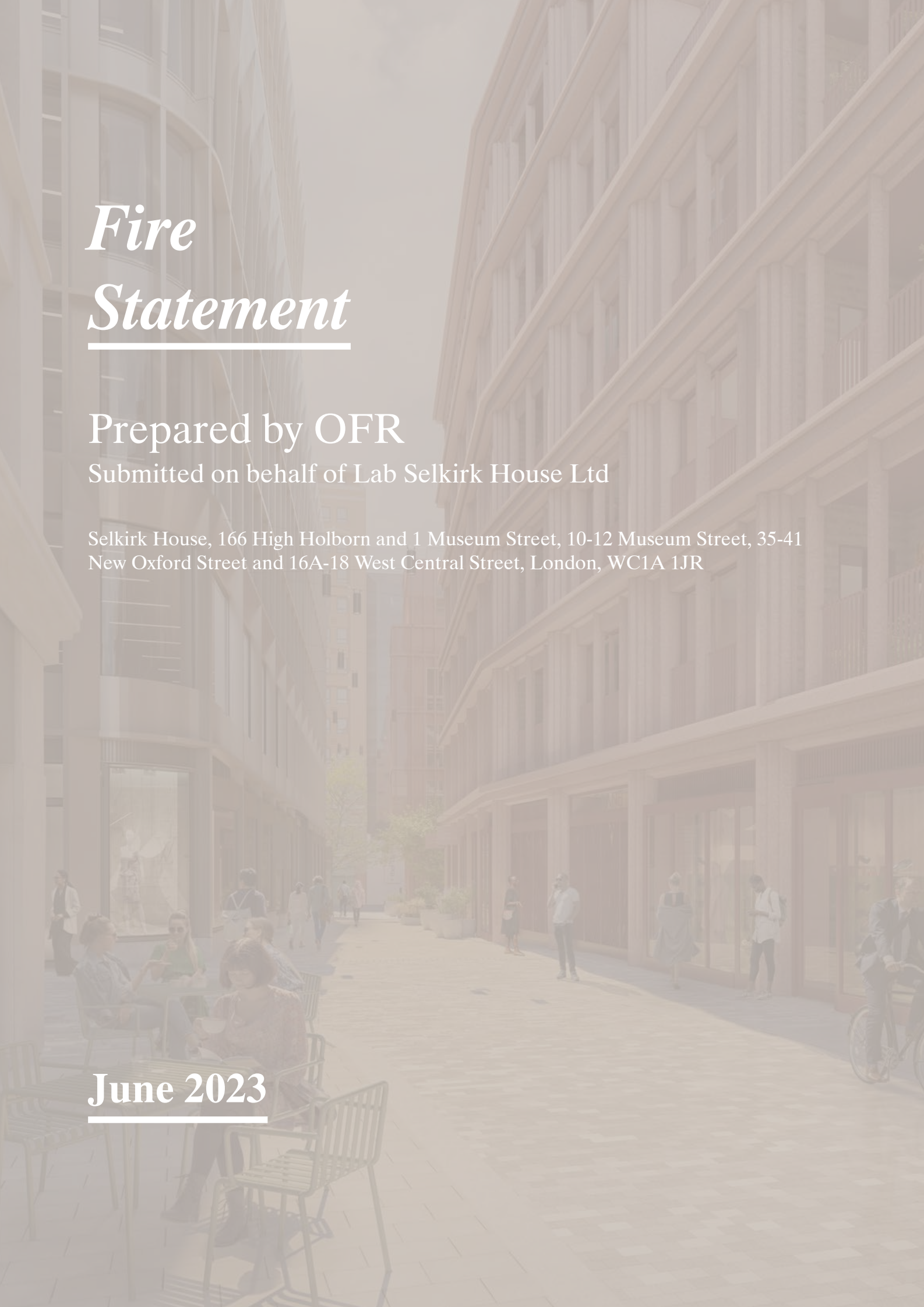

Fire Statement

Prepared by OFR

Submitted on behalf of Lab Selkirk House Ltd

Selkirk House, 166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35-41 New Oxford Street and 16A-18 West Central Street, London, WC1A 1JR

June 2023

Selkirk House, 166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35-41 New Oxford Street, and 16A-18 West Central Street, London, WC1A 1JR

1 Background and Document Purpose

OFR Consultants (OFR) have been appointed by Gardiner & Theobald on behalf of Lab Selkirk House Ltd to provide fire engineering advice in relation to the Selkirk House, 166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35-41 New Oxford Street, and 16A-18 West Central Street. This Fire Statement has been produced in support of the planning application for the proposed development.

The proposed development is located in the London Borough of Camden and thus the planning application is subject to the New London Plan 2021, i.e., the statutory Spatial Development Strategy for Greater London. Policies D5 and D12 of the New London Plan are focused on fire safety.

Policy D5 of the New London Plan states "*Development proposals should achieve the highest standards of accessible and inclusive design*" where B5 of this policy states – "*… be designed to incorporate safe and dignified emergency evacuation for all building users. In all developments where lifts are installed, as a minimum at least one lift per core (or more subject to capacity assessments) should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building*".

Policy D12 states "In the interests of fire safety and to ensure the safety of all building users, all development proposals must achieve the highest standards of fire safety…". The proposals in this document follow the headings outlined in Policy D12(B) of the London Plan, covering:

1) The building's construction: methods and products & materials used;
2) The means of escape for all building users and evacuation strategy approach;
3) Features which reduce the risk to life such as fire alarm systems, passive and active fire safety measures and associated management and maintenance plans;
4) Access and facilities for the fire service personnel;
5) How provision will be made within the curtilage of the site to enable fire appliances to gain access to the building; and
6) Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.

Therefore, in response to the relevant fire safety policies in the London Plan, this Fire Statement intends to evidence the fire safety provisions made for occupants and for fire-fighters.

This document does not constitute the Fire Strategy, which is documented in a separate report and relates to the Building Regulations 2010 (as amended, 2022). The Fire Strategy Report is a project document for coordination within the design team and client, and submittal with the Building Regulations application, and is therefore not being submitted as part of planning application.

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2 Competency and Quality Assurance Record

The London Plan Policy D12 asks that fire statements are produced by someone who is third-party independent and suitably qualified. This should be a qualified engineer with relevant experience in fire safety, such as a chartered engineer registered with the Engineering Council by the Institution of Fire Engineers.

A suitably qualified Chartered Engineer has been involved in the production of this document. The relevant below approver is a Chartered Engineer with the Engineering Council UK, as denoted by their CEng (Chartered Engineer) post-nominals. The reviewer of this Fire Statement is also registered with the Institute of Fire Engineers with the post nominals AIFireE after their name.

Author	Reviewed By	Approved By
C. Annetts BEng MSc	J. Hutchison MEng AIFireE	S.Dabin CEng MCIBSE MIFireE

Stewart Dabin

Design Director

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3 Development Description

Redevelopment of Selkirk House, 166 High Holborn and 1 Museum Street following the substantial demolition of the existing NCP car park and former Travelodge Hotel to provide a mixed-use scheme, providing office, residential, and town centre uses at ground floor level. Works of part-demolition and refurbishment to 10-12 Museum Street, 35-41 New Oxford Street, and 16A-18 West Central Street to provide further town centre ground floor uses and residential floorspace, including affordable housing provision. Provision of new public realm including a new pedestrian route through the site to link West Central Street with High Holborn. Relocation of cycle hire docking stations on High Holborn (Phased Development).

Alterations, including part-demolition, to 10-12 Museum Street and 35 and 37 New Oxford Street, to provide flats and townhouses. Demolition of closet wing to 10 Museum Street, infill of door openings. Demolition of modern rear extension to 11-12 Museum Street from first to third floors, rebuilding of rear wall. Removal of non-original staircase and internal walls to 11-12 Museum Street along with new layouts and thermal upgrades including internal wall insulation, to facilitate new flats. New bridge links to 12 Museum Street from 16a-18 West Central Street. Removal of non-original partition walls to 35 and 37 New Oxford Street, reinstatement of historic room layouts, thermal upgrades. Across listed buildings: New kitchens, bathrooms and sanitaryware; Introduction of slimline double-glazed retrofit vacuum glazing to existing window joinery, limited replacement frames; New internal and external doors; Façade refurbishment works; Conservation and restoration of historic joinery, plasterwork, fireplaces and other features of heritage importance. Courtyard garden linking buildings at first floor level above ground floor shared services, with new and amended openings to listed buildings to provide access. New and restored retail frontages to all buildings.

The proposed development (shown in Figure 1) falls within a one red line area and comprises of the following components:

- **Museum Street (MS)** - a single new building rising to 19 storeys, providing office (Class E(g)(i)) accommodation on upper levels and a range of flexible town centre uses (Class E) at ground level.
- **High Holborn (HH)** - a single new building rising to 6 storeys, providing residential (Class C3) accommodation on upper levels and a flexible town centre use (Class E) at ground level.
- **Vine Lane (VL)** - a single new building rising to 5 storeys, providing market residential units with a flexible town centre use (Class E) at ground level.
- **West Central Street (WCS)** - a series of new and refurbished buildings rising to ground plus 5 storeys, providing residential accommodation (market, Low-cost rent and Intermediate rent) on upper levels (Class C3) and flexible town centre uses (Class E) at ground level.

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Museum Street, High Holborn, and Vine Lane will sit above two levels of shared basement that comprises ancillary accommodation for the buildings above. This includes cycle storage and changing facilities, a loading bay, and plant rooms. There will be no connection between the Vine Lane block and the basement below.

West Central Street comprises a mixture of new blocks and refurbished existing buildings:

- **35-37 New Oxford Street (NOS)** – existing buildings rising to 4 storeys that will be converted to townhouses;
- **39-41 New Oxford Street (NOS)** – a new building rising to 4 storeys;
- **11-12 Museum Street (MS)** – existing Grade II listed buildings rising to 4 storeys that will comprise flats on the upper levels that will be connected to the WCS block;
- **10 Museum Street (MS)** – an existing Grade II listed building rising to 4 storeys that will be converted into a townhouse; and
- **16A-18 West Central Street (WCS)** – a new building rising to 6 storeys;

All of these blocks are providing residential accommodation on upper levels (Class C3) and flexible town centre uses (Class E) at ground level. There will be a single level of basement beneath the entire WCS development, however, this will be split into different areas which are each connected to one of the buildings above.

A summary of key parameters for fire safety is provided in Table 1, including building heights, depths, and the number of protected escape stairs provided. As shown by the information provided in this table, none of the blocks on the development are 'relevant buildings' as defined in Regulation 7(4) of the Building Regulations 2010 (as amended, 2022) and in Section 9(A) of the Town and Country Planning Order 2015 as amended by the Town and Country Planning Order 2021. Therefore, this fire statement is provided to address the London Plan 2021 only; it is not intended to be submitted to the Health and Safety Executive in their role as the Building Safety Regulator as part of Planning Gateway One.

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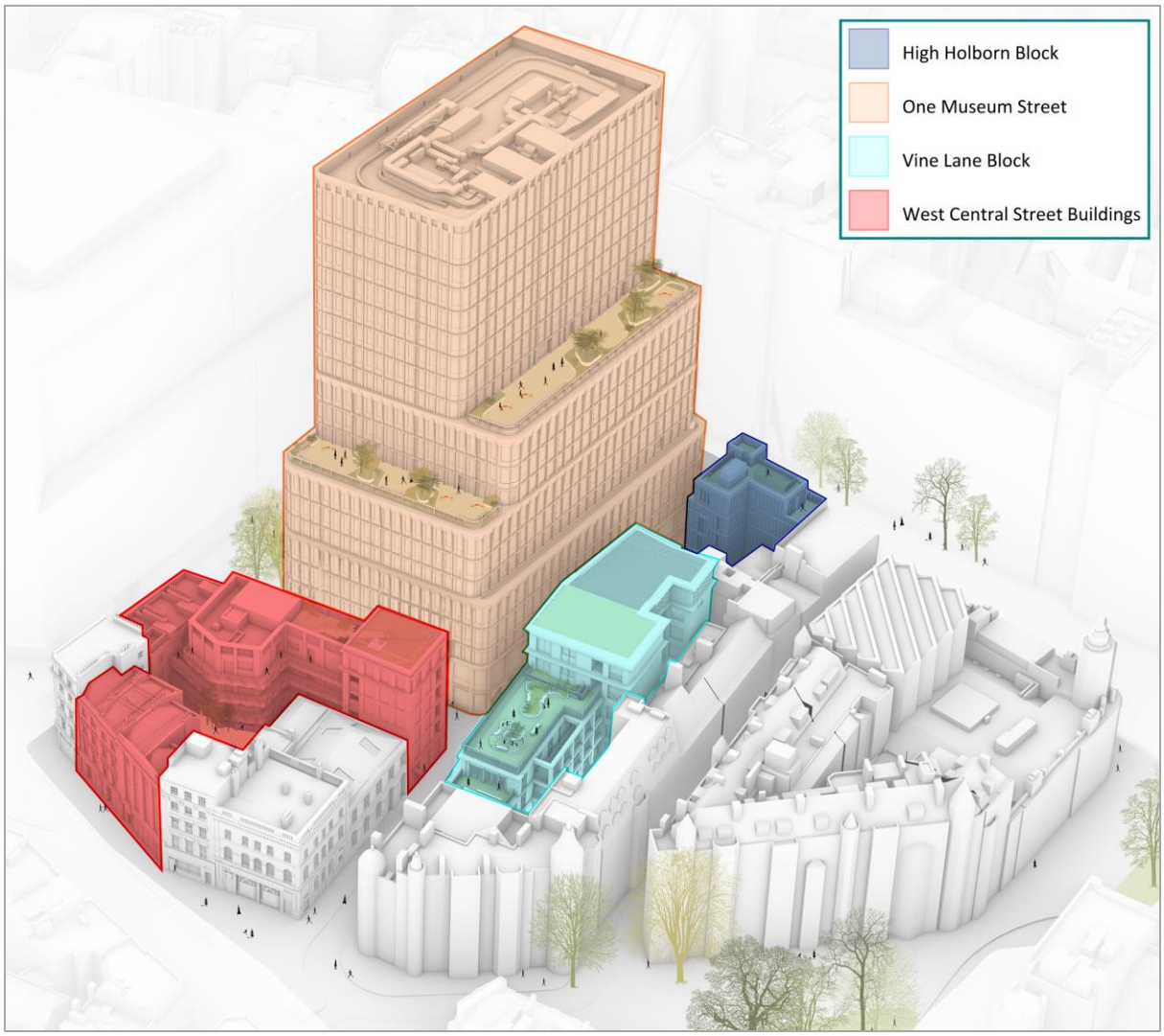

Figure 1: 1 Museum Street, High Holborn, Vine Lane, and West Central Street Blocks

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Table 1: Key Fire Safety Parameters

Block	No. of Storeys (above ground)	Building Height [m] [1]	No. of Storeys (below ground)	Building Depth [m] [2]	No. of Protected Stairs [-]
MS	19	68.4	2	6.6	2 [3]
HH	6	16.9	N/A	N/A	1
VL	6	17.5	2	6.4	1
35-37 NOS	4	10.4	1	2.7	1
39-41 NOS	4	10.4	1	2.7	1
11-12 MS	4	10.1	1	2.9	1 [4]
10 MS	4	10.1	1	2.9	1
16A-18 WCS	6	16.6	1	4.3	1 [4]

Note [1]: Measured from the fire service access level to the finished floor level of the topmost occupied storey.

Note [2]: Measured from the fire service access level to the finished floor level of the lowest occupied storey.

Note [3]: There is a third protected escape stair serving the basement levels only. This stair discharges direct to external at ground level and is located beneath the Vine Lane block.

Note [4]: 11-12 MS will be served by the same protected stair as that in 16A-18 WCS.

4 Design Approach and Methodology

The minimum fire safety goal for the building is to provide a reasonable standard of health and safety in accordance with the current social, economic, and sustainability context. This will be achieved by satisfying the functional requirements of Part B of Schedule 1 to the Building Regulations 2010 (as amended, 2022), the Construction Design and Management Regulations 2015 (CDM) and the operational fire safety requirements of the Regulatory Reform (Fire Safety) Order 2005 (RRO).

4.1 Relevant Stakeholders

Relevant stakeholders in the building and preparation of fire safety information are:

- Applicant – Lab Selkirk House Ltd;
- Development Manager – Simten Developments;
- Project Manager – Gardiner & Theobald;
- Architects – DSDHA;
- Structural Engineers – Heyne Tillett Steel;
- MEP Engineers – Scotch Partners LLP;
- Local Planning Authority – The London Borough of Camden; and,
- Local Fire Service – London Fire Brigade (LFB).

Stakeholder engagement is a vital part of developing the fire strategy. During the design development during the RIBA Stages there will be consultation with the relevant stakeholders listed above. This includes the statutory consultation with the LFB as part of the Building Regulations process.

4.2 Basis of Design

The fire safety design for the development is based upon the guidance given in BS 9999:2017 and BS 9991:2015 for the non-residential and residential parts of the development, respectively. Furthermore, fire engineering principles have been employed to support alternative solutions where strict adherence to standard guidance would conflict with the wider aspirations for the scheme.

These departures from guidance are to be identified in the Fire Strategy Reports and alternative proposals are to be documented in accordance with the fire safety engineering principles detailed in the BS 7974:2019 code of practice. Where not specifically stated, fire safety provisions are to be specified and installed according to the current edition of relevant published guidance. However, in the majority of instances code guidance is followed.

All fire precautions are determined on the basis of there being one seat of fire, as per standard design guidance.

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5 The Buildings' Construction

10-12 MS and 35-37 NOS are Grade II Listed buildings. In line with this listed status, parts of the existing fabric of these buildings will be retained.

Whilst not relevant buildings, as defined by Regulation 7(4) of the Building Regulations 2010 (as amended, 2022) and therefore not covered by Regulation 7(2), the external wall construction for all new buildings will be non-combustible i.e. European Class A1 or A2-s1, d0. This includes any thermal insulation materials within external wall cavities and specified attachments such as balcony. Sealants, gaskets, doors and windows (including frames) are exempted; (see Regulation 7(3) for the full list of exemptions). Membranes within the external wall will achieve a minimum Class B-s3, d0.

Due to the boundary distances being less than 6m, all roof coverings will achieve B_{ROOF}(T4) in accordance with BS EN 13501-5 or will be roof covering products (and/or materials) defined in Commission Decision 2000/553/EC of 6 September 2000, implementing Council Directive 89/106/EEC, can be considered to fulfil all of the requirements for the performance characteristic 'external fire performance' without the need for testing, provided that any national provisions on the design and execution of works are fulfilled, and can be used without restriction.

Green roofs are proposed on VL and 16A-18 WCS blocks. These roofs will be designed following the guidance provided in the Department for Communities and Local Government's (DCLG) Fire Performance of Green Roofs and Walls (August 2013).

Policy D12 of the London Plan asks for Fire Statements to include manufacturer's details, for the products and materials used in the buildings. However, this information is not available at this stage of the design.

6 Means of Escape

In the following section, a high-level summary of the means of escape strategies and provisions are given. A more detailed assessment is provided within the respective Fire Strategy Reports.

6.1 Risk Profiles

BS 9991:2015 is aimed at residential buildings only and the guidance therein is based on the risks associated with this type of accommodation. BS 9999:2017 provides guidance on a range of building types. As such, BS 9999:2017 guidance is based on 'risk profile', which is formed of two components: (a) occupant characteristics, and (b) fire growth rate. The adopted risk profiles for the office, retail, and basement areas of the development are noted in Table 2.

An automatic sprinkler system can provide an efficient means of fire control within a building compartment. Such provision restricts fire growth, prevents fire spread, limits heat and smoke generation and can extinguish the fire. Therefore, as described in BS 9999:2017, the risk profiles have been adjusted to account for the automatic fire suppression system which will be provided (see also Section 7.2).

Table 2: Building Risk Profiles

Areas	Occupant Characteristics	Fire Growth Rate	Risk Profile
Office	A – awake & familiar	1 – slow	A1
Retail	B – awake & unfamiliar	2 – medium	B2
Cycle Stores & Changing Facilities	A – awake & familiar	1 – slow	A1
Plant & Storage	A – awake & familiar	2 – medium	A2

6.2 Evacuation Strategy

All buildings will be designed such that their primary uses (residential and non-residential) will operate independently and will evacuate separately to one another. These parts of the development will be provided with their own entrances and have independent escape routes, separated by a high degree of compartmentation.

Policy D12 (A,5) of the London Plan calls for development proposals to develop a robust strategy for evacuation. The strategy for evacuation of the residential areas is based on a 'stay-put' regime, as described in section 6.2.1, with corresponding detail on means of escape provisions presented in sections 6.3.1 and 6.4. The strategy for evacuation of non-residential areas is provided in section 6.2.2, which includes phased evacuation for office

areas (inclusive of basement); detail on means of escape provisions presented in sections 6.3.2 and 6.5.

Provided that the life safety systems and provisions in the fire strategy support the evacuation approach (as is the case for MS, WCS, HH and VL), the stay-put and phased evacuation strategies are robust evacuation strategies, which are common approaches to residential blocks of flats (per BS 9991 and Approved Document B) and to high-rise commercial buildings (per BS 9999 and Approved Document B), respectively.

6.2.1 Residential

The residential buildings will operate a 'stay put' evacuation strategy. This can be summarised as follows:

- Occupants in the flat of fire origin are alerted and thus should evacuate;
- Occupants outside of the flat of fire origin should be safe to stay within their flat;
- Further evacuation of flats will not take place automatically and relies on the Fire Service, management, or the independent action of occupants;
- Means of escape are, however, designed such that occupants of other flats are able to evacuate safely should they become aware of a fire and want to evacuate.

Coupled with a high degree of compartmentation and provision of smoke control throughout the common corridors where applicable (see Section 7.3 and 0), the stay put strategy is adequately robust and commensurate with current fire safety standards.

The residential amenity and ancillary areas (including roof terraces) will evacuate simultaneously upon detection of a fire within any residential ancillary or common area and upon activation of the sprinkler system within a flat.

6.2.2 Non-Residential

The One Museum Street development will adopt a phased evacuation strategy: in the first instance, the fire affected floor and the floor above will evacuate in one stage; the remaining office floors will evacuate two floors at a time, progressing upwards from the fire affected floor. The basement and roof will also evacuate in the first stage.

The retail units will form separate evacuation zones, given they do not share means of escape and due to the provision of compartmentation between retail units and any other accommodation. Upon fire detection in a single unit, the affected unit will evacuate. A fire in the office zone will not initiate the evacuation of the retail/ units, and vice versa.

6.3 Evacuation of Mobility Impaired People

The evacuation of Mobility Impaired People (MIP) is a fundamental part of the overall evacuation strategy for the buildings.

Policy D5 (B,5) of the London Plan calls for development proposals to be designed to incorporate safe and dignified emergency evacuation for all building users; and supporting text to this policy in 3.5.10 further mentions building users should be able to evacuate from

a building with dignity and by as independent means as possible. For this purpose, lifts suitable for evacuation will be provided within residential and non-residential areas as described below.

6.3.1 Residential

In 35-37 NOS and 10 MS, the existing buildings are Grade II listed and do not have lifts to provide access to the upper levels. Each of these buildings will be designed as a townhouse. Therefore, it is considered reasonable that no evacuation lift is provided in these buildings.

In 16A-18 WCS and 11-12 MS, there will be a single stair core with a lift that will provide access to the upper levels of the building. This lift will be designed as an evacuation lift. Since access to the flats in these buildings will be via balconies, once occupants have reached the lift lobby they will be in a place of relative safety whilst they wait for the lift to self-evacuate.

In 39-41 NOS and HH there will be no lift provision; access to the flats on the upper levels will be via the stair only. Consequently, there will be no evacuation lift in these buildings. Occupants will be able to escape from their flats, into the protected escape stair which will be separated from the accommodation by a lobby on all levels. This is considered to be reasonable for the size of building.

VL will have a single core comprising a lift and a protected escape stair. This lift will be designed as an evacuation lift. On the first to fourth floors the flats will be approached via balconies, similar to that of WCS. As such MIP should be able to use the lift for evacuation.

Where lifts suitable for evacuation purposes to aid the evacuation of MIP from upper floors are provided, the intent is that all foreseeable residential occupants can evacuate independently, without the assistance of management. There is currently no bespoke guidance for evacuation lifts in residential buildings without 24/7 management. However, as a minimum these evacuation lifts will be designed in accordance with the recommendations in Annex G of BS 9999:2017 and will be provided with a secondary power supply.

In the unlikely scenario that the evacuation lifts in the buildings are out of action for maintenance reasons, MIP will be able to escape to a place of relative safety (either the stair enclosure or the protected lobby of the stair). In VL and WCS, escape routes to these places of relative safety are via external balconies which significantly reduce the likelihood of smoke ingress into the stair/lobby enclosures. Once in places of relative safety, MIP will be able to wait for assistance from the fire service to continue their escape from the building.

6.3.2 Non-Residential

In One Museum Street the building management team will be responsible for the evacuation of MIP from the office, retail, and basement parts of the building. This will be facilitated through the use of evacuation lifts and refuges areas.

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Each stair core will be provided with an evacuation lift in accordance with the relevant provisions of BS EN 81-20 and BS EN 81-70, as defined in BS 9999: 2017 (Annex G). Therefore, the building will be served by two evacuation lifts. This is in addition to the two fire-fighting lifts also provided in the building (see Section 8.2).

Refuge areas will be located within the protected lift lobbies and will have minimum dimensions of 900 mm x 1400 mm. They will be positioned so that they can be clearly identified and such that they do not encroach on the effective width of escape routes. The refuge areas will enable MIP to await further assistance from suitably trained staff members in a place of relative safety before they make their way out of the building at their own pace with assistance. Furthermore, the refuges will be provided with an emergency voice communication (EVC) system to allow communication with staff.

6.4 Means of Escape Provisions (Residential)

Provisions have been made to ensure an adequate means of escape will be provided from each residential building and are described in the following sections.

6.4.1 Townhouses

10 MS, 35 NOS, and 37 NOS will be converted into townhouses. Each townhouse will be provided with a protected stair that serves every level and discharges direct to external at ground level.

6.4.2 Flats

All flats throughout the residential blocks will be provided with automatic fire detection and alarm system and will be sprinkler protected in accordance with BS 9251:2021.

Most flats in the residential buildings will have open-plan layouts/unprotected hallway approach. In all cases, these flats will follow the guidance in BS 9991:2015 with regards to ceiling heights and will be situated on a single level. Fire engineering methods will be employed to support their unenclosed kitchens and to determine an adequate distance of the cooker locations from the flat entrance doors.

Where duplexes are provided, such as in HH and WCS, the internal stair will be enclosed in fire resisting construction in line with the guidance in BS 9999:2015.

6.4.3 Common Means of Escape

39-41 NOS is a small, single stair residential building under 11m and therefore will be designed in accordance with the guidance in BS9991 for small buildings. Protected lobbies will be provided between the flats and the stair, and an automatic opening vent will be provided at the head of the stair. At basement level protected lobbies will be provided between the ancillary accommodation and the stair, the lobbies will be provided with not less than 0.4 m^2 permanent ventilation.

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Open-access balconies will form the primary access and egress routes to the flats of the 16A-18 WCS and 11-12 MS block (see Figure *2*), and the VL block. As the balconies will from a single route of escape from the flats, the following will be provided:

- The balconies will have vertical openings equivalent to 50% of the vertical section;
- The walls of the flats will achieve at least 30 minutes fire resistance up to a height of 1.1m above the deck, without non-fire resisting windows/glazing below 1.1m;
- The flat entrance doors access from the balcony will be FD30 fire doors;
- Surface materials of the facing wall, balcony soffit and balustrade will achieve a European Class A1/A2 rating; and
- Balcony floor structure will achieve 30 minutes fire resistance and will be imperforate.

The flats in the HH block and the top floor of the VL block will be accessed from the protected stair by protected lobbies/corridors. The lobbies in HH will be provided with 1.5 m^2 AOVs on the external wall, and the lobby on the top floor of the VL block will be provided with a single mechanical smoke shaft.

At ground level the stairs in the 16A-18 WCS and VL provide access to ancillary accommodation. Protected lobbies will be provided between the stair and the ancillary accommodation, which will also be ventilated. At ground level in HH, the stair discharges to external through the entrance lobby with no access to ancillary accommodation.

The stair in 16A-18 WCS also serves ancillary accommodation in the basement. The basement portion of the stair will be decoupled from the upper portion of the stair with a ventilated, protected lobby separating them at ground level. The basement will also be provided with mechanical smoke ventilation (see Section 7.3).

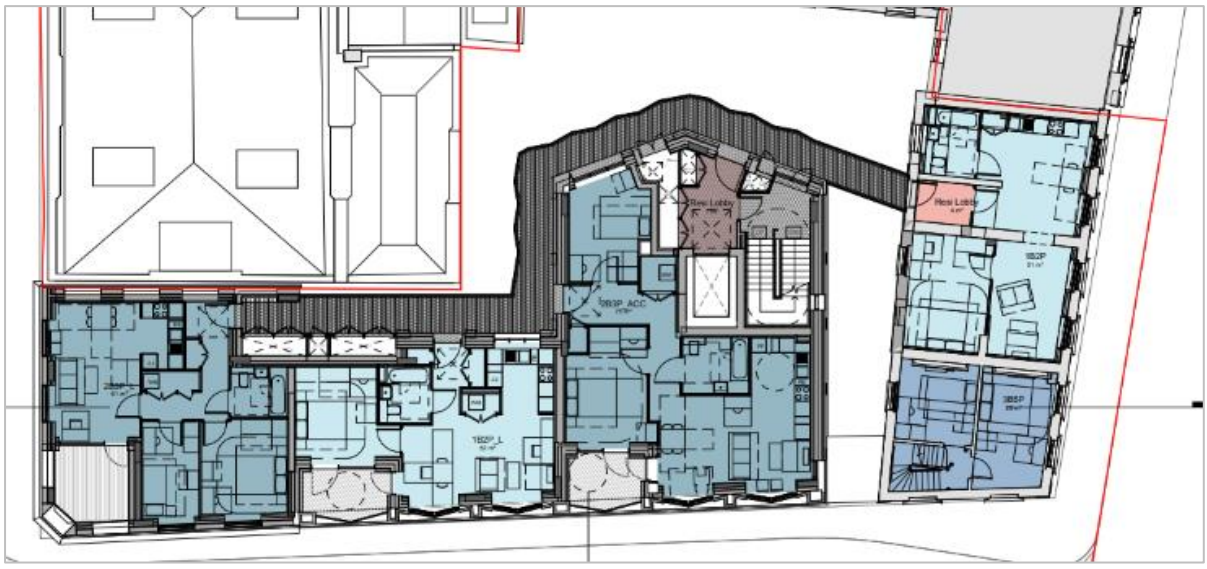

Figure 2: Balcony Access/Escape in 16A-18 WCS and 11-12 MS

6.5 Means of Escape Provisions (Non-Residential)

An overview summary of the means of escape provisions made for these areas is given in the following sections. Detailed calculations are to be documented in the Fire Strategy Report.

6.5.1 Horizontal Escape

The plans have been developed to include a sufficient number of exits, as necessary to satisfy the travel distance limits given in BS 9999:2017 (see Table 3). On the upper office floors of 1MS consideration has been given to the potential for tenancy splits; the exits have been sited so that each tenancy will be provided with two independent means of escape without the need to pass through a different occupancy.

Exits have been sized based on the minimum width factors given in BS 9999:2017 (see Table 3) and the design occupancies. The latter have been calculated based on the following key floor space factors:

- Office space (open-plan) – 6.0 m^2/person; and
- Retail – 2.0 m^2/person.

The number and locations of exits provided on a typical upper office floor are shown in Figure 3. On these levels, the fire-fighting stairs, and their protected lobbies are considered as places of relative safety, as per BS 9999: 2017 recommendations. Doors into these spaces are the storey exits.

At ground level, occupants will egress to the outside.

Table 3: Key horizontal egress design parameters

Area(s)	Risk Profile	Single Direction Travel Distance Limit [m] [1]	Multi-Direction Travel Distance Limit [m] [1]	Minimum Exit Width [mm/person]
Office	A1	17.0	44.0	3.30
Retail	B2	15.0[3]	38.0[3]	3.49[2]
Bike stores & changing areas	A1	20.0[3]	51.0[3]	2.80[2]
Plant & storage	A2	17.0[3]	43.0[3]	3.06[2]

Note [1]: Travel distances listed are 'direct', i.e. to be measured irrespective of furniture layout.

Note [2]: Includes a 15% reduction on the BS 9999: 2017 baseline value based on enhanced detection.

Note [3]: Includes a 15% increase on the BS 9999: 2017 baseline value based on enhanced detection.

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Figure 3: Typical upper floor layout and means of escape provisions (1MS)

6.5.2 Vertical Escape

Above ground office levels within 1 Museum Street will be served by two protected stairs each with a clear width of 1200 mm, as shown in Figure 3. The stairs are sized based on the minimum stair width factors given in BS 9999:2017 for an A1 risk profile, representative of the primary use of the 1 Museum Street building. The stair capacity calculations have been undertaken based on the evacuation of 'cassettes', i.e. a maximum of two floors evacuating at any one time. To support the phased evacuation strategy, as recommended in BS 9999:2017, the following measures have been incorporated into the design:

- The stairs are provided with a protected lobby at all levels;
- Lifts are approached through a protected lobby;
- Compartmentation will be provided between levels;
- The building is to be fitted with an automatic sprinkler system conforming to BS EN 12845;
- The building is fitted with a fire detection and alarm system conforming to the L1 standard given in BS 5839-1 incorporating a voice alarm in accordance with BS 5839-8; and,
- An emergency voice communication system is provided throughout, in accordance with BS 5839-9.

The phased evacuation will be a managed process, staged from the Fire Control Centre (FCC) – see Section 8. An evacuation message will be broadcasted via the voice alarm system on the floor of fire origin and the floor above (and basement level) to initiate the first phase of the evacuation; at the same time, a pre-evacuation message will be broadcasted on the unaffected levels. Fire marshals will be in place to aid to the flow of occupants.

Refuges areas will be provided within the protected lobbies to allow MIP to wait in relative safety until the building management team arrive. Evacuation lifts will then be used to aid the evacuation of MIP, in accordance with Policy D5 of the New London Plan.

The final exit routes at ground level will be afforded the same protection as the stairs in terms of their fire resistance and protection from adjacent accommodation. They will be sized based on the clear width of the stairs and will include an additional 500 mm for fire-fighter access.

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7 Passive and Active Fire Safety Systems

Within the building, passive and active fire safety systems will be provided to support and enable the life safety objectives required by the Building Regulations.

7.1 Means of Detection and Warning

7.1.1 Residential

The Vine Lane, High Holborn and West Central Street blocks are to be fitted throughout with an automatic fire detection system. All open-plan flats will be provided with a Grade D LD1 fire detection and alarm system in accordance with BS 5839-6. All flats with protected entrance halls, such as the duplex in WCS, and the townhouses will be provided with a LD2 fire detection and alarm system in accordance with BS 5839-6.

Where smoke ventilation systems are provided in the residential common corridors/lobbies, an L5 fire detection and alarms system will be provided in accordance with BS 5839-1. In the ancillary accommodation, such as at basement level in WCS, an automatic fire detection and alarm system will be provided in accordance with BS 5839-1.

7.1.2 Non-Residential

The office building 1 Museum Street, basement, and retail units are to be fitted throughout with a Category L1 fire alarm and detection system, designed and installed in accordance with BS 5839-1:2017, inclusive of manual call points. The 1 Museum Street office alarm system is to include voice alarm (VA) capabilities in accordance with BS 5839-8:2013 to support the phased evacuation strategy.

The 1 Museum Street office building will evacuate, using a coincidence detection protocol i.e. double knock, where initial detection is followed by an investigation period (typically 3-5 mins, to be confirmed by the building management team). Should an investigation period be triggered, the evacuation of affected zone will be initiated automatically during this period upon either of the following:

- Activation of a second detector head;
- Activation of a manual call point;
- Sprinkler flow switch activation;
- Staff activating the alarm upon confirmation of a fire;
- When the first detection notification is not acknowledged by staff after a pre-set period; or
- Time-out of the investigation period.

Consideration has been given to environmental noise on the terraces; these are to be provided with visual and audible alarms, as per BS 5839-1: 2017.

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7.2 Automatic Fire Suppression System

All residential parts of the development are to be provided with sprinklers in accordance with BS 9251:2021 (Category 2 since they are less than 18 m in height).

All non-residential parts of the development (office, basement, retail) will also be sprinklered, but in accordance with BS EN 12845:2015 (OH3 classification). The sprinkler system in 1MS will be designed in accordance with Annex E and Annex F of this standard.

In 16A-18 WCS, there will also be a commercial sprinkler system to BS EN 12845 (OH3 classification). This system will cover all the retail units on the WCS block and the ancillary areas of 16A-18 WCS (plant rooms, cycle stores, refuse stores).

7.3 Smoke Ventilation Systems

In 1MS, fire-fighting lobbies (i.e. the lobbies to the fire-fighting stairs and lifts, which combined form the fire-fighting shafts) will be ventilated via mechanical systems; these will consist of a smoke extract shaft and an automatically opening vent (AOV) at the head of the stair (minimum 1.0 m^2) on each fire-fighting shaft. These systems will also be used to support the evacuation of MIP, by extracting smoke from the refuge areas. The design of these systems will ultimately be by a specialist supplier at a later day. Albeit, reasonable allowance for smoke shafts has been made in the current design, based on experience of similar building types.

To support fire-fighting activities at basement, a system for heat and smoke ventilation will be provided. This system is to provide 10 air changes per hour (ACH) and will be based on the size of the largest compartment.

Residential developments VL and WCS will be accessed via an open balcony approach and therefore will not be provided with smoke control. A 1m^2 openable vent will be present for the fire service to activate at the head of the stair. However, Vine Lane contains a flat at the top floor approached via an enclosed common corridor this will be provided with an L5 fire alarm and detection system that will activate the mechanical smoke shaft at this level. This will also activate the AOV at the head of the stair.

The stair lobbies in High Holborn will be provided with 1.5 m^2 AOVs located on the external wall.

VL and WCS each have connections to ancillary accommodation at the base of the single stair residential blocks. These will be separated via a smoke-ventilated lobby to an equivalent of protection as of upper floors.

Refuse store lobbies will be permanently ventilated to prevent the build-up of flammable gases.

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7.4 Structural Fire Resistance

Elements of structure of the Museum Street Block will achieve at least 120 minutes fire resistance. Each floor of the building, including basement and external terraces, will be compartment floors achieving 120 minutes fire resistance.

Elements of structure of the Vine Lane, High Holborn, and West Central Street Blocks will achieve at least 60 minutes fire resistance. Each floor of the buildings will be designed as a compartment floor achieving at least 60 minutes fire resistance.

7.5 Compartmentation

Throughout the development, internal fire spread will be restricted by compartmentation, the strategy for which will be in accordance with BS 9999:2017 and BS 9991:2015, where R – Loadbearing Capacity, E – Integrity and I – Insulation. The highlights are as follows:

- All flats will be separate compartments, achieving 60REI;
- A compartment wall achieving 60REI will be provided between the retail and residential uses at the basement and ground;
- The retail at ground will be fire separated from the other building uses by construction 120REI in 1 MS;
- The fire-fighting shafts will be enclosed in 120REI;
- Compartment floors will be provided at every level, having the same fire resistance period as the structure;
- All service risers will be enclosed in fire resisting construction, having the same rating as the floors through which they pass;
- Areas of higher risk (e.g. plant rooms, stores etc.) will be enclosed in fire resisting construction in terms of REI commensurate to the level of risk associated with these areas; and
- All penetrations will be fire-stopped to retain the performance of the fire resisting separations and compartment lines.

7.6 External Fire Spread – Space Separation

The risk of external fire spread must be assessed throughout the RIBA Stages and mitigated to ensure that fire spread from the development to adjacent premises is adequately restricted. This can be by following the methods in BRE Report BR 187 to determine the required minimum boundary distance without the need to provide fire resisting elevations or to calculate the required areas of the facades that need fire protection.

Following the approach within BR 187, the amount of unprotected area (i.e., the area of an elevation offering no fire resistance) of external walls more than 1m from the relevant boundary is determined based upon the dimensions of the façade, the internal compartmentation of the building, the distance from the façade to the relevant boundary, and the presence of a fire suppression system (e.g., sprinklers).

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As per BR 187, a compartment with a reduced fire load has a radiation intensity of 84 kW/m^2. In comparison, a compartment with a standard fire load has a radiation intensity of 168 kW/m^2.

The relevant boundary should be taken as the site boundary; however, in instances where a façade of the buildings being assessed is adjacent to a road, a notional site boundary located in the middle of the street will be used rather than the site boundary.

Some elevations are coincident with the site boundary. Where the building is within 1m of the boundary, unless it overlooks a public highway, the elevations which are required to be fire resisting from both sides, with no more than 1m^2 windows.

The residential units do not require fire resisting construction on the façade and will be allowed 100% unprotected area. However, the retail units on VL will require some fire resisting construction overlooking the pathway. This is due to the close proximity to the neighbouring building and the increased fire load retail units contain comparted to residential.

A preliminary assessment has been undertaken for the 1MS building showing that the façade can be 100% unprotected. These calculations will be reviewed and updated as the design progresses through the RIBA Stages.

7.7 Emergency Power Supplies

Emergency power supplies are to be provided for all active fire safety systems, including the following:

- Automatic fire detection and alarm system;
- Sprinkler pumps;
- Emergency lighting;
- Fire/smoke curtains;
- Fire-fighting lifts;
- Evacuation lifts;
- Fire-fighting communication installations; and,
- Smoke ventilation systems.

Power supplies will be in accordance with BS 8519:2020.

7.8 Maintenance

All fire safety systems need to be inspected and maintained based on maintenance recommendations in BS 9999, BS 9991 and the relevant system-specific standards, which is to be covered by the management plan for the building.

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8 Access and Facilities for Fire-fighting

8.1 Fire-fighting Vehicle Access

The development will be accessible via Museum Street, West Central Street and High Holborn (see Figure *5*). All roads are public roads with comply to the necessary provisions in BS9991 and BS9999, with regards to width and loadbearing capacity. In addition, fire appliances will be able to travel on Vine Lane from West Central Street as shown in Figure 4. The dead-end distance will not exceed 20 m.

The retail units on Level 00 will be accessed by the fire service directly from the perimeter roads. Therefore, hose coverage will be achieved to all parts of these units within 45 m or there will be at least 15% perimeter access from a suitable parking position for a fire pump appliance, as per BS 9999: 2017.

There will also be parking positions adjacent to the entrances to each of the two fire-fighting shafts provided in 1MS. These parking positions will be within 18 m of the wet fire main inlets, which will be provided adjacent to the entrances to the fire-fighting shafts.

Some of the residential buildings will be provided with dry fire mains. These will be located in the stair enclosures. Fire vehicles will be able to park within 18m and in clear sight of dry fire main inlets. Hose coverage will be within 60m of the dry fire main outlet for all residential developments.

An existing fire hydrant is located within an adequate distance of all blocks as per the guidance in BS 9991/BS 9999. Locations of existing hydrants are shown in Figure *5*. These hydrants have been confirmed as live and working by the London Fire Brigade Water Team.

8.2 Fire-fighting Provisions

VL, HH, and 16A-18WCS (including 11-12MS) are all below 18 m in height, therefore fire-fighting shafts are not required. Instead, dry risers will be provided in the protected stair enclosures and hose coverage will be achieved from the dry riser outlets within the 60 m limit for sprinkler protected buildings.

10 MS, 35-37 NOS, and 39-41 NOS will be sprinkler protected and will be accessed from the fire pump appliance parking position on the road with the distance between this position and any point within the flat/house within 75 m.

1MS will be provided with two fire-fighting shafts since the floors area of the building exceeds 900 m^2 and the building exceeds 18 m in height. This will ensure that all parts of the floorplate can be reached within 60 m from the fire main outlets, as measured on a route suitable for laying hose. Each fire-fighting shaft will comprise:

- A fire-fighting stair at least 1100 mm wide;
- A fire-fighting lift in accordance with BS EN 81-72;

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- Mechanically ventilated fire-fighting lobbies on all levels between the fire-fighting stair, fire-fighting lift, and the adjacent accommodation;
- Wet rising main with outlets in each of the fire-fighting lobbies on every level.

As described in section 6.3.2, there will be separate evacuation lifts in each of the cores that are separate from the fire-fighting lifts.

A Fire Control Centre (FCC) will be provided in 1MS to support the phased evacuation strategy in the building and due to the complexity of the building due to its height (exceeding 50 m). The FCC will be provided with the control and indicating equipment as set out in BS 9999:2017. Access to the FCC on the ground floor will be via the corridor connecting one of the fire-fighting shafts to external; therefore it will be afforded 120 minutes fire protection.

Figure 4: Fire Appliance Swept Path Analysis (produced by ARUP).

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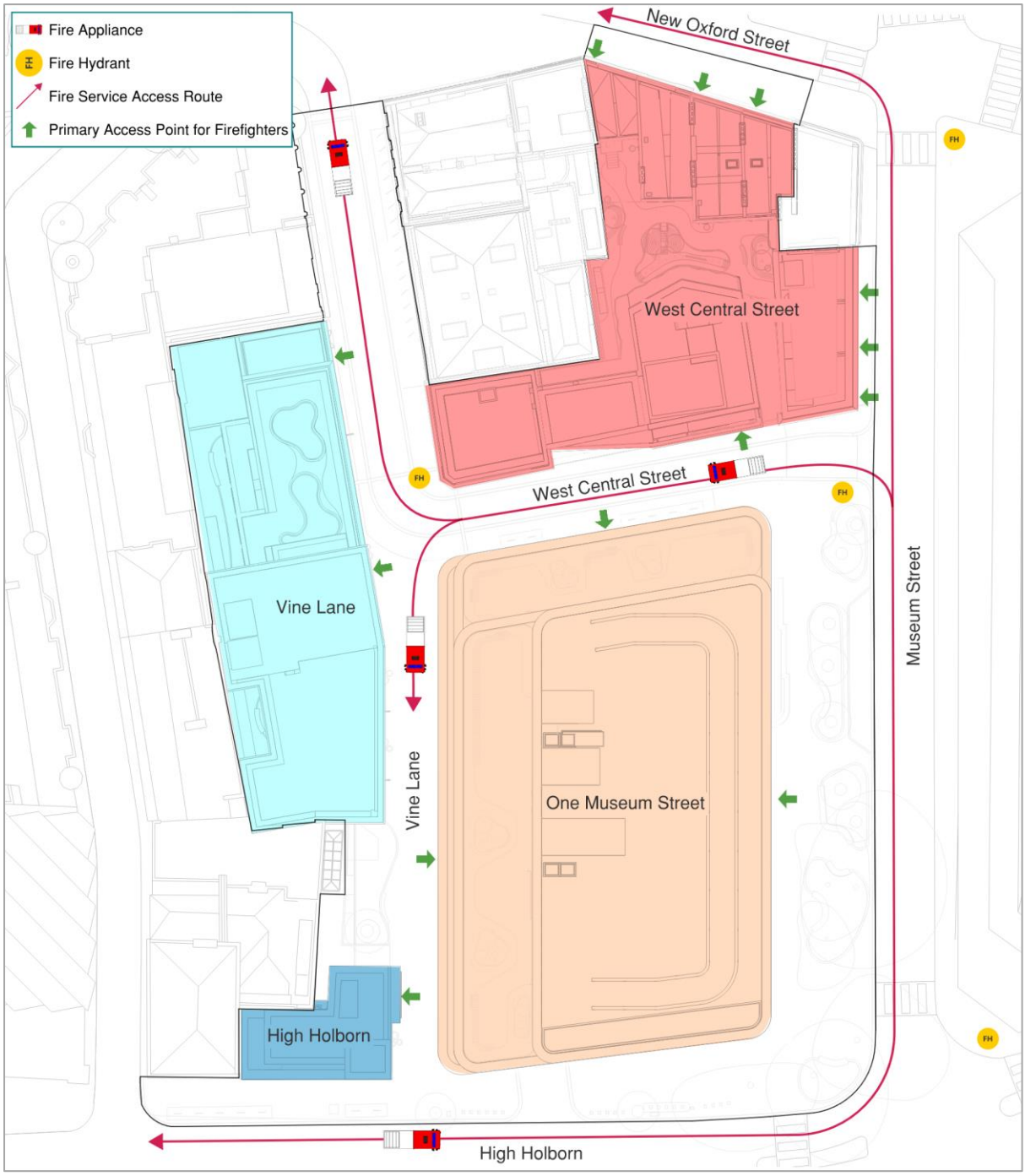

Figure 5: Site Plan showing Fire-fighting Vehicle Access

9 Future Modifications

The fire safety provisions for the development, as per the principles documented in this Fire Statement, have been developed for the base-build design; the fit-out will be by retail/ and office tenants, who will be required to adhere to the principles documented in the base-build report. Reasonable endeavours have been made in the development of the fire strategy to ensure that future modifications can be made within the framework set by the base-build design.

10 Concluding Statement

To conclude this Fire Statement, the current proposals provide a design which is suitable for the purposes outlined in this document. It provides a summary of the key fire safety features in line with Policy D12 of the London Plan, whilst meeting the intent of Policy D5 of the London Plan 2021.