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Weir House

Fire Strategy Report Issue 1

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DOCUMENT HISTORY

Issue	Date	Amendment Details	Author	Checked
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Note: All amendments to the fire strategy since the previous issue are indicated with a vertical line in the right hand margin of the document.

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1.0 INTRODUCTION

1.1 Report Scope and Objectives

- 1.1.1 BWC Fire Limited (BWC) has been appointed to produce the fire strategy for the proposed residential apartment block on the site known as Weir House in Uxbridge.
- 1.1.2 The fire strategy is intended for discussion within the design team and to assist the design team in gaining approval in principle from the Approving Authorities. This strategy is intended to address Building Regulations.
- 1.1.3 This fire strategy has been based on BS9991: 2024¹ well as other relevant guidance, such as British Standard BS5839 Part 6².
- 1.1.4 The report follows the main sections in BS9991, with each section outlining the recommendations applicable to the design. Where details are not mentioned in this report then specific guidance from BS9991 should be adopted.
- 1.1.5 The findings and opinions expressed are based on the conditions encountered and the information reasonably available at the date of issue of this document, and shall be applicable only to the circumstances envisaged herein.
- 1.1.6 As this document forms a concept approach for fire matters, the design team must ensure the contents of the report are incorporated in the building.

1.2 Building Description

- 1.2.1 This project entails the redevelopment of the land of the former Weir House building at 50 Riverside Way in Uxbridge, UB8 2YF.
- 1.2.2 At completion of the works the site will consist of one notionally L-shaped apartment building that consists of two cores with both being served by a single staircases.
- 1.2.3 The northern core consists of ground plus four storeys. The core is composed of single level apartment accommodations that access the single staircase by internal common corridors on the upper floors. The ground floor apartments are separate and accessed from outside. There is a cleaners store accessed off the ground floor entrance corridor. There are externally accessed plant rooms that also form part of the core footprint. The northern core is approximately 12m in height from external ground level to finished floor level of the fourth floor.
- 1.2.4 The southern core consists of ground plus three storeys. The core is composed of single level apartment accommodations that access the single staircase by internal common corridors on the upper floors. The ground floor apartments are separate and accessed from outside. There are no ancillary accommodations within this core. However the building footprint on the upper floors oversails part of the external car parking area. The southern core is approximately 9m in height from external ground level to finished floor level of the third floor.
- 1.2.5 Both cores include one lift within the staircases.
- 1.2.6 Beyond the main building the site grounds are primarily external open air car parking and associated vehicle routes. By the entrance into the site there is a bin store and bike store with these being completely independent of the main building.
- 1.2.7 There are some plant facilities on the flat roofs but no plant rooms or enclosures on the roof. There is also no resident access to the roofs beyond setback private balconies.
- 1.2.8 All apartments are composed of single level accommodation with each having a traditional entrance hallway access into the habitable rooms.

1.3 **Fire Strategy Overview**

1.3.1 The proposals outlined in this document demonstrate a level of fire safety equal to or greater than the general standard implied by compliance with the recommendations in BS9991: 2024. This level of safety therefore satisfies the functional requirements of the Building Regulations relating to fire safety.

1.3.2 The fire strategy described in this report can be summarised as follows:

- Means of escape will be based on the apartment of fire origin only evacuating in the residential accommodation (i.e. a defend in place evacuation philosophy). The ancillary areas are separate fire compartments and therefore will evacuate on an individual basis, and will adopt a simultaneous evacuation in the event of an incident in the accommodation concerned only. No interconnection of fire alarm system or evacuation protocol is proposed between any areas.
- The internal layout in each apartment is based on an entrance hallway configuration however following BS9991 guidance based on each unit being provided with residential sprinklers and LD1 standard fire alarm and detection systems no internal fire ratings are proposed within the apartments. Notwithstanding this overall internal travel distances within each apartment will be limited to 20m. Plots 1 and 3 also includes an escape window from each bedroom to mitigate these being inner rooms off the living space and access from the car park respectively.
- Both the north and south cores have been treated the same with single level apartments accessing the single common staircases via ventilated common corridors at each level. At ground floor level the apartments are externally accessed and do not connect to the common staircases. At the upper floors the common corridor travel is limited to 7.5m (albeit this could be up to 15m based on the sprinklers present). Each common corridor in both cores is ventilated via 1.5sqm natural smoke shafts. The smoke shafts serve all upper floors in the respective cores. The common staircases will also include a 1sqm natural automatically opening vent (AOV) at their heads. The lift shafts are located within the staircases which is considered reasonable on the basis that the building is less than 18m high.
- Escape within the ancillary areas is addressed based on prescriptive travel distance and escape width recommendations.
- Structural fire resistance to all elements of structure will have 60minutes fire resistance.
- Each floor will be constructed as a compartment floor with the same period of fire resistance to the elements of structure, i.e. 60minutes. Each apartment will form its own 60 minute fire resistant compartment. The common staircase will afford 60minutes fire resistance. The vertical shafts will afford 60minutes fire resistance. All ancillary rooms will afford 60minutes fire resistance. Residential sprinklers will be provided throughout the apartments, ancillary rooms and common corridors only.
- Fire alarm and detection systems within the building will be:
 - Within apartments – LD1 (BS5839 Part 6)
 - Residential Common Areas – L5 (BS5839 Part 1³) – only provided to operate smoke venting in internal common corridors
 - Ancillary rooms – No fire alarm systems
- A BS8629⁴ communal emergency evacuation alert system will also be provided in the building as a client requirement.
- The residential sprinklers and the common areas smoke detection system will also be subject to a remote monitoring service facility (CSL Group, formerly BT Redcare, or similar). Again this facility is as a client requirement.
- The building is less than 18m high therefore no fire fighting shafts are proposed however a dry rising main will be provided in both common staircases. All apartments will be covered within 45m of a dry riser outlet located in the common staircases. The fire appliance access will be provided to within 18m of the dry riser inlet points. The dry main inlets will be within an 18m horizontal distance of the main in the common staircases. An existing or new fire hydrant will be present within 90m of the proposed dry main inlet points.

- Both of the lifts present as part of the cores is to be an evacuation lift designed to a Class A standard in BS EN 81-76⁵, as recommended in BS9991: 2024. Disabled refuges and emergency voice communications will also be provided to both cores.

2.0 LEGISLATION

- 2.0.1 The main fire legislation applicable to this building includes The Building Regulations and The Regulatory Reform (Fire Safety) Order 2005.
- 2.0.2 This document forms a concept approach for fire matters, the design team must ensure the contents of this report are incorporated in the building. This concept will not prevent a fire occurring and good housekeeping will be encouraged to reduce the risk. This strategy is mainly concerned with getting occupants out of the building safely and providing measures, where necessary, to assist the fire fighters in their operations.
- 2.0.3 The concept is only valid where the systems are designed correctly and maintained in an operating condition. If there is a failure in the management approach and a fire occurs, this concept may not reduce the impact on contents and building damage. Until this report is agreed with the approving authorities, the content should only be used 'As Preliminary Information'.
- 2.0.4 Following occupation the management of the premises are required under current legislation to carry out a fire risk assessment. This document will be developed following completion of the fit out works and will form part of the fire manuals developed for the premises (BS9999⁶ provides appropriate guidance in this area).

2.1 Building Regulations

- 2.1.1 The construction or modification of any building in England & Wales needs to comply with the statutory requirements of the Building Regulations. These regulations deal with the minimum standards of design and building work for the construction of domestic, commercial and industrial buildings. The Building Regulations contain a list of requirements, referred to as Schedules, which are designed to ensure the health and safety of people in and around buildings. There are 14 Parts, which cover subjects such as structure, fire safety, ventilation, drainage, etc.
- 2.1.2 In the case of fire, the regulations are dealt with under the functional requirements B1 to B5 of Schedule 1 of the Building Regulations. There are a number of prescriptive documents, which can be adopted to show compliance with the Schedules. These include Approved Document B⁷ and various British Standards (most notably BS9999 for fire safety design purposes). These guides are considered as adequate to provide general guidance for the more common buildings. An alternative approach is to adopt Fire Safety Engineering, which integrates fire engineering calculations, life safety systems, building inherent features and professional judgement, to produce a fire strategy that achieves appropriate levels of safety to a specific building and use.

2.2 Regulatory Reform (Fire Safety) Order 2005

- 2.2.1 A full risk assessment covering general health and safety as well as fire safety will be required on occupation of the building to meet the Regulatory Reform Order and will allow the ongoing control to be monitored to ensure safe escape can be achieved.

2.3 Construction, Design and Management Regulations

- 2.3.1 Projects undertaken in the UK are subject to the requirements of the Construction (Design and Management) Regulations 2015 (CDM), or within the European Union, that particular country's interpretation of the European Union Directive.
- 2.3.2 This report defines the strategy for meeting the functional and performance requirements for fire safety in the finished building. It is intended to form part of the submission for approval under the Building Regulations, Part B (Fire safety). Where any conclusions or recommendations contained within this report specify particular materials, products or forms of construction these will have been assessed, in accordance with CDM Regulations 9 and 11 (duties for designers).

- 2.3.3 In the event that these involve significant residual risks or health and safety critical assumptions, this information will be made available to the Principle Designer. Where the architect or other consultants use all or part of this report to specify works, they are understood to be competent in alerting the Client, Principle Designer, Designers, Contractors and Building Occupier of issues arising under the CDM Regulations.

3.0 MEANS OF ESCAPE

- 3.0.1 Schedule 1 of the Building Regulations requires the following functional requirements to be met in respect of B1, Means of warning and escape:

“The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire, and appropriate means of escape in case of fire from the building to a place of safety outside the building capable of being safely and effectively used at all material times.”

- 3.0.2 The following discusses the implications of this proposed building design and seeks to demonstrate that a satisfactory standard of fire safety is achieved.

3.1 General Principles

- 3.1.1 The general philosophy for means of escape is that the occupants of the building should be able to turn their back on a fire and escape via the nearest exit without additional assistance from other occupants or fire fighters. This is achieved by providing alternative escape routes where necessary, limiting travel distances, providing sufficient exit width and escape routes that, depending upon the use of the building, will have specified periods of fire resistance.
- 3.1.2 Residential means of escape is somewhat different to many other types of buildings in that only the particular apartment that has a fire in it is immediately evacuated. The reasoning behind this is due to the level of compartmentation between each of the apartments and to reduce false alarms affecting all the people within the building. The Fire Service carries out evacuation of the other apartments if necessary, however the residents may choose to evacuate of their own accord if desired. This philosophy is reflected by the stand-alone detectors/sounders, which are required in each apartment but not necessarily in the common corridors or escape routes. A smoke detection system can be required within the common areas but this is only to operate the life safety systems within that area if required i.e. automatic opening vents (AOV's).
- 3.1.3 The ancillary areas of the development will be considered completely independent of the residential elements. As each of these areas is completely independent it is proposed that this occupancy has a standalone evacuation strategy. On this basis the evacuation strategy for the ancillary areas will be a simultaneous evacuation for the affected accommodation only with the non-affected accommodations remaining in place.

3.2 Escape within Apartments

- 3.2.1 The apartments are single level standard apartments, whereby the apartment has the individual rooms connected to the apartment entrance via an entrance hallway.
- 3.2.2 The apartments will be separated from each other and the common areas by 60minutes fire separation. In each case the dwelling entrance doors will be FD30S and self closing.
- 3.2.3 Inside each apartment no internal fire compartmentation is proposed. Instead each apartment will include LD1 standard fire alarm and detection systems and residential sprinklers. Following this approach BS9991 recommends that the internal travel distances in the unit are limited to 20m.
- 3.2.4 The units include private balconies which are accessible from living-kitchen areas. In each case the balcony escape route will be remote from the cooking facilities. Remote is considered to be an offset distance of more than 1.8m plus a minimum 900mm exit width. This zone applies to the escape route from the balcony door through to the access room exit door back onto the hallway. As part of the balcony escape measures an external sounder will be provided to the balcony as part of the apartment fire alarm system.
- 3.2.5 Any wheelchair transfer points which are present in some apartments will be separated from the entrance hallway in their own enclosures or located within an accommodation room.

- 3.2.6 The ground floor apartment adjacent to the north core (Plot 1) will also include an escape window/door for the purposes of secondary escape for both bedrooms. This is due to these rooms needing to escape through the living area to reach the primary exit. A similar issue is present to Plot 3 in relation to the covered car park area and is dealt with in the same way. All escape windows/doors will comply with the escape window guidance in BS9991:
- The window should have an unobstructed openable area of at least 0.33m².
 - The window opening should have a minimum critical dimension of 450mm (in height or width).
 - The bottom of the window should be no more than 1100mm above the finished internal floor level.
 - The escape windows are permitted to be fitted with restrictors, with keys, however to ensure that these can be overridden in an emergency the keys will be left within the restrictor locks.

3.3 Escape within Residential Common Areas

3.3.1 Northern Core

- 3.3.2 This core is over 11m high with the apartments accessing the single staircase via internal common corridors.
- 3.3.3 The apartments at each upper floor open onto a common corridor that includes travel distances of up to 7.5m. The common corridors are provided with smoke venting via a 1.5sqm natural smoke shaft that serves all upper floors before discharging at roof level. Additionally the common staircase will include a 1sqm natural AOV at its head.
- 3.3.4 The ground floor apartments are completely independent and are accessed directly from outside.
- 3.3.5 The staircase has direct discharge to outside via a self contained exit corridor.
- 3.3.6 At ground floor level there is a cleaners store within the entrance corridor. This room is fire rated and covered by residential sprinklers such that in our opinion the fire risk is very low. Fire risks are further reduced by the room solely including lighting and no further electric sources. In addition the link will be via 60minute fire resistant lobby that also include 0.4sqm permanent natural vents to outside. All other plant rooms are not accessed from the residential areas.
- 3.3.7 Exit widths within the residential areas of the building are not critical and the minimum size of exits can be based on the needs for everyday use but will be no less than 750mm. The direction of opening is not essential for escape (due to the low occupancy).
- 3.3.8 Staircases within residential apartment buildings do not need to be sized for simultaneous evacuation and therefore the staircase widths are determined by fire fighting provisions and other non-fire design requirements. In this case the core is not designated as a fire fighting shaft then the staircase width for purely fire safety purposes can be 750mm. Other Building Regulations will however require the staircase to be wider than this criteria.
- 3.3.9 The staircase final exit route at ground floor level will afford a minimum clear width of at least 750mm for fire safety purposes to reflect that of the staircase.
- 3.3.10 Where access control devices are installed to staircase doors that are required for escape these need to be useable and available for escape. To this end the access control devices must be overridable in a manner acceptable to the approving authorities (this is typically been via the provision of green break glass or push button points adjacent to the exit doors needing override controls). It should also be noted that the override devices are only needed on the sides of the doors where these doors are essential for escape.

3.3.11 Southern Core

- 3.3.12 This core is less than 11m high with the apartments accessing the single staircase via internal common corridors.
- 3.3.13 The apartments at each upper floor open onto a common corridor that includes travel distances of up to 7.5m. The common corridors are provided with smoke venting via a 1.5sqm natural smoke shaft that serves all upper floors before discharging at roof level. Additionally the common staircase will include a 1sqm natural AOV at its head.

- 3.3.14 The ground floor apartments are completely independent and are accessed directly from outside.
- 3.3.15 The staircase has direct discharge to outside via a self contained exit corridor.
- 3.3.16 There are no ancillary accommodations accessed from the common areas.
- 3.3.17 Exit widths within the residential areas of the building are not critical and the minimum size of exits can be based on the needs for everyday use but will be no less than 750mm. The direction of opening is not essential for escape (due to the low occupancy).
- 3.3.18 Staircases within residential apartment buildings do not need to be sized for simultaneous evacuation and therefore the staircase widths are determined by fire fighting provisions and other non-fire design requirements. In this case the core is not designated as a fire fighting shaft then the staircase width for purely fire safety purposes can be 750mm. Other Building Regulations will however require the staircase to be wider than this criteria.
- 3.3.19 The staircase final exit route at ground floor level will afford a minimum clear width of at least 750mm for fire safety purposes to reflect that of the staircase.
- 3.3.20 Where access control devices are installed to staircase doors that are required for escape these need to be useable and available for escape. To this end the access control devices must be overridable in a manner acceptable to the approving authorities (this is typically been via the provision of green break glass or push button points adjacent to the exit doors needing override controls). It should also be noted that the override devices are only needed on the sides of the doors where these doors are essential for escape.

3.4 Escape from Ancillary Accommodations (including car parking)

- 3.4.1 There is no dedicated plant rooms or ancillary rooms located at roof level however there are a number of plant facilities present at roof level which will need periodic maintenance. In each case access is to be provided via the common staircase in the form of a roof access hatch or a direct door from the common corridor with respect to the fourth floor flat roof. Suitable access will be provided such that where travel distances are in a single direction travel is limited to a maximum of 60m. These travel distances will be easily met due to the limited footprint of the building.
- 3.4.2 The plant and services for the development are located in limited plant rooms at ground floor level. Bin and bike storage is also limited to isolated independent enclosures remote from the main building. Travel distances within these areas are limited to those recommended by the codes, as shown in the table below:

Accommodation	Area	Travel distance possible in one direction	Travel distance possible in more than one direction
Plant Room	Within Room	9m	35m
	Escape route not in open air (overall distance)	18m	45m
	Escape route in open air (overall distance)	60m	100m
Storage	Normal Hazard Storage	25m	45m

- 3.4.3 The above travel distances are met from all ancillary accommodation present.
- 3.4.4 The occupancy of each room is much less than 60 people and therefore each is acceptable for occupancy purposes with a single exit that maintains a clear width of at least 750mm. The doors concerned are acceptable opening in either direction.
- 3.4.5 No inner rooms are present within any of the ancillary accommodations in the building.
- 3.4.6 The plant rooms are all externally accessed and therefore these will solely be 60minute fire separated from the residential areas. Residential sprinklers will also cover these rooms.

- 3.4.7 The cleaners store is accessed from the ground floor of the north core. The store itself affords 60minutes fire resistance and residential sprinklers. This store is also to be approached via a 60minute fire resistant lobby which also includes a 0.4sqm permanent natural vent to outside. The cleaners store will not include any electric sources beyond lighting in order to limit the fire risk posed by the room. The cleaners store access is subject to agreement with the approving authorities.

3.5 General Recommendations

- 3.5.1 All doors needed for escape will be openable with a single action and without the use of a key.
- 3.5.2 All escape routes will maintain a minimum height clearance of 2m.
- 3.5.3 The staircase discharge routes at ground floor should be maintained unobstructed and free of fire load.

3.6 Disabled Evacuation

- 3.6.1 For current basic Building Regulation purposes formal disabled refuge or evacuation facilities are not considered however BS9991 does recognise the need for consideration, as does some planning policy. In this case the passenger lifts present will be upgraded to an evacuation lift standard such that there is a means of self evacuation for occupants whom cannot use the staircases without assistance.
- 3.6.2 The evacuation lifts to be provided in each core will be designed and installed in accordance with BS EN 81-76 as a Class A evacuation lift. As the building has no permanent onsite management then the lifts will include automatic evacuation function.
- 3.6.3 Within BS9991 guidance the evacuation lifts are supported by the provision of formal temporary waiting spaces / refuge points and associated communications for both the lift and the refuges.
- 3.6.4 The disabled refuges will comprise a notional area, 1400mm x 900mm located out of the path of escape within the staircases. In accordance with BS9991, the refuges will contain a means for occupants to communicate to the building management or fire service that they are in need of assistance. The emergency communication system will conform to BS 5839 Part 9⁸ and consist of Type B outstations. This will be provided within the refuge with an indication at a suitable management area (proposed at this stage as the main building entrance to the respective cores at ground floor level).
- 3.6.5 It is noted that on this design the lifts are located within the staircase itself and not in a separate evacuation lift lobby. In our opinion this configuration is acceptable on this building due to the building being less than 18m high and as such lifts generically being acceptable when located within the staircase. As the fundamental premise for an evacuation lift is that it should be protected to the same standard as the staircase then this is still achieved in the current layout. On this basis no further separation is necessary. It is also further noted that this arrangement massively simplifies (and in our opinion enhances) the smoke protection to both the staircase and evacuation lift by further separation not being present.

3.7 Fire Alarm and Detection Systems

- 3.7.1 Residential Units
- 3.7.2 The apartments will each be provided with LD1, Grade D1 standard automatic fire alarm and detection systems as discussed in BS5839 Part 6. Broadly these systems will consist of a smoke detector / sounder to all areas of the unit, with an interlinked heat detector/ sounder provided in the kitchen. The sounders will be capable of delivering 85dB (A) through the open doorway to each room and be hard wired.
- 3.7.3 All of the above systems will be to a Grade D1 standard.
- 3.7.4 All units with private external balconies will also be provided with fire alarm sounder provisions on the balconies. This is proposed to assist with means of escape from the balconies.

3.7.5 Residential Common Areas

- 3.7.6 A common zoned smoke detection system will be provided at every floor level in the common corridors. The purpose of the detection systems is to initiate the operation of the life safety automatic ventilation systems. No sounders or manual call points will be provided as part of the system.
- 3.7.7 Broadly the smoke detection systems serving these common areas will be designed in accordance with BS 5839 Part 1 to an L5 standard, with smoke detection being provided solely to the common corridors that are provided with smoke venting facilities. On activation of any single detector the smoke shaft AOV in that corridor will open, along with the AOV at the head of the smoke shaft and the AOV at the head of the associated common staircase.
- 3.7.8 A sprinkler status panel will also be included in the main building entrance to each core.
- 3.7.9 No fire alarm or detection systems are proposed within the ancillary areas of the building, including the roof.
- 3.7.10 In addition to the above the common areas smoke detection systems will also be linked to the evacuation lifts to enable the lifts to be switched to their automatic evacuation operations.
- 3.7.11 The client also requires each core to contain a BS8629 communal evacuation alert system.

3.8 Emergency Lighting Systems

- 3.8.1 To facilitate normal working the lighting levels throughout the buildings are excellent. In the event of a fire within the building, it is very unlikely that the power to the normal lighting circuit would be lost in the early stages while the occupants are escaping. This is based upon the fact that the electric supply to the light fittings would initially be away from a fire and would continue to operate.
- 3.8.2 However, assuming a power failure, emergency lighting is provided as a secondary backup, complying with the requirements of BS5266: Part 1⁹. This includes coverage as per the following:

Residential Accommodation	• All common escape routes • Areas directly outside the final exits • Toilets with a floor area over 8m² • Switch gear/battery room for the emergency lighting system • Electricity/generator rooms
Non-Residential Accommodation	• All escape routes • Areas directly outside the exits • Underground or windowless accommodation • Open plan areas of more than 60m² • Internal corridors more than 30m long • Toilets with a floor area over 8m² • Switch gear/battery room for the emergency lighting system • Electricity/generator rooms

- 3.8.3 The lighting comprises luminaries in all identified areas, with the type of fitting appropriate to the space they serve.

3.9 Emergency Signage

- 3.9.1 Escape signage will be provided above all common exit routes, storey and final exit doors within the building.
- 3.9.2 The signs are in accordance with BS 5499: Part 4¹⁰ and BS ISO 3864 Part 1: 2011¹¹, Health and Safety (Safety Signals and Signs) Regulation 1996.
- 3.9.3 To assist the fire service in identifying each floor, floor identification signs and flat indicator signs should be provided. The floor identification signs should meet all of the following conditions:
- a. The signs should be located on every landing of a protected stairway and every protected corridor/lobby.

- b. The text should be in sans serif typeface with a letter height of at least 50mm. The height of the numeral that designates the floor number should be at least 75mm.
- c. The signs should be visible from the top step of a stair and, where possible, from inside a lift when the lift car doors open.
- d. The signs should be mounted between 1.7m and 2m above floor level and, as far as practicable, all the signs should be mounted at the same height.
- e. The text should be on a contrasting background, easily legible and readable in low level lighting conditions or when illuminated with a torch.

3.9.4 The wording used on each floor identification sign should take the form Floor X, with X designating the number of the storey, as intended for reference by residents. The floor number designations should meet all of the following conditions:

- a. The floor closest to ground level should be designated as either Floor 0 or Ground Floor.
- b. Each floor above the ground floor should be numbered sequentially beginning with Floor 1.

3.9.5 All floor identification signs should be supplemented by flat indicator signs, which provide information relating to the flats accessed on each storey. The flat indicator signs should meet all of the following conditions:

- a. The signs should be sited immediately below the floor identification signs, such that the top edge of the sign is no more than 50mm below the bottom edge of the floor identification sign.
- b. The wording should take the form Flats X-Y, with the lowest flat number first.
- c. The text should be in sans serif typeface with a letter height of at least half that of the floor indicator sign.
- d. The wording should be supplemented by arrows when flats are in more than one direction.
- e. The text and arrows should be on a contrasting background, easily legible and readable in low level lighting conditions or when illuminated with a torch.

3.9.6 Any doors in the lines of fire resistance will be provided with appropriate fire signage. In general doors to staircases and sub-division corridor doors will be provided with 'Fire door keep shut' signage. Doors to cleaner's cupboards, stores, plant rooms and service risers will be provided with 'Fire door keep locked' signage.

3.9.7 Examples of signage mentioned above that is dependent on their method of closure are given below.

Method of Closure	Signage	Sign Diameter	Letter Height
Self-closing device		60mm	5mm
Kept locked shut			

3.9.8 Examples of signage mentioned above that are applicable to exit doors and escape routes are given below.

Signage	Sign Diameter	Letter Height
	60mm	5mm
		

3.10 Fire Extinguishers

- 3.10.1 Manual fire fighting equipment will not be installed within the residential accommodation. At this stage it is not proposed that fire extinguishers be provided to ancillary areas such as the residential plant rooms, bike or bin stores however the landlords fire risk assessment may recommend fire extinguishers be provided.

4.0 FIRE SPREAD AND CONTROL

- 4.0.1 Schedule 1 of the Building Regulations requires the following functional requirements to be met in respect of B2, Internal fire spread (linings):

(1) To inhibit the spread of fire within the building the internal linings shall-

- (a) adequately resist the spread of flame over their surfaces; and
(b) have, if ignited, a rate of heat release which is reasonable in the circumstances.*

(2) In this paragraph 'internal linings' means the materials lining any partition, wall, ceiling or other internal structure.

- 4.0.2 Schedule 1 of the Building Regulations requires the following functional requirements to be met in respect of B4, External fire spread:

(1) The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of building.

(2) The roof of the building shall adequately resist the spread of fire over the roof and from one building to another, having regard to the use and position of the building.

- 4.0.3 The following sections discuss the implications of the proposed building design and seek to demonstrate that a satisfactory standard of fire safety is achieved with respect to both requirements stated above.

4.1 Linings

- 4.1.1 The wall and ceiling linings will meet the recommendations of BS 9991 section 31.1 as shown below.

Location	European Class [#]
Small Rooms of area (<4m ² in residential accommodation or <30m ² in non-residential accommodation)	D-s3,d2
Other Rooms (Residential or non-residential)	C-s3,d2
Other circulation spaces (including common areas, staircases, lobbies etc.)	B-s3,d2

Note: # = The European classifications are described in BS EN 13501-1:2018.

- 4.1.2 The class of linings recommended in the table above can be downgraded (but not less than a Class D-S3, d2) in walls of rooms providing the total area of those parts in any one room does not exceed one half of the floor area of the room and subject to a maximum of 20m² in residential accommodation and 60m² in non-residential accommodation.

4.2 Unprotected Areas

- 4.2.1 A review of the unprotected areas has been undertaken following the space separation methods described in BRE Guide 187¹², "External fire spread: building separation and boundary distances". This exercise has been carried out for the site.

- 4.2.2 Given the compartmentation provided at each floor level and also between apartments the worst case scenario, i.e. a sprinklered single level apartment has been assessed. The actual enclosing rectangles and resultant separation distances are discussed in the table below.

Scenario	Actual Enclosing Rectangle (WxH)	Standard Enclosing Rectangle (WxH)	Minimum Boundary Distance to be fully unprotected
Sprinklered Single Level Apartment	11m x 2.8m	12m x 3m	1.75m (reduced from 3.5m based on sprinklers)

- 4.2.3 The above calculations assume that the standardised enclosing rectangle is 100% unprotected so are highly conservative as the facade construction that is not designated as glazing will generally be fire rated construction.
- 4.2.4 At present it is understood that all elevations are more than 1.75m from the land boundaries however this is subject to design team ratification. Of main concern is the status of the southern land boundary. Subject to this assumption being correct the building elevations can be fully unprotected for space separation purposes.
- 4.2.5 Notwithstanding the above all parts of the external wall which are not a window, door or service penetration will be considered as a protected area that affords 60minutes fire resistance.

4.3 External Wall Construction

- 4.3.1 As the building has a floor over 11m high the entire building is therefore governed by requirements for over 11m high buildings. Based on this rationale the following applies to all external walls as recommended in BS9991.
- 4.3.2 All external wall external surface finishes should achieve Class B-s3, d2 or better (European Class). This item is however superseded by the material requirements discussed below.
- 4.3.3 All materials used within the external wall build ups will achieve a European class A1 or A2-s1,d0 rating. This recommendation also applies to any balconies and similar specified attachments provided however it does not apply to the following:
- Cavity trays when used between two leaves of masonry;
 - Any part of a roof (other than any part of a roof which falls within paragraph (iv) of Regulation 2(6)) if that part is connected to an external wall;
 - Door frames and doors;
 - Electrical installations;
 - Insulation and water proofing materials used below ground level;
 - Intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part B of Schedule 1;
 - Membranes;
 - Seals, gaskets, fixings, sealants and backer rods;
 - Thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part L of Schedule 1; or,
 - Window frames and glass.

4.4 External Roof Construction

- 4.4.1 As the building is located less than 6m from the external land or compartment boundaries the roof coverings present will achieve a minimum AA, AB or AC (National Class) or a B_{ROOF}(t4) (European Class).

5.0 CONSTRUCTION

- 5.0.1 Schedule 1 of the Building Regulations requires the following functional requirements to be met in respect of B3, Internal fire spread (structure):

(1) The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period.

(2) A wall common to two or more buildings shall be designed and constructed so that it adequately resists the spread of fire between those two buildings.

(3) To inhibit the spread of fire within the building, it shall be sub-divided with fire resisting construction to an extent appropriate to the size and intended use of the building.

(4) The building shall be designed and constructed so that the unseen spread of fire and smoke within concealed spaces in its structure and fabric is inhibited.

5.0.2 The following sections discuss the implications of these requirements on the proposed design of the building.

5.1 Elements of Structure

5.1.1 All elements of structure for the entire building will afford 60minutes fire resistance as applicable for buildings less than 18m high.

5.1.2 Any elements of structure which only support themselves or a roof do not require any specific fire resistance.

5.1.3 Wherever there is any conflict with fire resistances to elements of structure the higher fire resistance will always apply.

5.2 Compartmentation

5.2.1 All floors will be 60minute fire rated compartment floors.

5.2.2 All external walls that are required to be protected areas for space separation purposes will afford 60minutes fire resistance.

5.2.3 Each apartment will be fire separated from the common areas and each other by construction having a minimum fire resistance of 60 minutes. Each apartment front door will be a minimum FD30S self closing door.

5.2.4 Internally each apartment has an entrance hall that connects each room to the main entrance door. This hallway will not be constructed as a fire rated hallway on the basis of the apartments including residential sprinklers and LD1 standard fire alarm and detection systems. This also applies to the ground floor apartments.

5.2.5 The common corridors and staircases will afford 60minutes fire resistance with FD30S self closing doors. The associated lift shafts will afford 60minutes fire resistance with FD30 doors.

5.2.6 All discharge corridors from the staircase to the final exit at ground level will maintain the fire resistance of the staircase itself (i.e. 60minutes fire resistance).

5.2.7 All service risers will be constructed as protected shafts having a minimum fire resistance not less than 60minutes fire resistance. All service riser doors will have a fire resistance of FD30S (no self closers are needed).

5.2.8 The smoke shafts will afford 60minutes fire resistance with FD60 doors / dampers.

5.2.9 All ancillary accommodation (stores, plant rooms, covered car park etc) should be separated from the residential accommodation and each other with 60minutes fire resistance.

5.2.10 As mentioned earlier residential sprinklers will cover all apartments, ancillary rooms and common corridors throughout the building only.

5.3 Fire Doors

5.3.1 Fire doors will be provided with protection in accordance with the below table:

Locations	When tested in accordance with BS476-22	When tested in accordance with BS EN 1634-1
Apartment entrance doors	FD30S Self Closing	E30S Self Closing
Apartment internal hallway doors	No rating	No rating

Locations	When tested in accordance with BS476-22	When tested in accordance with BS EN 1634-1
Stair doors	FD30S Self Closing	E30S Self Closing
Riser doors	FD30S	E30S
Lift landing doors	FD30	E30
Common lobby doors	FD30S Self Closing	E30S Self Closing
Ancillary room internal doors	FD30S Self Closing	E30S Self Closing
Ancillary room external doors	N/A – No fire ratings needed on the basis that these rooms are externally accessed and are remote from the residential escape routes.	

- 5.3.2 All doors should be provided with self closers, except internal apartment entrance hall doors, riser and small cupboard doors which should be kept locked shut and signed as such.
- 5.3.3 It is acceptable to provide doors on electromagnetic door hold open devices which release on the operation of the fire alarm system. Any smoke detectors included to assist with providing early closure of these doors will be located suitably close to the doors.
- 5.3.4 All doors necessary for escape which are provided with access controls will be provided with a suitable override facility that is acceptable to the approving authorities.

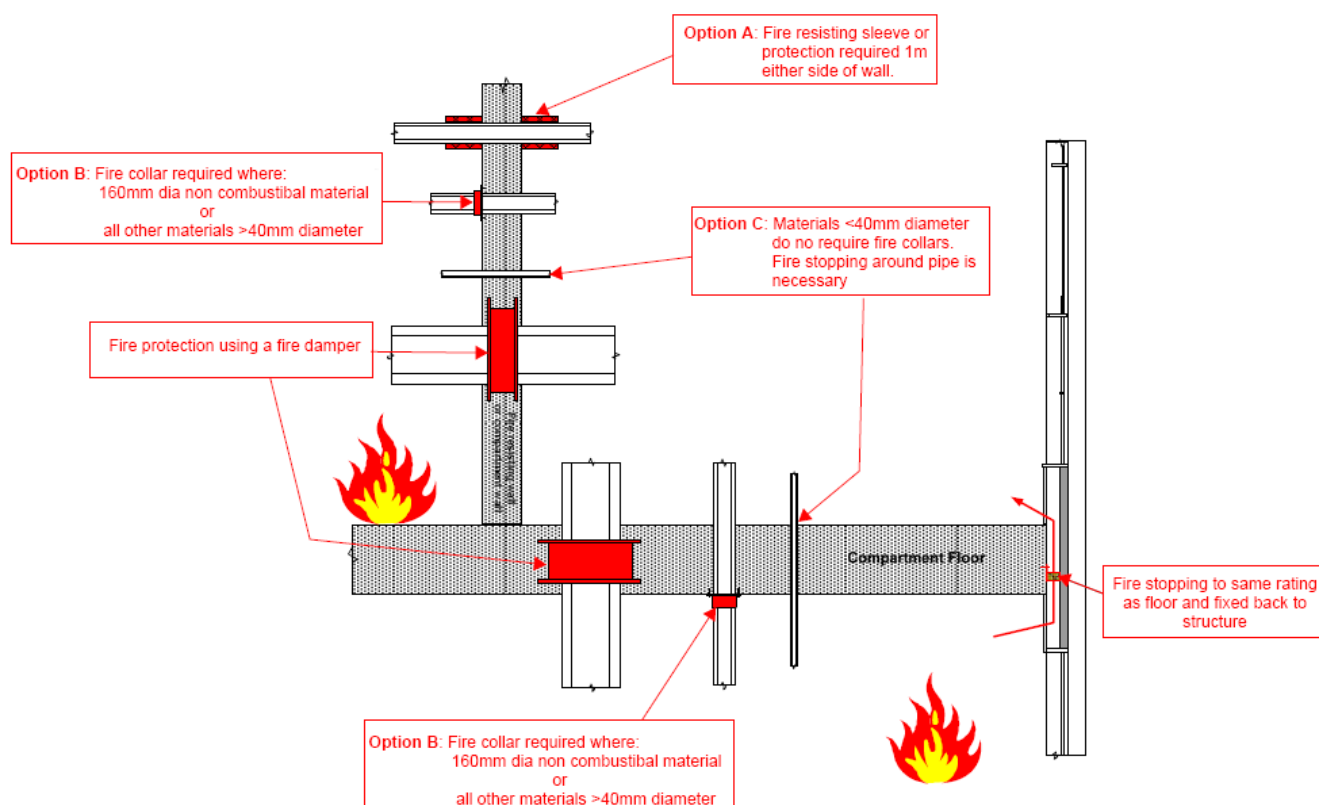
5.4 Places of Special Fire Risk

- 5.4.1 The ancillary rooms within the building are limited to plant rooms and a cleaners cupboard. Each will achieve at least 60minutes fire resistance. The cleaners cupboard is internal and therefore will also have FD30S self closing and lockable internal doors. The external doors to the plant rooms do not need to be fire rated. Fire suppression is also being extended to the ancillary rooms.
- 5.4.2 The plant rooms are externally accessed and therefore only the above compartmentation is needed.
- 5.4.3 The cleaners store is accessed from the ground floor of the north core. This store is therefore to be approached via a 60minute fire resistant lobby which also includes a 0.4sqm permanent natural vent to outside. The cleaners store will not include any electric sources beyond lighting in order to limit the fire risk posed by the room. The cleaners store access is subject to agreement with the approving authorities.

5.5 Fire Stopping

- 5.5.1 Ductwork passing through compartment/fire resistant walls will be either contained within fire resisting construction or provided with fire dampers.
- 5.5.2 The ductwork will be provided with fire and smoke dampers activated automatically on the activation of the building fire alarm and detection system. Fire and smoke dampers will be provided to ductwork which are installed in any of the following areas (unless they are contained within fire resisting construction throughout their route to fresh air):
- Ductwork serving both escape routes and accommodation or;
 - Ductwork passing through both stairs, stair lobbies and accommodation or;
 - Ductwork passing through walls separating fire compartments.
- 5.5.3 Any openings for services (exceeding the dimensions discussed in Table 9 of BS 9991 as shown below) breaching fire rated walls or floors will be fire stopped (unless protected throughout their entire length with fire resisting material) in accordance with Section 32.4 of BS 9991. This is to prevent the passage of fire and to assist in retarding the movement of smoke. Joints between elements of structure that serve as barriers to fire will be fire stopped to prevent the passage of fire and smoke.

Situation	Pipe material and maximum nominal internal diameter (mm)		
	(a) Non-combustible material	(b) Lead, Aluminium, aluminium alloy, UPVC, fibre cement	(c) Any other material
Structure (but not a wall separating buildings) enclosing a protected shaft which is not a staircase or a lift shaft	160	110	40
Compartment wall or Compartment floor between flats	160	160 (stake pipe) 110 (branch pipe)	40
Any other situation	160	40	40

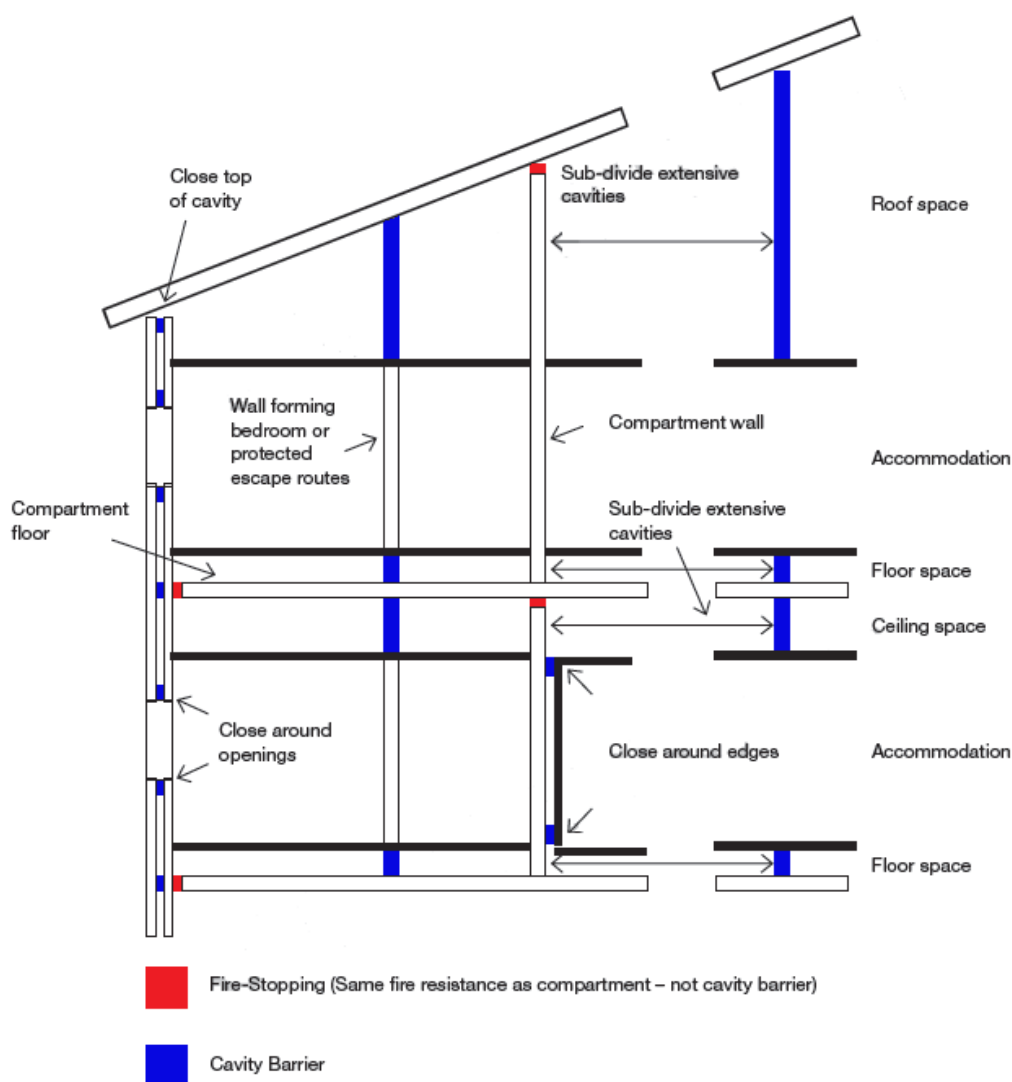


5.6 Cavity Barriers

5.6.1 Cavity barriers will be included in any large cavity with the potential for extensive unseen fire spread. The key areas that require cavity barriers are as follows:

- At the junction between an external cavity wall and a compartment wall that separates buildings; and at the top of such an external cavity wall.
- At the junction between an external cavity wall and every compartment floor and compartment wall.
- At the junction between a cavity wall and every compartment floor, compartment wall, or other wall or door assembly that forms a fire-resisting barrier.
- In a protected escape route, above and below any fire-resisting construction that is not carried full storey height.
- Where the corridor will be sub-divided to prevent fire or smoke affecting two alternative escape routes simultaneously.
- Within the void behind the external face of rainscreen cladding at every floor level, and on the line of compartment walls abutting the external wall of buildings
- At the edges of cavities (including around openings).

- 5.6.2 In addition to the above locations cavity barrier are also required in cavities (including ceiling voids and under floor service voids) where the cavity exceeds 20m.
- 5.6.3 The cavity barriers will provide a 30-minute fire rating (i.e. 30 minutes integrity and 15 minutes insulation). Any penetrations through the cavity barriers will be either;
- Fitted with a proprietary sealing system.
 - Pipes of limited diameters that are sealed with fire-stopping, or sealed with sleeving of non-combustible pipe material.
- 5.6.4 The specification of cavity barriers should not be confused with the specification of fire stopping between fire resisting elements, e.g. walls and floors, which should afford the same level of fire resistance as the fire resisting elements themselves. These principles and the general cavity barrier locations are indicated in the diagram below.



6.0 FIRE SERVICE ACCESS

- 6.0.1 Schedule 1 of the Building Regulations requires the following functional requirement to be met in respect of B5, Access and facilities for the fire service:

- (1) *The building shall be designed and constructed so as to provide reasonable facilities to assist fire fighters in the protection of life.*
- (2) *Reasonable provisions shall be made within the site of the building to enable fire appliances to gain access to the building.*

- 6.0.2 The following discusses the implications of these requirements on the proposed design with regard to access and facilities for the Fire Service within and around the building.

6.1 External Vehicle Access

- 6.1.1 The building is less than 18m high and therefore no fire fighting shafts are proposed. Notwithstanding this the common staircases will both include a dry rising water main in the staircase. The dry main inlets to these dry risers will be located on the face of the building close to the core entrances and within 18m of a fire appliance parking position. The dry main inlets will also be visible from the fire appliance. It should also be noted that the inlets should ideally be no more than a horizontal 18m distance from the vertical rise of the dry main pipes.
- 6.1.2 The ground floor externally accessed ancillary rooms will all be covered within 45m hose distances from the fire appliance parking position within the site off Riverside Way.
- 6.1.3 There is turning provision via the site entrance onto Riverside Way and also via the car parking layout to the north of the building that permits a fire appliance to turn around. There is no requirement for a fire appliance to reverse more than 20m in order to access the cores and dry main inlets.
- 6.1.4 The external vehicle access provisions to the site access road will adopt the recommendations from section 50.1.1 of BS9991:

Min Width of road between kerbs	Minimum width of gateways	Minimum turning circle between kerbs	Minimum turning circle between walls	Minimum clearance height	Minimum carrying capacity
3.7m	3.1m	16.8m	19.2m	3.7m	14 tonnes*

Notes: * = This has been increased from the 12.5 tonnes discussed in ADB to reflect LFEPA Guidance Note, GN_29, which notes that the minimum carrying capacities for London Fire Brigade appliances has increased since the ADB guidance was produced.

6.2 Internal Access

- 6.2.1 The building is less than 18m high therefore no fire fighting shafts are proposed however the common staircases will both include a dry rising water main.
- 6.2.2 As stated earlier there will be access for a pumping appliance to within 18m of the fire main inlet connection point, which will be on the face of the building by the entrance into the staircore. The inlets will be visible from the fire appliance. Furthermore the dry main inlets will be less than a horizontal 18m distance from the vertical rise of the dry main pipe in the staircases.
- 6.2.3 All parts of the internal accommodations are covered within a 45m hose distance of a dry main outlet that is located in the common staircases at each level (this includes ground floor level).
- 6.2.4 The ancillary areas which are directly accessible from outside on the public highway elevations are all covered within a 45m hose distance of the fire appliance parking positions.
- 6.2.5 As the building is over 11m high a premises information box is proposed within the building entrance of each core.
- 6.2.6 The client also requires each core to contain a BS8629 communal evacuation alert system.

6.3 Fire Suppression Systems

- 6.3.1 As the building is over 11m high fire suppression systems are proposed throughout the building for Building Regulations purposes. In addition to this the sprinklers form part of the means of escape arrangements within the apartments.
- 6.3.2 In this case the entire residential apartments, ancillary rooms and the common corridors will all be covered by a BS9251¹² residential sprinkler system.
- 6.3.3 The residential sprinkler systems will therefore be designed to a Category 3 standard based on sprinkler coverage being applied to both the apartments, ancillary areas and common corridor areas of the building.

- 6.3.4 There is a section of external car parking which is oversailed by part of the southern core. Currently it is not proposed to cover this area with fire suppression. This proposal is based on the southern core not being over 11m high (and is solely being fire suppressed due to its link to the northern core) and also the limited car parking spaces present plus the significantly higher than minimum levels of permanent ventilation present to this area. It should be noted that this proposal is subjective and therefore is a design risk needing to be agreed with the approving authorities.

6.4 Smoke Venting Systems

6.4.1 Residential Apartments

- 6.4.2 No smoke venting systems are proposed internally within any of the apartments or maisonettes on the development.

6.4.3 Residential Common Areas

- 6.4.4 Both of the common staircases will include a 1sqm natural AOV at its head. This vent will be located as high as possible within the respective staircase.

- 6.4.5 The common corridors serving the apartments are solely present to the upper floors in each core. In each case smoke venting will be achieved by the inclusion of a 1.5sqm natural smoke shaft. The natural smoke shaft will serve all upper floors in the respective core. It should be noted that the top floors in each core may need to be ventilated separately via a 1.5sqm natural AOV rooflight if the natural smoke shafts cannot extend 2.5m above the ceiling of the top floor corridors.

- 6.4.6 The 1.5sqm natural smoke shafts will comply with the requirements below:

- a) Smoke shafts should be constructed from Class A1 materials, should not leak more than $3.8\text{m}^3/\text{h}/\text{m}^2$ at 50Pa negative pressure, and should be smooth and flush internally. If smoke control ducting is used as an alternative to a smoke control shaft, it should conform to BS EN 1366-8.
- b) The smoke shaft should be fully open to the external air at the top.
- c) The opening at the top of the smoke shaft should be located at least 0.5m above any surrounding structure that fall within a 2m radius on a horizontal plane so that it is not subject to adverse wind effects (i.e. it should always have negative wind pressure coefficients).
- d) The shaft should extend a minimum length of 2.5m above the ceiling of the highest storey that is served by the shaft (See earlier comment in paragraph 6.4.5 above).
- e) The cross-section area (free area) of the smoke shaft should be at least 1.5m^2 , with a minimum dimension of 0.85m in any direction.
- f) The lobby or corridor vent, the opening at the head of the shaft and all internal locations (such as safety grilles) within the shaft should have a minimum free area of at least 1.0m^2 .
- g) The top of the lobby or corridor vent should be located as close to the ceiling of the lobby or corridor as is practicable, and should be at least as high as the top of the door connecting the lobby or corridor to the stairway.
- h) Vents or AOVs opening to outside should be natural smoke ventilators compliant with BS EN 12101-2
- i) AOVs opening into shafts or ducts should be multi-compartment smoke control dampers compliant with BS EN 12101-2 and have at least the same level of fire resistance as the compartment barrier in which they are fitted.
- j) No services should be contained within the smoke shaft (including control devices for the smoke shaft, other than actuators and final cable connections).

- 6.4.7 On detection of smoke in a common corridor only the smoke shaft AOV in that corridor, the AOV at the head of the smoke shaft and the vent at the head of the associated staircase will open. All other vents will stay closed.

- 6.4.8 A common zoned smoke detection system will be provided at every level in the common corridors that include automatic smoke venting. The purpose of the detection systems is to initiate the operation of the life safety automatic ventilation systems. No sounders or manual call points will be provided as part of the system.

- 6.4.9 The ground floor cleaners store lobby in the north core will also include a 0.4sqm permanent natural vent to outside.

6.4.10 The smoke vent should comply with BS EN 12101 Part 2¹⁵.

6.4.11 Car Park

6.4.12 A small section of the car park is oversailed by the building and therefore this area will be provided with permanent natural openings to outside that achieve an opening area of at least 5% of the car park floor area. At least half of this venting should be distributed on opposing walls to achieve crossflow ventilation.

6.5 Emergency Power Supplies

6.5.1 In the event of a failure of the mains power supply a secondary backup power supply will be provided to feed all life safety systems that require electricity to function as intended. The secondary supply will be appropriate for the life safety system concerned. At this stage the following life safety systems will include a backup power supply (where applicable):

- Illuminated emergency signage
- Emergency lighting
- Automatic fire alarm and detection system
- Evacuation lift (as outlined in BS EN 81-76, Section 7.2.1 as applicable for Class A systems)
- Smoke venting systems (where electro-mechanical devices are used)
- All fire alarm interlinked fire/smoke dampers
- Sprinklers (as outlined in BS9251, Section 5.12.2 as applicable for Category 3 systems)

6.5.2 It should be ensured that all power and control cabling required for life safety equipment within the building is specified and installed in accordance with BS 8519¹⁶.

6.5.3 Based on the above most life safety systems noted above will include integrate back up batteries to supplement the primary mains power supply. In the case of the sprinklers and evacuation lifts these will, as a minimum, be provided with a dedicated single power supply in accordance with their respective British Standards.

6.6 Fire Fighting Lifts

6.6.1 As the building is less than 18m high no fire fighting lifts are proposed. Notwithstanding this one of the passenger lifts present in the building will also be increased to an evacuation lift specification.

6.6.2 As discussed earlier the evacuation lifts will be developed to comply with the guidance in BS EN 81-76 standard as Class A evacuation lifts. As the building has no permanent onsite management then the lifts will include automatic evacuation function.

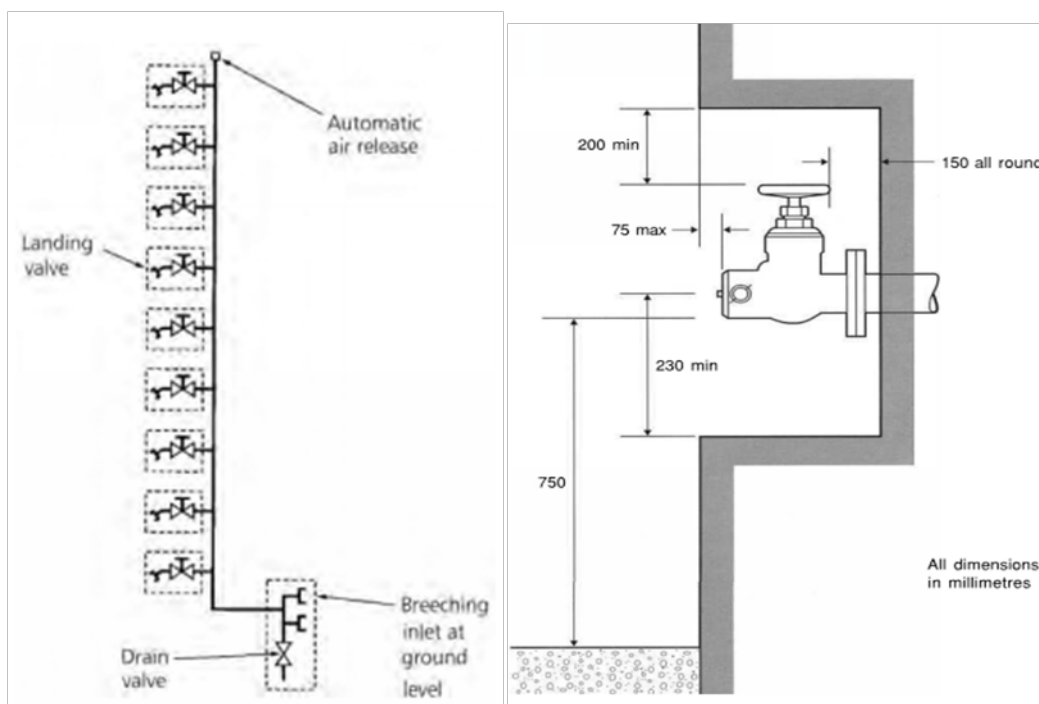
6.7 Wet and Dry Risers

6.7.1 No wet rising mains are proposed to the building based on this being less than 50m high.

6.7.2 As discussed in Section 6.2 the residential common cores will both include a single dry rising water main. The dry rising water main will have the outlets located in the staircases at each level, including the ground floor. All parts of the accessible accommodations are covered within a 45m hose distance from a dry main outlet.

6.7.3 The dry main inlets will ideally be located adjacent to the core entrances. The dry main inlets will be located within 18m of the fire appliance parking positions with the inlets visible from the fire appliance. Similarly the dry main inlets will also be within 18m of the vertical riser of the dry rising main in the staircases.

6.7.4 The dry mains will be designed and installed in accordance with BS 9990¹⁷. Particularly attention will be paid to the fixing heights and recess requirements for landing valves as detailed below.



6.8 Hydrants

- 6.8.1 Until April 2007 the Building Regulations did not include requirements to provide additional fire hydrants beyond what was already provided in the public highways, however recent amendments to Approved Document B have included a recommendation to consider this as part of the development of the building design.
- 6.8.2 Following BS9991 all dry main inlets should be within 90m of a fire hydrant facility. In this case there is an existing public fire hydrant present just beyond the site entrance with Riverside Way. This fire hydrant is much less than 90m away from both dry main inlet points. On this basis no additional fire hydrants are needed in these works.

7.0 FIRE SAFETY MANAGEMENT

- 7.0.1 The primary focus of this strategy is on two groups, the persons present in the building and the provisions associated with ensuring safe egress, and on fire-fighter protection. It is considered that in addressing these any impact on the environment and other persons will be minimised to a reasonable level. It is believed that the strategy outlined in the previous sections together with an effective fire manual and risk assessment developed from this strategy will provide a template for effective fire management of these premises.
- 7.0.2 ADB and BS9991 require that the fire strategy be brought to the attention of building management and incorporated into the risk assessments that will have to be carried out post occupation under the Regulatory Reform (Fire Safety) Order together with staff training, systems maintenance etc. and documented.
- 7.0.3 The Regulatory Reform (Fire Safety) Order 2005 requires that systems provided for fire safety are maintained in good working order at all times. This includes fire fighting equipment together with other facilities to be provided for the safety of people in the building and to help fire fighters.
- 7.0.4 Section 9 of the current BS 9991 (Regulation 38 of Building Regulations) requires information to be passed onto the responsible person on completion of the project. This project is considered a complex building and therefore the following information is required where applicable:
- This fire strategy
 - All design assumptions relating to the management of the building (where not included in the fire strategy)
 - Escape routes, escape strategy and muster points

- Details of all passive fire safety measures including compartmentation, cavity barriers, fire doors, self closing fire doors and other doors equipped with relevant hardware (e.g. access controls), duct dampers and fire shutters.
- Fire detector hears, smoke detector heads, alarm call-points, detection/alarm control panels, alarm sounders, emergency communication systems, CCTV, fire safety signage, emergency lighting, fire extinguishers, dry and wet risers and other fire fighting equipment, other interior facilities for the fire service, emergency control rooms, location of hydrants outside the building, other exterior facilities for the fire service.
- Details of all active fire safety measures including:
 - Sprinkler system(s) design, including isolating valves and control equipment
 - Smoke control system(s) (or HVAC system with a smoke control function) design, including mode of operation and control systems.
- Any high risk areas (e.g. heating machinery) and particular hazards
- As built plans of the building showing the locations of the above items.
- Specifications of any fire safety equipment provided, including operational details, operators manuals, software, system zoning and routine inspection, testing and maintenance schedules. Records of any acceptance or commissioning test.
- Any provision incorporated into the building to facilitate the evacuation of disabled people.
- Any other details appropriate for the specific building.

7.0.5 This information is mainly provided in the form of as built plans, but supplemented in this case by the fire strategy i.e. this document. Marked up as-built plans will be provided by the architect on completion.

7.0.6 Using this information and the original fire strategy the “responsible person” should ensure a fire risk assessment is carried out for the residential common areas. It is recommended that this is recorded, kept with the other information indicated in this document and updated on an annual basis or if any significant change is made to the fire risk or facilities in these areas.

7.0.7 It is suggested that a fire manual (see BS 9999) will be developed for the building bringing together all aspects needed for the effective fire safety management of the building. The items discussed above are discussed in greater depth, along with key items that should be recorded in the building Fire Risk Assessment, in Appendix A.

8.0 CONCLUSIONS & RECOMMENDATIONS

8.0.1 The proposals outlined in this document demonstrate a level of fire safety equal to or greater than the general standard implied by compliance with the recommendations in BS9991: 2024. This level of safety therefore satisfies the functional requirements of the Building Regulations relating to fire safety.

8.0.2 The fire strategy described in this report can be summarised as follows:

- Means of escape will be based on the apartment of fire origin only evacuating in the residential accommodation (i.e. a defend in place evacuation philosophy). The ancillary areas are separate fire compartments and therefore will evacuate on an individual basis, and will adopt a simultaneous evacuation in the event of an incident in the accommodation concerned only. No interconnection of fire alarm system or evacuation protocol is proposed between any areas.
- The internal layout in each apartment is based on an entrance hallway configuration however following BS9991 guidance based on each unit being provided with residential sprinklers and LD1 standard fire alarm and detection systems no internal fire ratings are proposed within the apartments. Notwithstanding this overall internal travel distances within each apartment will be limited to 20m. Plot 1 also includes an escape window from each bedroom to mitigate these being inner rooms off the living space.
- Both the north and south cores have been treated the same with single level apartments accessing the single common staircases via ventilated common corridors at each level. At ground floor level the apartments are externally accessed and do not connect to the common staircases. At the upper floors the common corridor travel is limited to 7.5m (albeit this could be up to 15m based on the sprinklers present). Each common corridor in both cores is ventilated via 1.5sqm natural smoke shafts. The smoke shafts serve all upper floors in the respective cores. The common staircases will also include

a 1sqm natural automatically opening vent (AOV) at their heads. The lift shafts are located within the staircases which is considered reasonable on the basis that the building is less than 18m high.

- Escape within the ancillary areas is addressed based on prescriptive travel distance and escape width recommendations.
- Structural fire resistance to all elements of structure will have 60minutes fire resistance.
- Each floor will be constructed as a compartment floor with the same period of fire resistance to the elements of structure, i.e. 60minutes. Each apartment will form its own 60 minute fire resistant compartment. The common staircase will afford 60minutes fire resistance. The vertical shafts will afford 60minutes fire resistance. All ancillary rooms will afford 60minutes fire resistance. Residential sprinklers will be provided throughout the apartments, ancillary rooms and common corridors only.
- Fire alarm and detection systems within the building will be:
 - Within apartments – LD1 (BS5839 Part 6)
 - Residential Common Areas – L5 (BS5839 Part 1) – only provided to operate smoke venting in internal common corridors
 - Ancillary rooms – No fire alarm systems
- A BS8629 communal emergency evacuation alert system will also be provided in the building as a client requirement.
- The residential sprinklers and the common areas smoke detection system will also be subject to a remote monitoring service facility (CSL Group, formerly BT Redcare, or similar). Again this facility is as a client requirement.
- The building is less than 18m high therefore no fire fighting shafts are proposed however a dry rising main will be provided in both common staircases. All apartments will be covered within 45m of a dry riser outlet located in the common staircases. The fire appliance access will be provided to within 18m of the dry riser inlet points. The dry main inlets will be within an 18m horizontal distance of the main in the common staircases. An existing or new fire hydrant will be present within 90m of the proposed dry main inlet points.
- Both of the lifts present as part of the cores is to be an evacuation lift designed to a Class A standard in BS EN 81-76, as recommended in BS9991: 2024. Disabled refuges and emergency voice communications will also be provided to both cores.

9.0 LIMITATIONS, ASSUMPTIONS AND REFERENCES

9.0.1 The information limitations and assumptions used in the preparation of this report are described below.

9.1 Drawing Information

9.1.1 This document is based on the drawings provide by the project architects, MEPK Architects. All dimensions have been taken from these drawings.

9.2 Building Regulations

9.2.1 This report considers Building Regulations which deal with life safety only. Property protection, business continuity and insurance issues are not addressed in this report.

9.3 Other Limitations

9.3.1 Complying with the recommendations of this report will not guarantee that a fire will not occur.

9.3.2 This report has been prepared for the sole benefit, use and information of the Weir House project team and the liability of BWC Fire Limited, its directors and employees in respect of the information contained in the report will not extend to any third party.

9.4 References

1. BS 9991: 2024, Fire safety in the design, management and use of residential buildings - code of practice
2. BS 5839 Part 6: 2019+A1: 2020, Fire detection and fire alarm systems for buildings. Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings
3. BS 5839 Part 1: 2025, Fire detection and fire alarm systems for buildings. Code of practice for system design, installation, commissioning and maintenance
4. BS 8629: 2019+A1: 2023, Design, installation, commissioning and maintenance of evacuation alert systems for use by fire and rescue services in buildings containing flats. Code of practice
5. BS EN 81-76, 2025, Safety rules for the construction and installation of lifts. Particular applications for passenger and goods passenger lifts – Evacuation of persons with disabilities using lifts
6. BS 9999: 2017, Code of practice for fire safety in the design, management and use of buildings
7. Building Regulations, Approved Document B Volume 1, 2019 Edition - Fire Safety: Dwellings (up to 2026 amendments)
8. BS 5839 Part 9: 2011, Fire detection and fire alarm systems for buildings. Code of practice for the design, installation, commissioning and maintenance of emergency voice communication systems
9. BS 5266 Part 1: 2025, Emergency lighting. Code of practice for the emergency lighting of premises
10. BS 5499 Part 4: 2013, Safety signs, including fire safety signs – Part 4: Code of practice for escape route signing
11. BS ISO 3864 Part 1: 2011, Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs
12. BRE Guide 187: 2014, External fire spread: building separation and boundary distances
13. BS 476 Part 6: 1989, Fire tests on building materials and structures. Method of test for fire propagation for products
14. BS9251: 2021, Sprinkler systems for residential and domestic occupancies. Code of practice
15. BS EN 12101 Part 2: 2017, Smoke and heat control systems. Natural smoke and heat exhaust ventilators
16. BS 8519: 2020, Selection and installation of fire-resistant power and control cable systems for life safety and fire fighting applications. Code of practice
17. BS 9990: 2016, Code of practice for non-automatic fire fighting systems in buildings

APPENDIX A – MANAGEMENT RISKS / FIRE RISK ASSESSMENT LOG

The following log identifies the key fire strategy elements (although this is not an exhaustive list) that must be highlighted to the end user/occupier to assist them with managing and maintaining the fire safety strategy. These items should be incorporated into all applicable fire risk assessments and management procedures that consider fire safety within this building.

1. As a single staircase building it is essential that the staircase, final discharge routes and common corridors are maintained as sterile areas that are free of obstructions, combustible materials and furnishings. The staircase and corridors also need particular attention with respect to standards of housekeeping. Management procedures should also be developed and implemented for the management of deliveries, post, visitors and maintenance to avoid fire load and ignition sources being introduced in the escape routes.
2. The residential common escape routes also include automatic smoke venting from the common corridors and staircase in order to protect the residential escape routes. These facilities need to be regularly tested and maintained to ensure they operate and perform effectively in the event of an emergency. Records must be kept to document the successful testing and maintenance regime. Both the automatic and manual operation of the smoke venting should be tested and maintained.
3. Fire compartmentation is proposed, including compartment walls and floors to separate the apartments, ancillary accommodation and common areas. Any post occupation service penetrations created in any of these compartment walls and floors must be appropriately fire stopped to standard equivalent to those elements. It is essential that once the building is occupied that these separating walls and floors are regularly checked for breaches. It is recommended that a robust management policy including regular staff training is introduced to ensure that the compartmentation strategy remains a focal point to all staff during the life of the building.
4. The building generally includes several physical and active fire safety systems necessary to maintain the fire strategy proposals. Each system should undergo regular testing and maintenance to ensure that an acceptable level of safety is maintained throughout the life of the building.
5. It is a requirement under the RRO for the building owners / occupiers to carry out a Fire Risk Assessment (FRA) for the building / accommodation, including the residential common areas.
6. As the apartment entrance doors form a key part of the protection to the common escape routes any lease agreements will ensure that the apartment entrance doors remain under the landlord's responsibility and control with respect to testing, maintenance and repair.
7. Where possible the storage of electric bikes should be avoided within the bike store. This will need managing on an ongoing basis.