fire safety arrangements.
- c) Any provision enabling the evacuation of disabled people.
- 

A record should also be provided of the following.

- a) The fire safety strategy.
- b) Procedures for operating and maintaining any fire protection measures. This should include a cause and effect matrix/strategy for the building.
- Further guidance on the contents of a fire safety manual is available in clause 9 and Annex H of BS9999 [4].

For new buildings, the initial risk assessment carried out by the Contractor in conjunction with the building operator (or someone on their behalf) is typically known as a Pre-Occupation Fire Risk Assessment which would include identifying any necessary remedial works for the installed fire safety measures, similar to a standard snagging exercise.

## 2.6 Fire Safety During Building Construction

A significant number of fires occur during construction and building activity. Therefore, adequate supervision and control of contractors' activities is essential during this period. It must be ensured that adequate precautions against fire are in place during the construction phase.

Attention is drawn to the Construction (Design and Management) Regulations 2015 [5] in respect of fire safety in buildings under construction. Additional guidance is provided in the following publications:

- Health and Safety Executive Publication L 153 [6] ;
- Health and Safety Executive Publication HSG 168 [7]; and
- Fire Protection Association publication Fire Prevention on Construction Sites – The joint code of practice on the protection from fire of construction sites and buildings undergoing renovation [8], [9].

See Clause 47 of BS9999 for recommendations regarding work being carried out in any part of a premises whilst the building is occupied. Where there is partial occupation of a building or complex, and during fitting out, the recommendations of BS9999 should be followed as far as is practicable.

To supplement the above recommendations provided in BS9999, details of the escape strategy to be implemented by the contractor during the construction phase will be developed by them as part of a construction phase fire safety management plan. It will be the responsibility of the contractor to prepare and implement a Fire Safety Management Plan throughout the construction period of the works.

## 2.7 The London Plan 2021

Under the legislation establishing the Greater London Authority (GLA), a Spatial Development Strategy (SDS) has been published. The SDS is known as the London Plan. As the overall strategic plan for London, it sets out an integrated economic environmental, transport and social framework for the development of London over the next 20-25 years. The London Plan sets out specific policy requirements with regards to Fire Safety (Policy D12) design of buildings. These are noted below.

Section A) in the interests of fire safety and to ensure the safety of all building users development proposals must achieve the highest standards of fire safety and ensure that they are:

- 1) Identify suitably positioned unobstructed outside space for fire appliances to be positioned on and assembly points.
- 2) Are designed to incorporate appropriate features which reduce the risk to life and of serious injury in the event of a fire, including appropriate fire alarms systems and passive and active fire safety measures.
- 3) Are constructed in an appropriate way to minimise the risk of fire spread.
- 4) Provide suitable and convenient means of escape and associated evacuation strategy for all building users.
- 5) Develop a robust strategy for evacuation which can be periodically updated and published and which all building users have confidence in.
- 6) Provide suitable access and equipment for firefighting which is appropriate for the size and use of the development.

Section B) All major development proposals should be submitted with a fire statement, which is independent of the Fire Strategy, produced by a third party suitably qualified assessor. The statement should detail how the development will function in terms of:

- 1) The buildings 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 may be disabled or require level access and the associated evacuation strategy approach.
- 3) Features which reduce the risk to life, fire alarm systems, passive and active fire safety measures and associated management aid 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 has been made within the curtilage of the site to enable fire appliances to gain access to the building.
- 6) Ensuring that any potential future modifications to the building will consider and not compromise the base build fire strategy/protection measures.

Policy D5, Inclusive Design, clause B5 also requires that development proposals are to be designed to incorporate safe and dignified emergency evacuation for all building users and that in all developments where lifts are installed, that, as a minimum, at least one lift per core should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building.

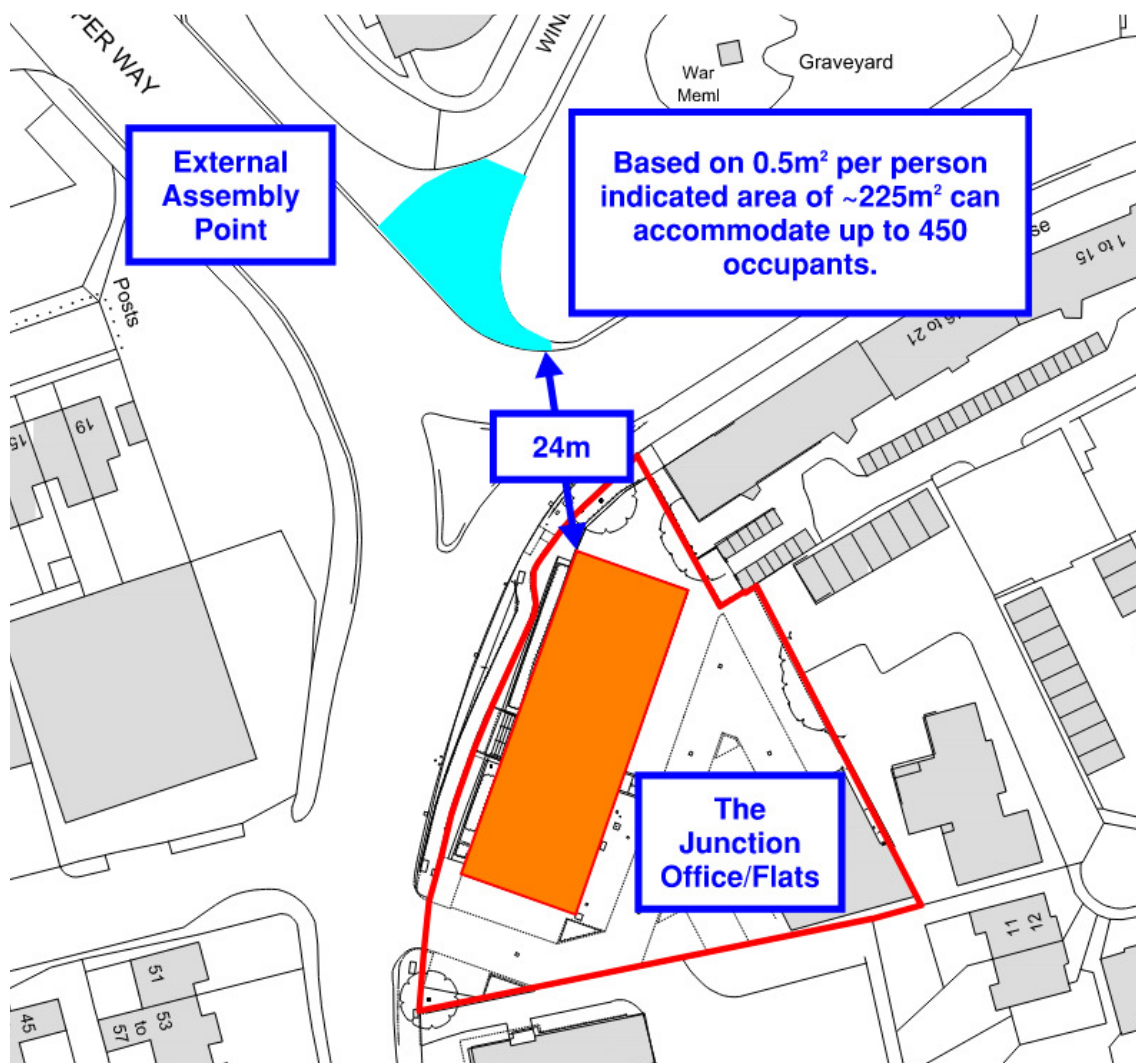
### 3 MEANS OF WARNING AND ESCAPE

#### 3.1 Evacuation Strategy

The building will be designed and constructed to facilitate evacuation of an individual dwelling, i.e., flat. This is known as a 'stay put' or 'defend in place' strategy.

As per Figure 1, and in accordance with Policy D12 Fire safety (A, 1, b) of the London Plan 2021, the proposed scheme's Site Plan identifies the site's external assembly point, which will be located North of the site. The proposed assembly point can accommodate the occupancy of the residential floors i.e., 30 people and it is sufficiently remote from the building to safeguard the occupants of the flats in the event of a fire in the building.

**Figure 1: Location of External Assembly Point**



##### 3.1.1 Residential Accommodation

In purpose-built blocks of flats, special provisions are made to ensure that a fire is contained within the flat of fire origin and that the common escape route(s), including stairways, remain relatively free from smoke and heat. For this reason, the general fire strategy is a – 'stay put' strategy. The high standard of compartmentation provided between flats should prevent the need for the simultaneous evacuation of all dwellings.

## 3.2 Design Occupancy

The building will consist of a mix of residential units as follows.

### 3.2.1 Fourth Floor

- 5 x 1 bed units for 2 people
- 3 x 1 bed units for 1 person

### 3.2.2 Fifth Floor

- 4 x 1 bed flats for 2 people
- 3 x 1 bed flats for 1 person
- 1 x 2 bed flat for 4 people

The occupancy figures detailed in Table 1, have been used for the development of this report in terms of stair capacity.

**Table 1: The Junction Residential Floors Design Occupancy**

FLOOR	OCCUPANCY
Fourth Floor	13
Fifth Floor	15
<b>TOTAL ON UPPER RESIDENTIAL FLOORS</b>	<b>28</b>

## 3.3 Flat Layouts

### 3.3.1 Overview

The flats will be accessed via a single stair arrangement.

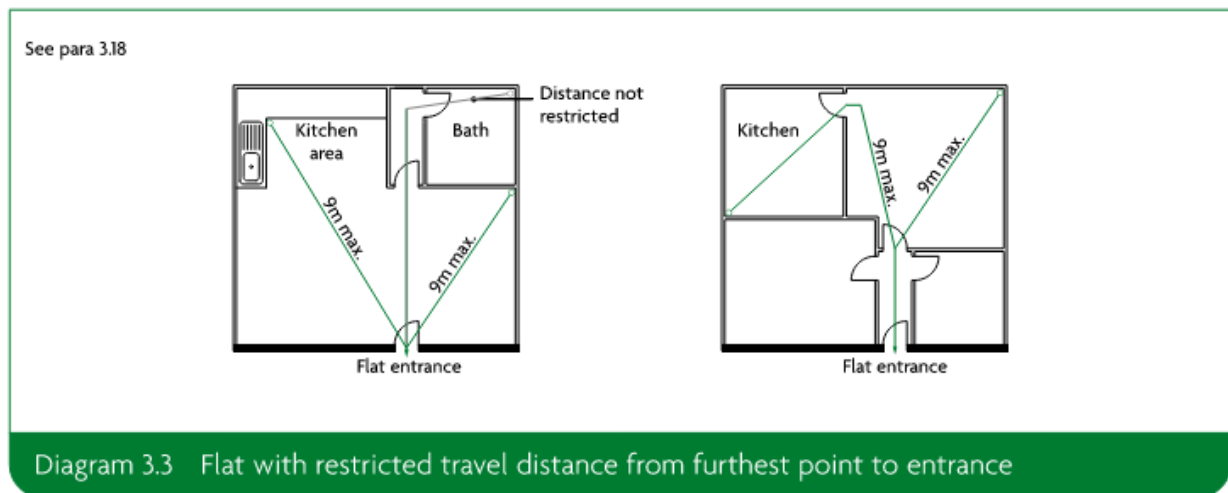
Means of escape provisions will observe guidance contained in Section 3 of ADB Vol1.

### 3.3.2 Flats with Separate Habitable Rooms

#### 3.3.2.1 ADB Recommendations

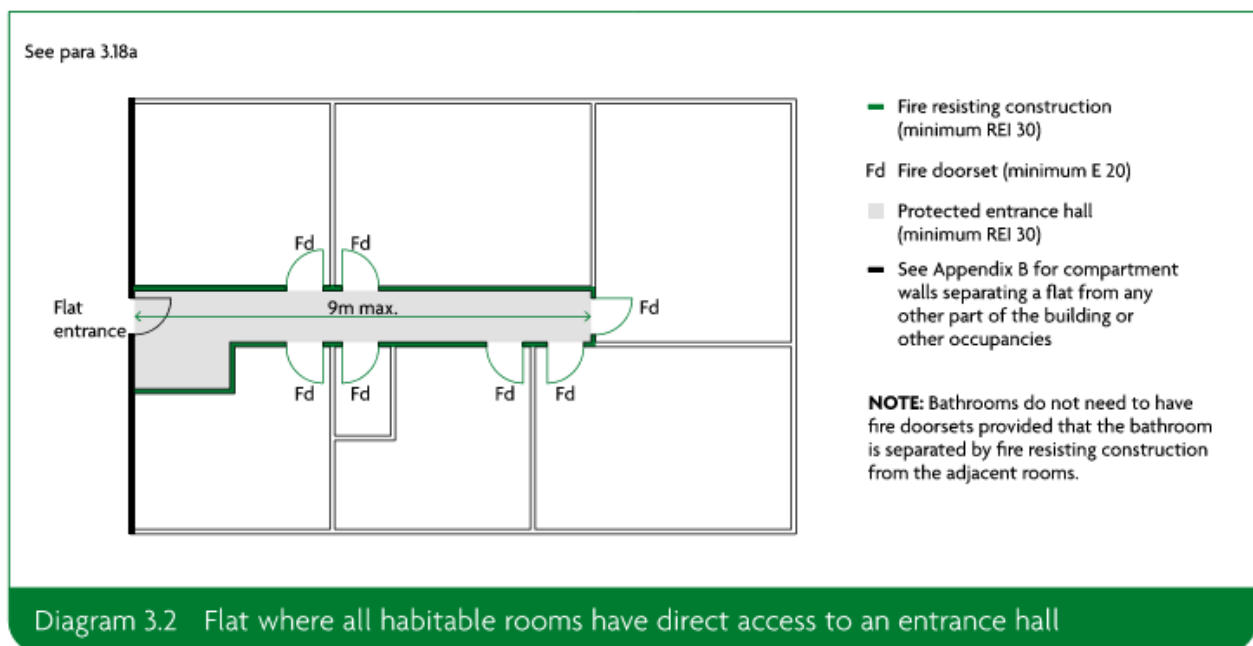
Where a flat comprises a series of rooms located off an internal corridor, the layout indicated in Diagram 3.3 of ADB is a typically accepted approach where the travel distance from any point of the flat to the flat entrance door is less than 9m; refer to Figure 2.

Figure 2: Flats with Separate Habitable Rooms (excerpt from Diagram 3.3 of ADB)



The travel distance within each flat will either not exceed 9m or a protected hall will be provided as per Figure 3

Figure 3: Flat with a Protected Entrance Hallway (Diagram 3.2 of ADB)



## 3.4 Ancillary Accommodation

### 3.4.1 Overview

Ancillary accommodation includes all those parts of buildings containing flats that are ancillary to the dwellings.

### 3.4.2 Proposed Arrangement

The Access for Lift Service Area on the fourth floor cannot be accessed from the residential area of the floor and will be fire separated from the flats in a 60 minute fire rated protected shaft.

## 3.5 Travel Distances

### 3.5.1 ADB Recommendations

ADB recommends the following travel distances:

- Up to 9m in a single direction from any location within a flat to the front entrance door of the flat.
- Up to 7.5m for escape in one direction in common areas of blocks of flats.

### 3.5.2 Proposed Arrangement

The travel distances in the proposed development will comply with the recommendations outlined above and will be kept under review as the design develops further.

## 3.6 Exit Widths And Escape Routes

### 3.6.1 Building Regulations

The following sub-sections refer to the necessary exit width and escape route provisions to be provided to achieve compliance with the Building Regulations.

It should however be noted that wider exit widths may be necessary to comply with other aspects of the Building Regulations, e.g., Part M [10] which are outside the scope of this report.

### 3.6.2 Residential Door Widths

All room exit doors in the proposed scheme should comply with the recommendations outlined above, i.e., each should be provided with a clear exit width of at least 750mm increased to a minimum of 850mm for wheelchair users.

### 3.6.3 Storey Exits at Residential Floors

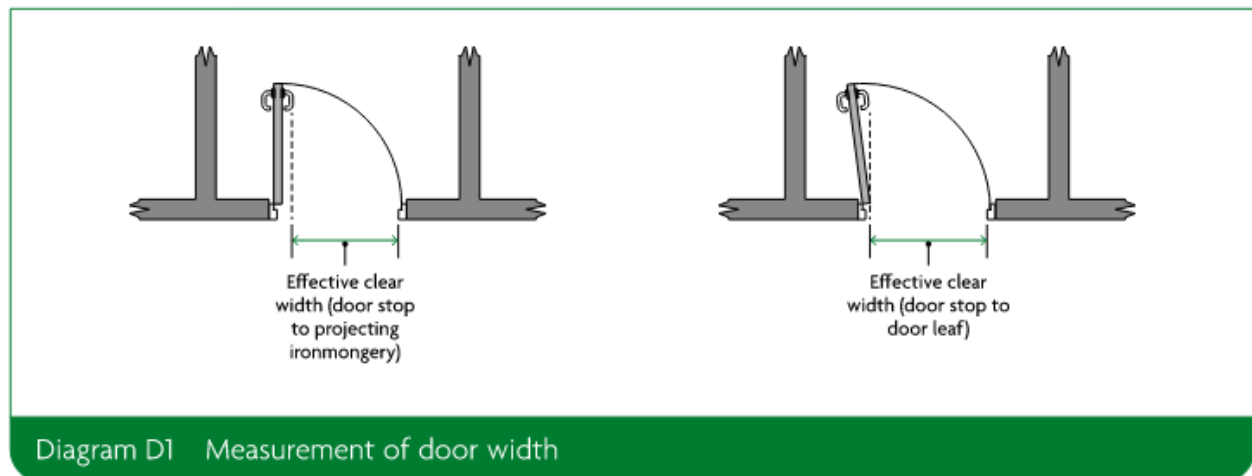
Given the limited number of flats per floor level it is recommended that storey exits will be at least 750mm wide (or 850mm on any floors where unassisted wheelchair access will be necessary) measured as per

### 3.6.4 Measurement of Door Exit Width

Door widths of not less than 850mm should however be provided where unassisted wheelchair access will be necessary.

The above noted exit widths are the clear opening widths when the doors are open, excluding hardware/ironmongery, measured as shown in Figure 4.

Figure 4: Measurement of Door Width (Diagram D1 from ADB)



### 3.6.4.1 Large Rooms (> 60 people)

There are no areas in the building containing rooms serving more than 60 people.

Figure 4.

## 3.7 Vertical Means Of Escape

### 3.7.1 Provision of Protected Stairs

The residential floors will be served by a single stair arrangement. As the top floor is set at less than 18m above the lowest adjacent ground level this stair is not required to form part of a firefighting shaft.

### 3.7.2 Evacuation of Disabled Occupants

#### 3.7.2.1 Disabled Refuge Areas

Refuge areas will be provided at the two upper residential floor levels. The disabled refuge areas will have clear dimensions of 900mm x 1400mm. The refuge areas will be provided at landing level within the protected stair.

The refuge areas will be provided with an emergency voice communication (EVC) system complying with the relevant recommendations in BS5839-9 (2011). This EVC system will consist of Type B outstations (located at the refuges, including externally where required) which communicate with a master station that is typically located adjacent to the main fire detection and alarm panel.

### 3.7.3 Fire Evacuation Lift Provision

As part of the London Plan 2021, Policy D5, Inclusive Design, clause B5 requires that development proposals are to be designed to incorporate safe and dignified emergency evacuation for all building users, and that in all developments where lifts are installed that, as a minimum, at least one lift per core should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building.

The stair serving the residential floors will be provided with a lift, which will comply with the above requirement of Policy D5.

The proposed evacuation lift will comply with the relevant provisions contained in BS EN 81-20 and BS EN 81-70



### 3.7.4 Width of Stairs

#### 3.7.4.1 ADB Recommendations

In buildings containing flats, given the typical evacuation strategy, i.e., only the flat of fire origin should evacuate, the stair width provided for general day-to-day use should normally be sufficient for means of escape.

#### 3.7.4.2 Proposed Arrangement

The proposed stairs shall have a width of 1000mm.

### 3.8 Final Exits

#### 3.8.1 Locations and Signage

The final exits from the building should be sited to ensure the rapid dispersal of occupants to a place of safety away from the building and should be readily apparent to people needing to use the exits.

All final exits should be unambiguously marked by appropriate signage to permit the effective evacuation of occupants away from the building to a place of safety.

#### 3.8.2 Final Exit Width

The final exit located at ground floor level shall have a clear opening width of 1000mm.

The final exit widths stated above only refer to Part B *Fire Safety* of the Building Regulations. Wider exit widths may be necessary to comply with other aspects of the Building Regulations, which are outside the scope of this report.

## **4 ACTIVE FIRE SAFETY SYSTEMS**

### **4.1 Fire Detection and Alarm**

#### **4.1.1 Code Recommendations**

Fire Detection and Alarm systems should be designed and installed to comply with BS5839-6 [12] within individual flats and to BS5839-1 [13] within ancillary accommodation and common areas.

##### **4.1.1.1 Residential Flats**

It is proposed that a Grade D Category LD1 fire detection and alarm system is provided within each individual flat.

##### **4.1.1.2 Common Lobbies to Escape Stair**

The portion of common lobby providing access to the escape stairs will be provided with a smoke control system. These portions of common lobby will be provided with smoke detection to activate the smoke ventilation system to both the lobby and the vent located at the top of the protected stair. Detectors should conform to BS5839-1 recommendations.

#### **4.1.2 Mode of Alarm**

The mode of fire alarm will be in line with guidance contained in BS5839-1 and BS5839-6, as applicable, and should take account of the following.

Each flat should be equipped with an LD1 standard of fire detection and alarm to allow the alarm to be raised within any individual dwelling.

#### **4.1.3 Smoke Detection in Concealed Voids**

Smoke detection in concealed spaces will comply with the recommendations of BS5839-1.

#### **4.1.4 Fire Alarm System Cause and Effect Schedule**

The cause and effect schedule for the fire alarm system will need to be developed by the system designer. This schedule should be agreed with the building owner and the Statutory Authorities.

## **4.2 Automatic Fire Suppression**

The top floor will be located at more than 11m above ground level, and as such sprinklers are required. A residential sprinkler system complying with BS9251 [14] should be provided throughout the new residential accommodation areas.

The existing office accommodation will be provided with a sprinkler system complying the recommendations contained in BS EN12845:2015.

The sprinkler system(s) should be a life safety system.

The design of the sprinkler system should be undertaken by a competent person and installed by a competent person in accordance with the design specification.

## **4.3 Smoke Control Provisions**

### **4.3.1 Overview**

Smoke ventilation is to be provided to the following areas:

- Lobbies to stairs
- The stair core

ADB recommends that all connections between the smoke detection, vent control panels and actuator mechanisms should be within an environment that provides protection from expected fire conditions. Additionally, where any part of the control mechanism is powered by electricity, a secondary supply should be provided.

### 4.3.2 Residential Stairs and Lobbies

Smoke ventilation will be required to the common lobby. A mechanical smoke shaft may be provided to ventilate the common lobby and will be subject to review as the design develops. An automatically opening vent is also required at the head of the stair.

#### 4.3.2.1 Mechanical Smoke Shaft

Where a mechanical smoke shaft is proposed it should comply with BS EN12101-6 [16].

### 4.4 Automatic Opening Vents (AOVS)

Automatic opening vents opening to outside air should conform to BS EN 12101-2.

The automatically opening vent at the head of the stairs shall have a free area of at least 1.0m<sup>2</sup>.

Vents designed to open automatically from the top storey of the stair should be configured to operate on smoke detection within the protected lobby directly adjacent to the staircase enclosure.

Where a smoke shaft system is provided only the AOV leading from the stair core lobby where the smoke has been detected should be configured to open. All other protected lobby vents should be configured to remain closed.

Regarding the free area of AOVs, free area is defined as the total unobstructed cross-sectional area of an opening, vent, etc., measured in the plane where the area is at a minimum and at right angles to the direction of air flow and should be measured in accordance with Diagram D7 of ADB. Aerodynamic free area of a ventilator should be certified in accordance with BS EN 12101-2.

### 4.5 Lighting Of Escape Routes

The building will need to be provided with an escape lighting system with coverage to both internal and external escape routes. The system will need to illuminate the escape routes during failure of the main supply.

Escape lighting will be installed in accordance with the relevant recommendations of BS5266-1 [18]. The escape lighting will illuminate the escape routes during failure of the electrical mains supply to the building.

Escape lighting to escape stairways should be on a separate circuit to that supplying any other part of the escape routes or building.

### 4.6 First-Aid Firefighting Equipment

It is widely accepted in the UK that first aid firefighting should be provided using portable fire extinguishers instead of hose reels. The primary aim of this provision is to ensure adequate extinguishing capability without encouraging occupants to engage in lengthy firefighting activity when they should concentrate on their evacuation.

BS9999 notes that a fire risk assessment should be undertaken to determine the need for manual firefighting equipment in common access corridors and in other areas of the premises. It is expected that such a risk assessment will be carried out in addition to meeting the requirements of the owner/operator.

Where provided, portable fire extinguishers should be selected, installed and maintained in accordance with BS5306-3 [19] and BS5306-8 [20].

### 4.7 Emergency Power Supplies

The design of all life safety systems will be undertaken to ensure there are fail safe provisions. This includes the provision of an emergency power supply to all life safety systems, including:

- Emergency lighting system as recommended in BS5266-1.
- Smoke ventilation systems, i.e., AOV's, as recommended in Clause 14 of BS9991.
- Automatic Fire Detection and Alarm system as recommended by BS5839-1 and BS5839-6.
- Evacuation lifts as recommended in Annex G of BS9999.
- Sprinkler system as recommended by BS9251 or BS EN 12845, as appropriate.

In accordance with Section 15 of BS9991, where dual power supplies are recommended by the relevant British Standard or industry guide to any life safety system, the primary power source should generally be taken from the public electricity supply, with secondary power being supplied from an alternative utility supply from another substation, a generator, an uninterruptable power supply (UPS) or batteries.

### 4.8 Mechanical Ventilation System

Any system of mechanical ventilation will be designed to ensure that in a fire, air movement is directed away from protected escape routes and exits, or that the system (or an appropriate section of it) is closed.

In any system of air conditioning where air can be recirculated out of the fire compartment, the system will either:

- automatically shut down on activation of the fire alarm system; or
- switch from recirculating mode to extract to open air and therefore divert any smoke to the outside of the building.

## 5 INTERNAL FIRE SPREAD (LININGS)

The internal walls and ceilings will be provided with linings which comply with the relevant recommendations in Section 4 of ADB Vol. 1. Table 4.1 of ADB Vol. 1 has been included in Figure 5 of this report.

**Figure 5: Classification of Wall and Ceiling Linings – Table 4.1 of ADB Vol. 1**

Table 4.1 Classification of linings	
Location	Classification
Small rooms of maximum internal floor area of 4m <sup>2</sup>	D-s3, d2
Garages (as part of a dwellinghouse) of maximum internal floor area of 40m <sup>2</sup>	
Other rooms (including garages)	C-s3, d2
Circulation spaces within a dwelling	
Other circulation spaces (including the common areas of blocks of flats)	B-s3, d2 <sup>(1)</sup>
<b>NOTE:</b>	
1. Wallcoverings which conform to <b>BS EN 15102</b> , achieving at least class C-s3, d2 and bonded to a class A2-s3, d2 substrate, will also be acceptable.	

## 6 INTERNAL FIRE SPREAD (STRUCTURE)

### 6.1 Resistance To Damage Of Fire Separating Construction

Unless constructed of materials such as concrete, brick or blocks fire separating wall construction should satisfy the criteria for conformity given in Table 18 of BS9999 when tested in accordance with BS 5234-2:1992 Annex F (severe duty). Table 18 in BS9999 is replicated below in Table 2.

**Table 2: Tests for Partitions**

**Table 18 Tests for partitions**

Test	Severity	Criteria for compliance
a) Stiffness <sup>A)</sup>	500 N	No significant damage, maximum deflection <sup>B)</sup> 10 mm and residual deflection 1 mm
b) Small hard body impact <sup>C)</sup> :		
1) surface damage	10 N·m	No significant damage
2) perforation	30 N·m	No perforation
c) Large soft body impact <sup>D)</sup> :		
1) damage	100 N·m	2 mm maximum deformation
2) structural damage	120 N·m	No collapse or dislocation
d) Crowd pressure	1.5 kN/m	No collapse or dangerous damage <sup>E)</sup>

<sup>A)</sup> Force applied via a 150 mm diameter plate.  
<sup>B)</sup> Deflection of the partition from the vertical.  
<sup>C)</sup> Body is a 50 mm steel sphere.  
<sup>D)</sup> Body is sphericonical bag 600 mm × 400 mm filled with hardened glass beads.  
<sup>E)</sup> Force applied by a 2.5 m horizontal beam.

## 6.2 Structural Fire Resistance

### 6.2.1 Principal Aims

Loadbearing elements of structure are provided with fire resistance to prevent premature failure of the structure for three main reasons:

- to protect occupants of the building during the evacuation period.
- to ensure a reasonably safe environment for firefighters carrying out search and rescue operations; and
- to protect occupants in the surrounding areas of the building from falling debris or from the potential collapse onto adjacent buildings.

### 6.2.2 Fire Resistance Period

The fire resistance of structure is based on load-bearing capacity as tested in compliance with BS476 Parts 20-24 [24]–[28] or relevant European Standard.

The building with the additional of two floors of residential accommodation will have a top floor level set at less than 18m above the lowest adjacent ground level and as such the applicable period of fire resistance is 60 minutes.

This required period of fire resistance will include coverage to the following elements:

- Structural frame elements that are required to be fire rated (except elements only supporting the roof where it serves no other purpose).
- Loadbearing walls (from both sides separately)
- Compartment walls (from both sides separately)

- Compartment floors (from the underside)
- Protected shafts, e.g., stair cores, lift shafts, service risers.

Where a fire resistance period is noted in this report it will be provided as per Table B3 of ADB.

A provision for an element of structure to have fire resistance should not apply to any part of the structure, which only supports a roof unless:

- the roof performs the function of a floor, e.g., as a means of escape; or
- the structure is part, or essential for the stability, of an external wall which cannot be an unprotected area

Where one element of structure or other component supports, carries, or gives stability to another, the fire resistance of the supporting element or component should not be less than the minimum period of fire resistance for the other element, whether that other element is loadbearing or not.

For secondary, un-protected, steelwork care needs to be taken that these secondary elements do not create hotspots where they connect to the fire protected structure. The requirement for fire rating of a secondary elements should be clarified with the specialist paint supplier/fire rated board manufacturer.

Consideration also needs to be given to the provision of a sufficient gap between intumescent painted elements and other elements placed in and around the painted structural element e.g., non-fire rated plaster board enclosure, in order to allow for intumescent paint to expand up to the thickness required to achieve the required period of fire resistance. The requirement for the minimum expansion gap to be allowed for should be agreed with the specialist paint supplier.

It is advised to refer to available guidance on fire protection of steel structures, such as ASFP – Fire protection for structural steel in buildings (Yellow Book) [29]. The specific guidance at the junction between protected and un-protected structural steelwork is given in ASFP Technical Guidance Document 8 [30].

### 6.3 Independent Third Party Certification And Accreditation

It is recommended that installers of all passive fire protection measures are third party independently certified and accredited to carry out such works and that the works are subject to separate inspection by appropriately qualified third party accredited organisations.

All passive fire protection measures should be installed strictly in accordance with the manufacturer's recommendations and fire tested assembly/arrangement including the substrate (wall/floor construction) that the product is built into, the orientation of the product (horizontal or vertical) and the manufacturers recommendation for fire stopping at the junction of any passive fire protection product with the substrate that it is built into.

Appropriate certification should be obtained for all passive fire protection measures introduced into the design and construction of the building.

### 6.4 Compartmentation

#### 6.4.1 Construction of Compartment Walls and Floors

Compartmentation will be provided to comply with the recommendations of ADB Vol 1.

- All floors will be compartment floors achieving the minimum period of fire resistance required for the building, i.e., 60mins.
- All flats will be separated from each other and common areas by at least 60mins fire resistance.
- All other compartment walls and protected shafts, etc., should achieve the minimum period of fire resistance required for the building i.e., 60 minutes.
- All ancillary accommodation should be adequately compartmented from the residential areas.

- The floor separating the existing offices from the new residential accommodation shall be a compartment floor.

The minimum periods of fire resistance for the construction of the components as noted above should be tested in accordance with the relevant parts of BS476 or relevant European Standard.

### 6.4.2 Junctions of Compartmentation

#### 6.4.2.1 Junctions of Compartment Walls with Other Walls

Where a compartment wall or floor meets another compartment wall, or an external wall, the junction should maintain the fire resistance for a period not less than the period of fire resistance required by the compartment wall or compartment floor in accordance with standard guidance.

#### 6.4.2.2 Junctions of Compartment Walls and Roofs

If a fire penetrates a roof near a compartment wall there is a risk that it will spread over the roof to the adjoining compartment.

Where a compartment wall meets a roof, it will comply with the relevant recommendations of ABD sections 5.11- 5.15.

### 6.5 Residential Areas

Each residential flat will form a separate fire compartment and each storey will be separated by compartment floors. Flats will each be enclosed in fire resistant construction and separated from the common spaces and each other by compartment walls achieving at least 60mins fire resistance from each side separately.

### 6.6 Escape Stair

As per standard guidance recommendations, stairs spanning through compartment floors should be contained in protected shafts achieving the fire resistance period of the building.

The stair should be enclosed in 60-minute fire rated construction.

The stair and its associated landings should be constructed of materials of limited combustibility. Combustible materials should not be added to the upper surface of the escape stairs.

Floor coverings in the stair and adjacent lobbies should minimise slipperiness when wet and should be maintained in accordance with BS6263-2 [31]. Textile coverings should not ignite and should be interrupted at all doors providing access to the escape stair along the threshold of the doorway with a metal or other non-combustible strip not less than 50mm wide.

### 6.7 Protected Vertical Shafts

Where protected stair cores, service risers and lift shafts span through compartment construction they will be designed as protected shafts achieving the same fire resistance period as that of the building i.e., 60 minutes.

Where services breach the enclosure of a protected shaft the appropriate fire stopping, proprietary seals and fire dampers should be installed to provide continuity of compartmentation.

### 6.8 Pipe Penetrations

Where pipes pass through fire rated construction, they will be treated in accordance with the relevant recommendations of ADB for fire stopping and fitting of proprietary intumescent seals to maintain the required level of compartmentation/fire separation.

Figure 6 indicates ADB recommendations for the maximum internal diameter of pipes passing through fire separating elements.



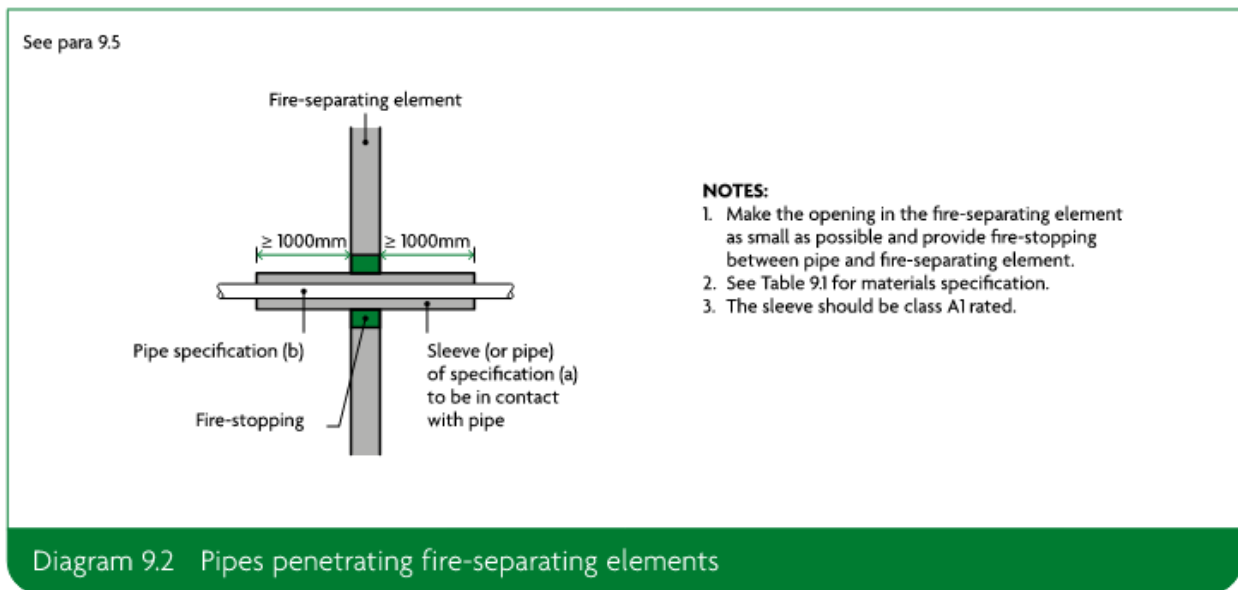
Pipes which pass through a fire separating element will meet one of the provisions outlined below:

- Proprietary seal (pipe of any dimension): Provide a proprietary sealing system which has been shown by test to maintain the fire resistance of the wall, floor or cavity barrier.
- Pipes of restricted diameter: Where a proprietary sealing system is not used, fire-stopping may be used around the pipe, keeping the opening as small as possible. The nominal internal diameter of the pipe should not be more than the relevant dimension given in Table 9.1 of ADB (see Figure 6).
- Sleeving: A pipe of lead, aluminium, aluminium alloy, fibre-cement or uPVC, with a maximum nominal internal diameter of 160mm, may be used with a sleeving of non-combustible pipe as shown in Diagram 9.2 of ADB (see Figure 7). The specification for non-combustible and uPVC pipes is given in the notes to Table 9.1 of ADB as replicated in Figure 6 below.

**Figure 6: Maximum Nominal Internal Diameter of Pipes passing through Fire Separating Elements**

<b>Table 9.1 Maximum nominal internal diameter of pipes passing through a fire-separating element</b>			
Situation	Pipe material and maximum nominal internal diameter (mm)		
	(a) High melting point metal <sup>(1)</sup>	(b) Lead, aluminium, aluminium alloy, uPVC, <sup>(2)</sup> fibre cement	(c) Any other material
1. Structure (but not a wall separating buildings) enclosing a protected shaft that is not a stair or a lift shaft	160	110	40
2. Compartment wall or compartment floor between flats	160	160 (stack pipe) <sup>(3)</sup> 110 (branch pipe) <sup>(3)</sup>	40
3. Wall separating dwellinghouses	160	160 (stack pipe) <sup>(3)</sup> 110 (branch pipe) <sup>(3)</sup>	40
4. Wall or floor separating a dwellinghouse from an attached garage	160	110	40
5. Any other situation	160	40	40
<b>NOTES:</b>			
1. Any metal (such as cast iron, copper or steel) which, if exposed to a temperature of 800°C, will not soften or fracture to the extent that flame or hot gas will pass through the wall of the pipe.			
2. uPVC pipes that comply with either <b>BS 4514</b> or <b>BS 5255</b> .			
3. These diameters are only in relation to pipes that form part of an above-ground drainage system and are enclosed as shown in Diagram 9.1. In other cases, the maximum diameters given for situation 5 apply.			

Figure 7: Pipes Penetrating Fire Separating Elements (Diagram 9.2 from ADB)



## 6.9 Ductwork Protection And Fire Dampers

Ductwork in the proposed scheme will comply with the recommendations provided in Clauses 9.12 – 9.22 (Section 9) of ADB. Where ductwork connects with any of the residential accommodation or protected escape routes, they shall be both fire and smoke activated.

## 6.10 Flues

Where flues penetrate compartment construction, they should achieve the following fire resistance performance:

- 30 minutes fire resistance Integrity
- 30 minutes fire resistance Insulation

The fire rating is required from outside the flue.

## 6.11 Fire Stopping

Fire stopping will be provided at any joints and imperfections of fit between elements which serve as a barrier to the passage of fire and should be provided at all openings for pipes, ducts, cables, conduits or trays which pass through any fire separating elements. Such openings should be as few as possible and as small as practicable.

To maintain the physical integrity of fire-stopping, it should be reinforced with (or supported by) non-combustible materials, or materials of limited combustibility, in the following circumstances:

1. in all cases where the gap between elements that need to be fire-stopped is greater than 100 mm; and
2. in any other case where non-rigid or flexible materials are used (unless substantiated by fire test evidence).

## 6.12 Concealed Spaces

To prevent concealed fire and smoke spread, voids of significant dimensions will be provided with cavity barriers in accordance with Section 8 of ADB. Cavity barriers will achieve at least 30mins fire rating for

integrity and 15mins for insulation and will be installed in line with the recommendation of ADB and the manufacturer's instructions.

Cavity barriers should be provided throughout the scheme in line with the recommendations of Diagram 8.1 of ADB.

### 6.13 Fire Doors

Fire doors should be provided in accordance with the recommendations of Table C1 of ADB. Fire doors will have a minimum fire resistance for the specified period when tested to BS 476-22 or relevant European standard.

The minimum period of fire resistance for the doors identified in the proposed scheme will meet the minimum requirements identified in Table 3 below.

ADB states that self-closing devices need not be provided on fire doors within a dwelling. Self-closing devices should however be provided on the door between a flat and communal area.

Service riser doors need not be provided with self-closing devices. These fire doors will be provided with signage indicating the need to lock the door shut after use.

**Table 3: Rating of Internal Fire Doors**

Fire Door Location	Fire Rating <sup>[1]</sup>
Doors leading to the protected stair from the lobby	FD30S
Doors into the protected lobby at upper levels	FD30S
Lift Doors	FD30
Entrance doors to flats	FD30S
Doors to service shafts	FD30S
Doors to internal protected halls	FD30
Doors to places of special fire hazard	FD30S

**Note 1** – Suffix ‘S’ indicates cold smoke seals will be fitted in addition to intumescent strips. Suffix ‘S’ is required where fire doors open onto a protected lobby/corridor or protected escape route.

## 7 EXTERNAL FIRE SPREAD

### 7.1 Regulation 7(2) of the Building Regulations 2010

The proposed building will not contain a storey located at 18m or more above ground level and will also not represent a “*relevant building*” regarding Regulation 7(2) of the Building Regulations 2010.

### 7.2 Construction Of External Walls

#### 7.2.1 Definition of External Wall

ADB defines an external wall of a building to include:

- Anything located within any space forming part of the wall
- Any decoration or other finish applied to any external (but not internal) surface forming part of the wall.
- Any windows and doors in the wall
- Any part of a roof pitched at an angle of more than 70 degrees to the horizontal if that part of the roof adjoins a space within the building to which persons have access, but not access only for the purposes of carrying repairs or maintenance.

### 7.3 External Surfaces

In accordance with Section 10.5 of ADB Vol. 1, the outer surfaces of the proposed building’s external walls will, as a minimum standard, comply with the relevant recommendations in terms of the reaction to fire performance of the wall as defined in Table 10.1 of ADB Vol. 1 as noted below.

- European Class A2-s1,d0 or better

### 7.4 Cavity Barriers

Cavity barriers should be provided to external walls as follows:

- At every floor level.
- At the junction of an external wall with an internal fire rated wall.
- Around openings through the wall including at windows, doors, service penetrations etc.
- To close the edges of cavities e.g., at the top of a wall.

### 7.5 External Wall Insulation

Any insulation product, filler material (such as the core materials of metal composite panels, sandwich panels and window spandrel panels but not including gaskets, sealants or similar) used in the construction of the external wall should achieve the reaction to fire performance Class A2-s1,d0 or better.

### 7.6 Metal Composite Materials

It is noted in Paragraph 10.11 of AAD 2022 that Regulation 7(1A) prohibits the use of relevant metal composite materials, defined below, in the external walls of all buildings of any height:

- Any panel or sheet having a thickness of no more than 10mm which is composed of a number of layers two or more of which are made of metal, alloy or metal compound and one or more of which is a substantial layer made of a material having a gross calorific value of more than 35MJ/kg when tested in accordance with BS EN ISO 1716. A substantial layer is defined as a layer which is at least 1mm thick or has a mass per unit area of at least 1kg/m<sup>2</sup>.

## 7.7 Resisting Fire Spread from One Building to Another

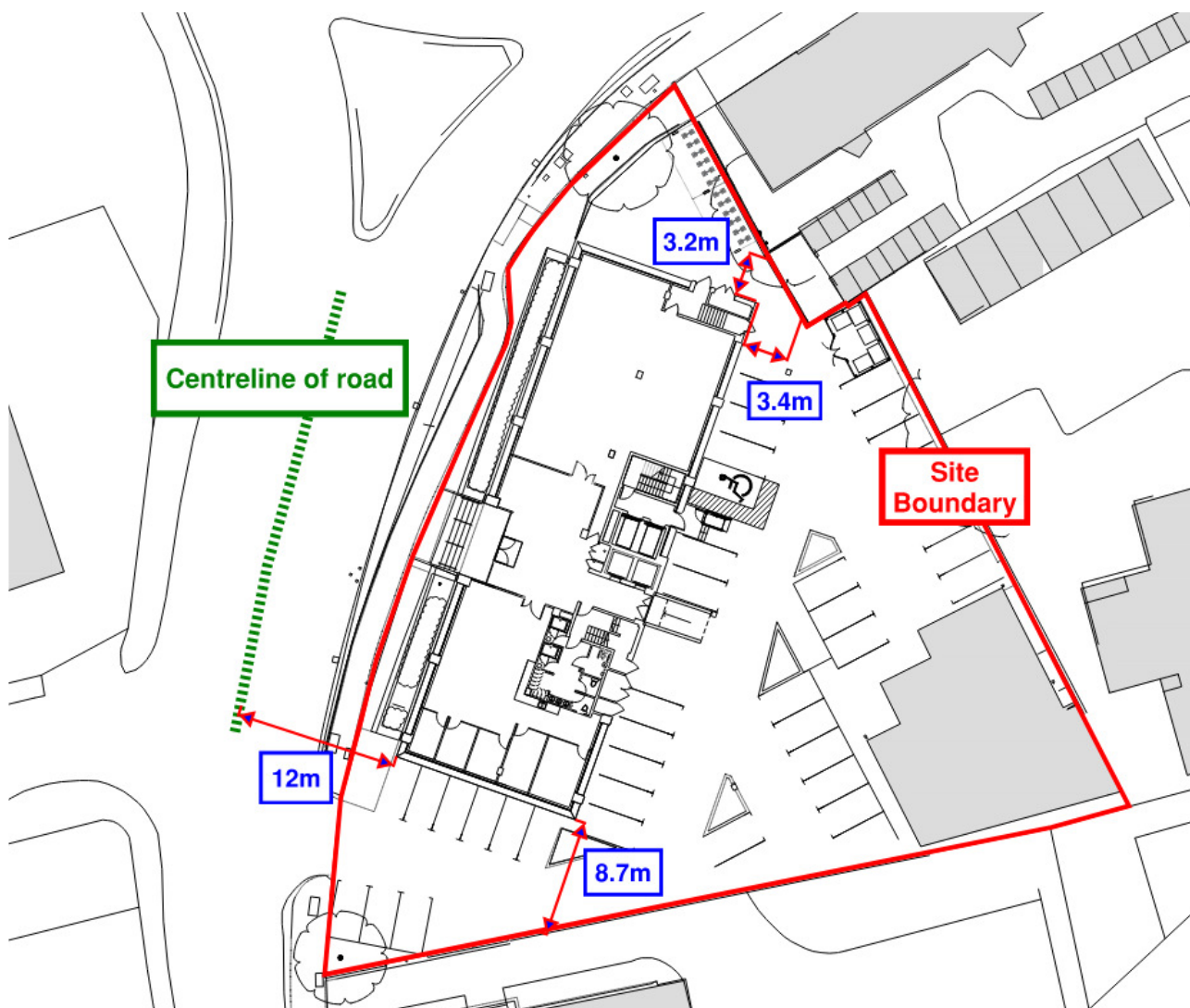
In accordance with Section 11 of ADB Vol. 1, it is necessary to assess external fire spread from the proposed building to the relevant boundary, including site boundary and centre line of a space where further development is unlikely such as a road, railway, canal, or river.

## 7.8 Relevant Boundaries

To comply with Building Regulations external fire spread needs to be assessed with respect to the building elevations and their proximity to a relevant boundary. This is normally the site boundary or centreline of an adjacent road, river, railway, etc.

The distance to the relevant boundaries, i.e., the distance to the site boundary or to the centreline of adjacent roads, railway lines (as applicable) in respect of the building are indicated in Figure 8 below.

**Figure 8: Distances to Relevant Boundaries**



## 7.9 Space Separation

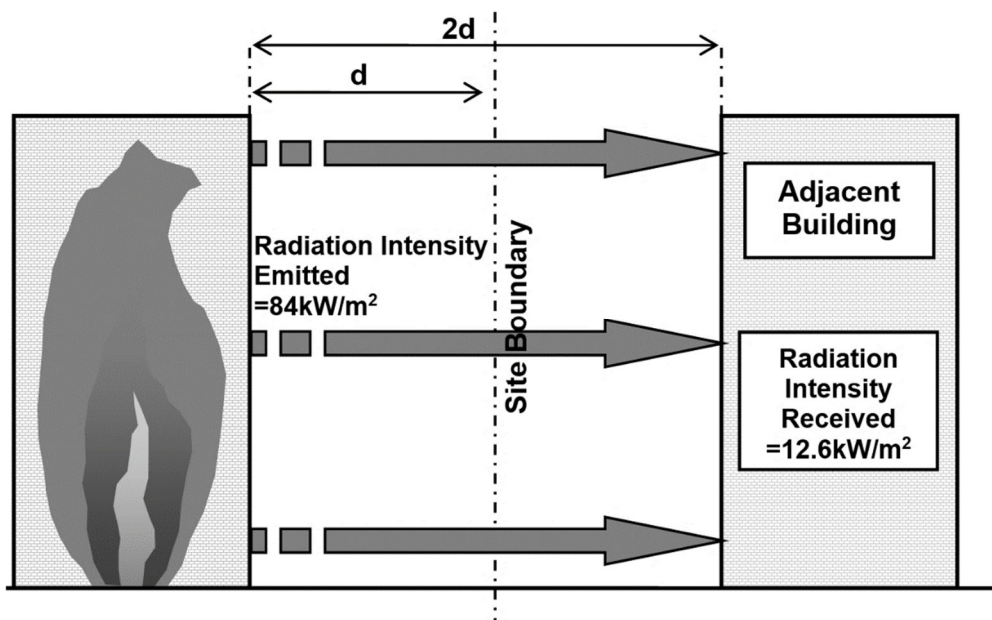
### 7.9.1 Radiation Intensity

It is recommended in standard guidance that a building should be separated from its relevant boundaries by at least half the distance at which the total thermal radiation intensity received by the unprotected areas in the external walls of an adjacent building would be  $12.6\text{kW/m}^2$ . In such instances, it is assumed that the radiation intensity emitted from the building of fire origin is as follows:

- $84\text{kW/m}^2$  for buildings of residential, office, assembly and recreation or light goods vehicle car park use, i.e., Purpose Group 1, 2, 3, 5 or 7(b); or
- $168\text{kW/m}^2$  for buildings of shop and commercial, industrial or storage use, i.e., Purpose Group 4, 6 or 7(a)

The above noted space separation is shown schematically in Figure 9.

**Figure 9: Recommended Distance to Relevant Boundary Based on Radiation Intensity**



External fire spread has been assessed using the '*alternative approach*' which is described in BR187 [32]. The external elevations will be designed to limit external fire spread based on the compartmentation arrangements noted previously in this report (see Section 0).

### 7.9.2 Automatic Suppression System

As detailed in ADB Vol.1, where a building is fitted throughout with a suppression system complying with the relevant provisions of BS 9251 or BS EN 12845 (if applicable), it is permitted for the boundary distance to be halved, subject to a minimum distance of 1m. Alternatively, the amount of unprotected area may be doubled if the calculated boundary distance is maintained.

### 7.9.3 Allowable Unprotected Areas

#### 7.9.3.1 Elevations located greater than 1.0m from a relevant boundary.

Where required the external walls on the elevations of the building that are more than 1.0m from a relevant boundary should achieve the following fire resistance period.

- 60 minutes fire resistance; load bearing (if applicable) and integrity.



- 15 minutes insulation

The 60 minutes period of fire resistance is required from the inside face of the wall only.

An assessment of external fire spread has determined that the elevations for the building may be 100% unprotected.

## 7.10 Roof Coverings

### 7.10.1 Performance Requirements

As a minimum, roof covering in the proposed premises should be in line with Diagram 12.1 included in ADB as replicated in Figure 10. Given the proximity of building to the site boundary It is recommended that the roof covering achieves the reaction to fire performance  $B_{ROOF}(t4)$ . This requirement applies to green roofs as well.

**Figure 10: Limitations on Roof Coverings (Diagram 12.1 from ADB)**

Table 12.1 Limitations on roof coverings				
Designation <sup>(1)</sup> of covering of roof or part of roof	Distance from any point on relevant boundary			
	Less than 6m	At least 6m	At least 12m	At least 20m
$B_{ROOF}(t4)$	●	●	●	●
$C_{ROOF}(t4)$	○	●	●	●
$D_{ROOF}(t4)$	○	● <sup>(2)(3)</sup>	● <sup>(2)</sup>	●
$E_{ROOF}(t4)$	○	● <sup>(2)(3)</sup>	● <sup>(2)</sup>	● <sup>(2)</sup>
$F_{ROOF}(t4)$	○	○	○	● <sup>(2)(3)</sup>
<p>● Acceptable. ○ Not acceptable.</p> <p><b>NOTES:</b></p> <p>Separation distances do not apply to the boundary between roofs of a pair of semi-detached dwellinghouses and to enclosed/covered walkways. However, see Diagram 5.2 if the roof passes over the top of a compartment wall.</p> <p>Polycarbonate and uPVC rooflights that achieve a class C-s3, d2 rating by test may be regarded as having a <math>B_{ROOF}(t4)</math> designation.</p> <p>1. The designation of external roof surfaces is explained in Appendix B.</p> <p>2. Not acceptable on any of the following buildings.</p> <p>a. Dwellinghouses in terraces of three or more dwellinghouses.</p> <p>b. Any other buildings with a cubic capacity of more than 1500m<sup>3</sup>.</p> <p>3. Acceptable on buildings not listed in (2) if both of the following apply.</p> <p>a. Part of the roof has a maximum area of 3m<sup>2</sup> and is a minimum of 1500mm from any similar part.</p> <p>b. The roof between the parts is covered with a material rated class A2-s3, d2 or better.</p>				

Roof coverings will achieve the reaction to fire performance  $B_{ROOF}(t4)$



## 8 ACCESS AND FACILITIES FOR THE FIRE SERVICE

For ADB compliance, where dry risers are installed fire tender access is only required specifically in relation to the dry riser inlet, not the perimeter of the building.

The top floor level in the building is less than 50m above ground level and as such a dry riser system will be provided. For compliance with ADB, fire tender access should be such that it is within 18m of, and in sight of, the dry riser inlet.

Figure 11 below provides typical access route dimensions for fire tender access:

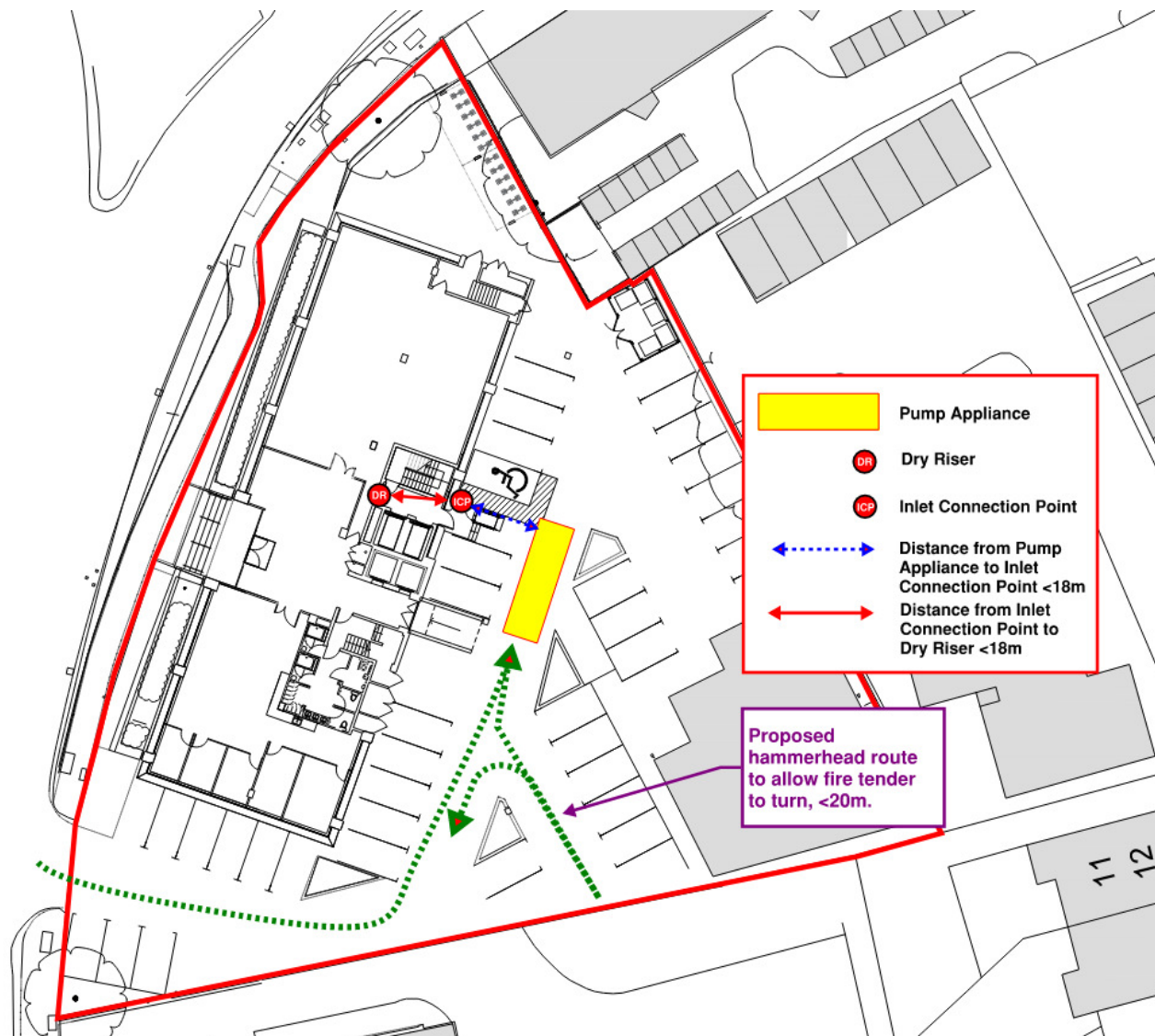
**Figure 11: Fire Tender Access Dimensions (Table 13.1 of ADB Vol.1)**

Table 13.1 Typical fire and rescue service vehicle access route specification						
Appliance type	Minimum width of road between kerbs (m)	Minimum width of gateways (m)	Minimum turning circle between kerbs (m)	Minimum turning circle between walls (m)	Minimum clearance height (m)	Minimum carrying capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	12.5
High reach	3.7	3.1	26.0	29.0	4.0	17.0
<b>NOTES:</b> <ol style="list-style-type: none"> <li>1. Fire appliances are not standardised. The building control body may, in consultation with the local fire and rescue service, use other dimensions.</li> <li>2. The roadbase can be designed to 12.5 tonne capacity. Structures such as bridges should have the full 17-tonne capacity. The weight of high reach appliances is distributed over a number of axles, so infrequent use of a route designed to accommodate 12.5 tonnes should not cause damage.</li> </ol>						

The minimum carrying capacity for pump appliances is at least 12.5 tonnes. The fire tender should not need to reverse more than 20m to reach the necessary position to achieve access to the inlet connection point (ICP).

Details of the proposed fire appliance set-up location etc. are indicated in Figure 12 below.

Figure 12: Fire Appliance Access



## 8.1 Dry Riser System

Fire mains should be designed and installed in accordance with BS9990 [33].

A dry riser should be provided in the protected stair with an inlet valve positioned externally and internal landing valves provided at each floor level, including the ground level in the stair enclosure.

Inlet connections for the dry riser system should be installed in an external wall as close as possible to the position of the fire main which they serve. To comply with BS9990 any run of connecting pipe between the inlet and the vertical run of the main should be less than 18m and should be given a fall towards the drain valve. The breeching point should comply with BS 5041-3 and the inlet box should comply with BS 5041-5 and be located between 400mm and 600mm above ground level.

## 8.2 Provision Of Fire Hydrants

ADB Vol.1 states that for buildings provided with dry fire mains, hydrants should be provided within 90m of dry fire main inlets.

Where required a new hydrant will be provided to ensure that the 90m limit to the dry riser inlet valve is achieved.

### 8.3 Wayfinding Signage For The Fire Services

Recent amendments to ADB recommend the provision of wayfinding signage for use by the fire service. The recommendations include provision for

- Floor identification Signage
  - Signage on every landing of the firefighting stair and each lobby confirming the floor level
- Flat Indicator signs located below floor identification signage that
  - Record the flat numbers for each flat at each floor level
  - Include arrows related to flat numbers to indicate the direction to an individual flat

### 8.4 Secure Information Boxes

A secure information box provides a secure facility to store information about a building for use by the fire service during an incident.

Blocks of flats (purpose group 1(a)) with a top storey more than 11m above ground level should be provided with a secure information box.

The box should meet all of the following criteria:

- a) Sized to accommodate all necessary information.
- b) Easily located and identified by firefighters.
- c) Secured to resist unauthorised access but readily accessible by firefighters.
- d) Protected from the weather.

Further guidance can be found in Sections 2 -4 of the Code of Practice for the Provision of Premises Information Boxes in Residential Buildings published by the Fire Industry Association (FIA) [34].

## **9 INFORMATION, LIMITATIONS AND ASSUMPTIONS**

### **9.1 Building Regulations**

This Fire Safety Statement considers suitable life safety provisions for the site by observing guidance contained in Approved Document B: Volume 1: Dwellings.

This Fire Safety Statement also strategically addresses, in APPENDIX A, the requirements of the London Plan 2021.

### **9.2 Fire Safety Management**

This Fire Safety Statement has been developed to not require a higher standard of fire safety management than would be necessary for other buildings of a similar use, size, and complexity.

### **9.3 Other Limitations**

#### **9.3.1 Possible Fire Scenario**

Complying with the recommendations of this report will not guarantee that a fire will not occur in the proposed buildings.

#### **9.3.2 Statutory Approval and Detailed Design**

This Fire Safety Statement should be submitted to assist in the process of gaining Planning Approval for the proposed development.

It should not be assumed that following the guidance offered in this report confers statutory approval in respect of any aspect of the proposed building design in advance of formal approval being received from the statutory authorities.

The detailed design of the various fire safety installations, both active and passive, and the preparation of design drawings and specifications identifying such installations shall remain the responsibility of the respective design team members, e.g., services consultant, project architect, etc.

Unless explicitly noted in this Fire Statement, it is assumed that the detailed design of the fire safety provisions and their construction on site will comply with standard fire safety guidance.

## 9.4 Drawings Used for Report

This report has been primarily based on the drawings which have been developed by WAW

A schedule of the latest drawings for the proposed buildings has been included in Table 6 of this report.

**Table 4: Schedule of Drawings used for Report**

Drawing Title	Drawing Number	Scale	Date
Site Location Plan	001	1:1250	13/02/23
Proposed Site Plan	4780/016	1:200	15/02/23
Proposed Elevations 1 & 2	4780/013	1:100	14/02/23
Proposed Elevations 3 & 4	4780/014	1:100	14/02/23
Proposed Section CC	4780/015	1:100	15/02/23
Proposed 4F & 5F Plans	4780/011	1:100	14/02/23

## 10 KEY REFERENCES

The key references in this report include the following:

- [1] Crown copyright, *The Building Regulations 2010, No. 2214, Building and Buildings, England and Wales*. The Stationery Office, 2010.
- [2] HM Government, *Approved Document B: Fire Safety – Volume 1: Dwellings (2019 edition incorporating 2020 and 2022 amendments)*. RIBA Books, 2022.
- [3] Crown copyright, *The Regulatory Reform (Fire Safety) Order 2005, No. 1541 - Regulatory Reform, England and Wales*. The Stationery Office, 2005.
- [4] British Standards Institution, *BS 9999:2017 Fire safety in the design, management and use of buildings. Code of practice*. British Standards Institution, 2017.
- [5] Crown copyright, *The Construction (Design and Management) Regulations 2015, No. 51*. The Stationery Office, 2015.
- [6] Health and Safety Executive, *Managing health and safety in construction - Construction (Design and Management) Regulations 2007 (CDM) - Approved code of Practice, L 144*. London: HSE Books (Crown copyright), 2007.
- [7] Health and Safety Executive, *Fire safety in construction work - Guidance for clients, designers and those managing and carrying out construction work involving significant fire risks*, HSG 168-Second Edition. London: HSE Books (Crown copyright), 2010.
- [8] Fire Protection Association, *Fire Prevention on Construction Sites - The Joint Code of Practice on the Protection from Fire of Construction Sites and Buildings Undergoing Renovation*, Fifth Edition. Fire Protection Association and Construction Federation, 2000.
- [9] CLG/FPA/RISC Authority, *Fire Prevention on Construction Sites - The Joint Code of Practice on the Protection from Fire of Construction Sites and Buildings Undergoing Renovation*, 9th Edition. Construction Industry Publications Limited & Fire Protection Association, 2015.
- [10] HM Government, *Approved Document M: Access to and use of buildings (2015 edition incorporating 2016 amendments)*. RIBA Books, 2015.
- [11] HM Government, *Approved Document B: Fire Safety – Volume 2: Buildings other than dwellings (2019 edition incorporating 2020 and 2022 amendments)*. RIBA Books (Crown Copyright 2022), 2022.
- [12] British Standards Institution, *BS 5839-6:2019 Fire detection and fire alarm systems for buildings. Code of practice for the design, installation, commissioning and maintenance of fire detection and fire alarm systems in domestic premises*. British Standards Institution, 2019.
- [13] British Standards Institution, *BS 5839-1:2017 Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises*. British Standards Institution, 2017.
- [14] British Standards Institution, *BS 9251:2021 Fire sprinkler systems for domestic and residential occupancies. Code of practice*. British Standards Institution, 2021.
- [15] British Standards Institution, *BS EN 12845:2015 + A1:2019 Fixed firefighting systems. Automatic sprinkler systems. Design, installation and maintenance*. British Standards Institution, 2015.
- [16] British Standards Institution, *BS EN 12101-6:2005 Smoke and heat control systems. Specification for pressure differential systems. Kits*. British Standards Institution, 2005.
- [17] British Standards Institution, *BS EN 12101-2:2017 Smoke and heat control systems. Natural smoke and heat exhaust ventilators*. British Standards Institution, 2017.
- [18] British Standards Institution, *BS 5266-1:2016 Emergency lighting. Code of practice for the emergency lighting of premises*. British Standards Institution, 2016.



- [19] British Standards Institution, *BS 5306-3:2017 Fire extinguishing installations and equipment on premises. Commissioning and maintenance of portable fire extinguishers. Code of practice*. British Standards Institution, 2017.
- [20] British Standards Institution, *BS 5306-8:2012 Fire extinguishing installations and equipment on premises. Selection and positioning of portable fire extinguishers. Code of practice*. British Standards Institution, 2012.
- [21] British Standards Institution, *BS EN 81-72:2015 Safety rules for the construction and installation of lifts. Particular applications for passenger and goods passenger lifts. Firefighters lifts*. British Standards Institution, 2015.
- [22] British Standards Institution, *BS 8629:2019 Code of practice for the design, insulation, commissioning and maintenance of evacuation alert systems for use by fire and rescue services in buildings containing flats*. British Standards Institution, 2019.
- [23] British Standards Institution, *BS EN 13501-1:2007+A1:2009 Fire classification of construction products and building elements. Classification using test data from reaction to fire tests (Replaced by BS EN 13501-1:2018)*. British Standards Institution, 2007.
- [24] British Standards Institution, *BS 476-20:1987 Fire tests on building materials and structures. Methods for determination of the fire resistance of elements of construction (general principles)*. British Standards Institution, 1987.
- [25] British Standards Institution, *BS 476-21:1987 Fire tests on building materials and structures. Methods for determination of the fire resistance of loadbearing elements of construction*. British Standards Institution, 1987.
- [26] British Standards Institution, *BS 476-22:1987 Fire tests on building materials and structures. Methods for determination of the fire resistance of non-loadbearing elements of construction*. British Standards Institution, 1987.
- [27] British Standards Institution, *BS 476-23:1987 Fire tests on building materials and structures. Methods for determination of the contribution of components to the fire resistance of a structure*. British Standards Institution, 1987.
- [28] British Standards Institution, *BS 476-24:1987 Fire tests on building materials and structures. Methods for determination of the fire resistance of ventilation ducts*. British Standards Institution, 1987.
- [29] Association for Specialist Fire Protection, *Fire protection for structural steel in building 5th Edition*, 5th ed., vol. 1, 2 vols. Surrey; Berks; Warrington: ASFP; SCI; FTSG, 2020.
- [30] Association for Specialist Fire Protection, *ASFP Technical Guidance Document 8: Code of practice for junctions between different fire protection systems when applied to load bearing structural steel elements*. Surrey; Berks; Warrington: ASFP; SCI; FTSG, 2010.
- [31] British Standards Institution, *BS 6263-2:1991 Care and maintenance of floor surfaces. Code of practice for resilient sheet and tile flooring*. British Standards Institution, 1991.
- [32] R. Chitty, *BR 187, 2nd edition: External fire spread: building separation and boundary distances*. BREPress, 2014.
- [33] British Standards Institution, *BS 9990:2015 Non automatic fire-fighting systems in buildings. Code of practice*. British Standards Institution, 2015.
- [34] Fire Industry Association Limited, *Code of Practice for the Provision of Premises Information Boxes in Residential Buildings*. Fire Industry Association Limited, 2020. [Online]. Available: [www.fia.uk.com](http://www.fia.uk.com)

## **APPENDIX A**

### **THE LONDON PLAN 2021**



## 11 THE LONDON PLAN 2021

### 11.1 Overview

The policies set out in the Planning Policy D12 (Fire Safety) are addressed in **Table 7** regarding the new Prologis development in the London Borough of Croydon.

**Table 5: Policies set out in Planning Policy D12 (Fire Safety)**

London Plan 2021	Fire Statement Comments
The building's construction: methods, products and materials used, including manufacturers' details.	<p>The proposed building's structure and construction materials will comply with the relevant recommendations of Approved Document B 'Fire Safety' Volumes 1 and 2 (2022).</p> <p>The materials and workmanship will comply with the functional requirements of Regulation 7 of the Building Regulations 2010.</p> <p>The construction products and materials will be installed in accordance with the manufacturer and/or supplier's installation instructions.</p>
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.	The strategic approach to evacuation and means of escape is outlined in Section 3 of this report. Section 3 specifically addresses the evacuation of disabled occupants, including the provision of an evacuation lift to comply with Policy D5, Inclusive Design, clause B5.
Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans.	The proposed building's active and passive fire safety measures are outlined in Section 4 and Section 6 respectively of this report.
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.	<p>The access and facilities for the Fire Service are strategically addressed in Section 8 of this report.</p> <p>The proposed building's fire safety design will be based on the provision throughout of an automatic fire suppression system for Building Regulations compliance.</p>
How provision will be made within the curtilage of the site to enable fire appliance to gain access to the building.	<p>Vehicle access by the Fire Service to the proposed building is addressed in Section 8 of this report.</p> <p>The proposed scheme's Site Plan identifies suitable positioned, unobstructed outside space for fire appliances to be positioned on.</p>
Ensuring that any potential future modification to the building will take into account and not	The design of the proposed building will comply with the functional requirements of the Building Regulations 2010, and the relevant

compromise the base build fire safety/protection measures.	recommendations of the latest ADB Volume 1 (2022).  Future changes to the building's design should follow the applicable guidance document(s) at that time and must achieve Building Regulations compliance.
--	--

### 11.2 Declaration of Compliance

Based on the above, it is considered that the fire safety of the proposed Uxbridge residential development and the fire safety information outlined in this Fire Statement satisfy the requirements of the London Plan Policy D12A.

Where the proposed building will be provided with lifts, fire evacuation lifts will be provided in compliance with the London Plan Policy D5 (B5).