Project:	**Flitcroft House – D12 Fire Statement**		
Project Number:	TX 151744 (Issue Two)	**Prepared By:**	Fourie Wiid MEng(Mech) BEngHons(Mech)
Date:	26/05/2022	**Checked By:**	Richard Hirst MSc

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1 Introduction

1.1 Project summary

1.1.1 Socotec UK Limited has been appointed by E & A Property Investment Company Limited to prepare a Fire Statement in accordance with London Plan Policy D12 for the proposed refurbishment and extension of an existing building located on 114-116 Charing Cross Road in London (WC2H 0JR).

1.2 Aims and objectives

1.2.1 This document intends to form a Fire Statement, as necessary to comply with the conditions outlined in The London Plan Policy D12 Fire safety in the first instance (see Section 2). This document also intends to satisfy The London Plan Policy D5(B5) Inclusive design, as appropriate and relevant to the provision of evacuation lifts.

1.3 Authors

1.3.1 Rich Hirst, Master of Science, has over 10 years' experience actively practising as a fire engineer in the UK industry, with experience leading fire safety input on projects in various sectors (including but not limited to residential, commercial, assembly and recreational, industrial, educational, and defence). Rich has used his knowledge of fire dynamics and other fire safety methods to successfully implement performance-based design solutions and has developed a significant understanding of contemporary fire safety design guidance.

1.3.2 Fourie Wiid MEng (Mech) BEngHons(Mech), Master of Mechanical Engineering, has over 6 years' industry experience. Having successfully delivered projects using various international codes in the education, health care, residential, commercial, retail, industrial, community and food processing sectors, Fourie has a thorough understanding of the challenges associated with fire safety and has demonstrated expertise in resolving issues using performance-based solutions.

1.4 Schedule of relevant plan titles

1.4.1 This document is based on the information provided to Socotec UK. Additional information or variations to that supplied may invalidate the conclusions and recommendations within this report.

1.4.2 The table below lists the relevant plan titles and reference numbers.

Table 1 – Relevant plan titles

	Description	Revision	Date
20024-0301	Proposed Basement GA	01	31/01/2022
20024-0302	Proposed Ground Floor GA	01	31/01/2022
20024-0303	Proposed First Floor Plan	01	31/01/2022
20024-0304	Proposed Second Floor Plan	01	31/01/2022
20024-0305	Proposed Third Floor Plan	01	31/01/2022
20024-0306	Proposed Fourth Floor Plan	01	31/01/2022
20024-0307	Proposed Fifth Floor Plan	01	31/01/2022
20024-0308	Proposed Sixth Floor Plan	01	31/01/2022
20024-0309	Proposed Roof Plan	01	31/01/2022
20024-0310	Proposed Elevation A	01	31/01/2022
20024-0311	Proposed Elevation B	01	31/01/2022

2 The London Plan 2021

2.1 Overview

2.1.1 In March 2021 the Greater London Authority published a Spatial Development Strategy (also known as 'The London Plan'), documenting the overall strategic plan and societal framework for the development of London over the next 20-25 years.

2.1.2 The London Plan outlines several design policies which are intended to form the basis for which planning applications are assessed. Those which are directly relevant to fire safety in buildings are Policy D12 Fire safety and Policy D5(B5) Inclusive design.

2.1.3 The statement has been developed to satisfy the requirements for fire life safety under Part B of Schedule 2 to The Building Regulations 2010 (as amended), namely:

B1 – Means of warning and escape

B2 – Internal fire spread (linings)

B3 – Internal fire spread (structure)

B4 – External fire spread

B5 – Access and facilities for the fire and rescue service

2.2 Policy D12 Fire safety

2.2.1 Policy D12 of The London Plan states:

A 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 and ensure that they:

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

B All major development proposals should be submitted with a Fire Statement, which is an independent fire strategy, produced by a third party, suitably qualified assessor.

The statement should detail how the development proposal will function in terms of:

1) *the building's construction: methods, products and materials used, including manufacturers' details*
2) *the means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach*
3) *features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans*

4) *access for fire service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and positioning of equipment, firefighting lifts, stairs and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these*

5) *how provision will be made within the curtilage of the site to enable fire appliances to gain access to the building*

6) *ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.*

2.2.2 Generally, major developments are:

i) Developments of dwellings where 10 or more dwellings are to be provided, or the site area is 0.5 hectares or more;

ii) Development of other uses, where the floor space is 1,000 m^2 or more, or the site area is 1 hectare or more.

2.3 Policy D5(B5) Inclusive design

2.3.1 Policy D5(B5) of The London Plan states:

Development proposals should achieve the highest standards of accessible and inclusive design. They should:

5) 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.

2.4 Context of this document

2.4.1 The proposed development has a floor space of greater than 1,000 m^2 and is subsequently regarded as a 'major development' under the terms of Policy D12(B). Therefore, this document forms the Fire Statement as required by Policy D12 to supplement the wider project planning submission and intends to outline how each aspect of the policy can or will be achieved for this development.

2.4.2 This Fire Statement will also determine the applicability of Policy D5(B5) to this development and provide commentary as appropriate.

2.4.3 Where practicable, this Fire Statement will follow the recommendations of the (draft) supplementary guidance published in relation to Policy D12.

3 Project Overview

3.1 Building Description

3.1.1 Located at 114-116 Charing Cross Road, London, WC2H 0JR, the project consists of the extension of a six-storey (B, G+4) existing building. The proposed extension will raise up to eight-storey building (B, G+6). The total building height will be approximately 24 m, whilst the height of the topmost storey will be approximately 20.70 m above ground level. Table 1 provides a summary of the levels and uses within the proposed building.

3.1.2 The above-ground levels of the building will comprise of office areas, whilst the restaurant is proposed at the ground-floor. The basement level will consist of the ancillary areas. The restaurant is intended to be used by guests and occupants, which makes them unfamiliar with the building. Further information regarding assigned risk profiles is given in Section 3.2.

The above-ground floors are served by single protected staircase and an evacuation lift. The basement is served by a different single protected staircase and an evacuation lift.

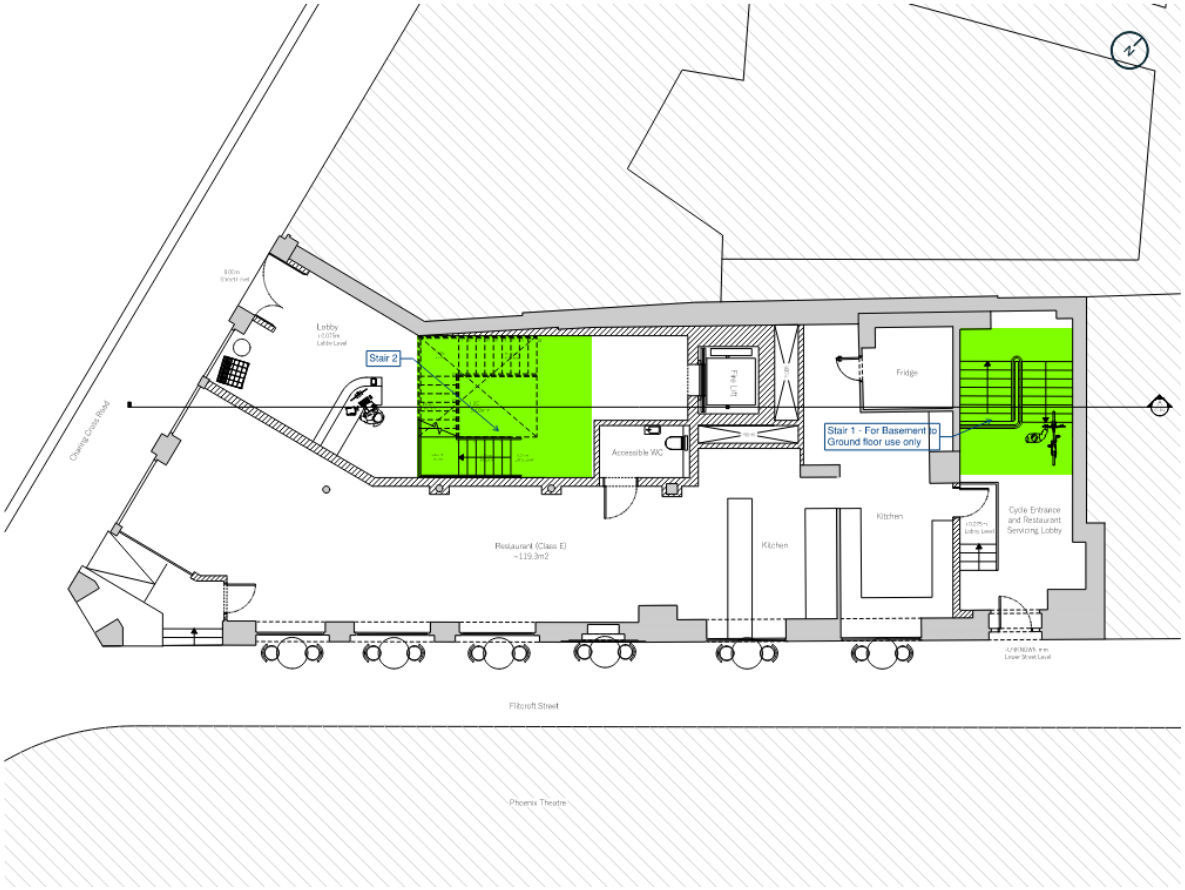

Figure 1 – Indicative site plan

Table 1 – Block levels and use

Core / Floor	Use
Roof	Terrace / Plant room
6th floor	Offices
5th floor	
4th floor	
3rd floor	
2nd floor	
1st floor	
Ground floor	Restaurant
Basement	Ancillary areas (Restaurant Storage, Bike Store, Bin Store)

3.2 Use and risk profile

3.2.1 The proposed development seeks to satisfy the requirements for fire safety under Part B of Schedule 2 to The Building Regulations 2010 through compliance with the fire safety design recommendations of BS 9999, and the codes of practice referenced therein.

3.2.2 Table 2 outlines the risk profiles proposed for each area of the building. The choice of risk profile is based on a combination of the occupants' familiarity with the premises and the typically expected fire growth rate associated with the space.

Table 2 – Base risk profiles

Use	Familiarity	Fire growth rate	Risk profile
Restaurant	Awake & Unfamiliar (B)	Medium (2)	B2
Office	Familiar (A)	Medium (2)	A2
Ancillary areas	Familiar (A)	Fast (3)	A3

3.3 Occupancy Assessment

3.3.1 The maximum occupancy of the building is estimated in Table 3. The occupancy of each floor is limited by the provision of a single storey exit. The maximum occupancy of the restaurant is limited by the opening direction of the final exit door.

Table 3 – Estimate of maximum occupancy

Floor	Use	Occupants
7th Floor – Roof terrace	Ancillary	60
6th floor	Office	60
5th floor	Office	60
4th floor	Office	60
3rd floor	Office	60
2nd floor	Office	60
1st floor	Office	60
Ground floor	Restaurant	85 Note 1
Basement	Ancillary areas	60
Building total occupancy		565
Note 1 – Based on 1m²/person for the front of house areas, plus 10 staff		

4 Key fire safety strategy considerations

4.1 The building's construction method and products and materials used

4.1.1 The construction method for this development will be either 'Traditional' or 'Modular'. At this stage the decision on whether to build using a modular or traditional construction has not been made yet.

4.1.2 If modular construction method will be employed for this development, then the proposed modules will be hot-rolled steel framed units with light-gauge infill walls and floors / ceilings. Module elements will be bolted or welded together in the factory, and modules joined to each other and to the cores and transfer structure using bolted plate connections installed on site. Stability provided by braced diaphragms in the floor or ceiling of the modules, transferring lateral load back to the reinforced concrete cores via the module-to-module connections. The structural elements will be concrete columns and floors up to first floor transfer slab, concrete core wall throughout building and steel modular cages.

4.1.3 The building's façade will be predominantly brick, with traditional brick from ground floor to fourth floor and the material to be confirmed from there upwards. All façade material will comply with Regulation 7.

4.2 Means of escape for all building users and evacuation strategy

4.2.1 The building will operate a simultaneous evacuation regime.

4.2.2 To support the building's simultaneous evacuation regime, each building will be fitted with an automatic fire detection and alarm system. This will be designed and installed to Category L2 in accordance with BS 5839-1.

4.2.3 The main fire alarm panel should be located in a conspicuous location that is both visible and accessible to the fire service and building management personnel e.g., respective building main entrance.

Horizontal evacuation

4.2.4 The ground floor level comprises of the restaurant area. There are two final exit doors providing escape from the ground floor area, one discharging on the south-west and the other one on the south-east elevation. By discounting the largest exit, the remaining door can accommodate the 85 persons. Only escape doors to open in the direction of travel.

4.2.5 The escape from the upper levels will be via a single storey exit on each floor proving access to both protected stairs. The storey exit door on each floor is located within single direction travel distance, thus it will not be discounted in case of fire, but the maximum occupancy of each level will be limited to 60.

4.2.6 The maximum allowed travel distances are shown in Table 4. Travel distances do not exceed the prescribed limits except for basement level which uses the existing travel distance

Vertical evacuation

4.2.7 The building will be served by two stair cores (i.e., Stair 1 & Stair 2) designed as protected shafts. Stair 1 serves the basement and will have a clear width of at least 1,200mm escaping upwards to ground floor only. Stair 2 serves the upper storeys and will have a clear width of at least 1,050mm discharge into a protected corridor leading to outside.

4.2.8 Vertical evacuation of the offices will be via Stair 2, connecting the above ground levels and roof terrace, with the final exit to Charing Cross Road. Stair 2 will be designed as a firefighting shaft and separated from the restaurant area by 120-minute fire resisting construction.

4.2.9 In accordance with the prescriptive guidance within BS 9999, any single stair serving a building or part of a building should be approached by means of a protected lobby at all levels, except the uppermost level. All office floors (except uppermost floor) are provided with a protected lobby approach. The lobbies will also reduce the travel distance on the office floors and with an open plan layout and occupants limited to 60 people the layouts should be acceptable.

4.2.10 BS 9999 recommends that any single escape stair serving upper-ground levels should not be continued down to basement level. Evacuation from the basement will be via Stair 1 which is separate from the office floors.

4.2.11 Both Stairs 1 and Stair 2 will be provided with protected lobbies, except the uppermost level, as per the recommendations of BS 9999.

4.2.12 Under BS 9999, Section 17.3.3 (b), office buildings over 11m are recommend being served by a minimum of two vertical means of escape. Due to the nature of the extension, internal layouts and installation of a firefighting shaft, the building is non-complaint in with Section 17.3.3 (b). In order to mitigate the risk, the following improvements to the life safety are proposed:

i) Limiting number of occupants per floor to 60 people.

ii) Installing a ventilated firefighting shaft

iii) Compartmentalising risks. The restaurant area and basement floor are separate from the office level by means of the compartment strategy.

iv) Protected lobbies are provided at each office level.

v) Analysis will be done at later stage providing support for the risk mitigation.

4.2.13 The provided stair capacities in case of a simultaneous evacuation of the entire building are not exceeded, see Table 5.

4.2.14 The basement level comprises of the Ancillary area, bike store, bin store, restaurant storage, etc.

4.2.15 Disabled occupants will be provided with a suitable number of refuge areas at each above ground floor, protected from the effects of a fire. This will be provided within the protected lift lobby enclosures (each at least 900 x 1,400 mm in dimension). These refuges will enable them to wait in a place of safety while the majority of people descend before they make their way out of the buildings at their own pace with assistance.

4.2.16 Each refuge space should be provided with an emergency voice communication system (EVC system). The system shall comply with BS 5839-9.

Table 4 - Means of escape limits and factors (horizontal)

Use / Risk profile	Single direction (m)	Multi-direction (m)	Horizontal escape width (mm/person)
Office / A2	22	55	3.6
Restaurant / B2	20	55	4.1
Plant / A3	18	45	4.6
External Rooftop Areas	60	N/A	4.6
General recommendations			
▪ Exits that serve more than 60 people should open in the direction of escape. ▪ Doors on escape routes should achieve a minimum clear width of 800mm. ▪ Exits should achieve a clear effective width of 850mm where unassisted wheelchair access is necessary, see Clause 16.6.1.b of BS 9999. Approved Document M may require additional width. ▪ Capacity of exits less than 1,050mm in width should be calculated on an effective door width of 500mm, as per Clause 16.6.1 of BS 9999. ▪ Where double doors are provided the width of one of the leaves should be not less than 800mm. ▪ The width of a door in a corridor should be not less than either the calculated corridor width minus 150mm; or a width of 1,050mm, whichever is the greater.			

Table 5 – Stair capacities

Core	Actual stair width (mm)	Minimum width of stair per person (mm/person)	Number of storeys served	Stair capacity (persons)	Design Occupancy (persons)
Stair 1	1,200	4.6	2	260	60
Stair 2	1,050	2.00	7	477	420

4.3 Policy D5(B5) – provision of evacuation lifts

4.3.1 According to London Plan Policy D5, a minimum of one lift should be designed as an evacuation lift. The firefighting lift may be used to evacuation purposes, this is subject to the local authorities. The provision of evacuation lifts may be utilised to propose alternative vertical evacuation methods to mitigate the risks involved with any failure of the vertical evacuation strategy.

4.3.2 The evacuation lift should be clearly signed at the final exit storey and relevant information should be available detailing the operation mode, rescue controls and machinery spaces.

4.3.3 The evacuation lift should always be available for evacuation purposes, and it should be designed, installed and operated in accordance with BS EN 81-20, BS EN 81-70 and BS EN 81-76.

4.3.4 According to BS EN 81-70, the car size should be at least Type 2 to be used for evacuation of persons with disabilities.

4.3.5 Evacuation lifts can operate using one the following methods:

- Driver assisted evacuation;
- Automatic evacuation; or
- Remote assisted evacuation.

4.3.6 The ground floor will be defined as 'The Main Evacuation Exit Floor' (MEEF).

4.3.7 The top floor landing call shall have the highest priority when in automatic evacuation mode. The second highest priority shall be assigned to the second furthest landing call from the MEEF etc.

4.3.8 The evacuation lift shall be provided with alternative power supplies as per Section G.2.2.2 of BS 9999.

4.4 Passive and active fire safety measures

4.4.1 The structural elements of the building should be provided with 90 minutes fire resistance.

4.4.2 Internal walls separating rooms of special fire hazard (i.e., store etc.) should provide 30 minutes fire resistance (loadbearing, insulation, integrity), whilst the plant room and bin store should be separated from the rest of the building with 60 minutes fire-resisting construction (floor and walls).

4.4.3 Both stairs will be designed as 'protected shafts' and provided with protected lobbies on all floors except the top floor and the ground floor of Stair 1. Stair 2 will be designed as a firefighting shaft and separated from the accommodation by 120 minute fire resisting construction.

4.4.4 An automatic water fire suppression system (AWFSS) will not be provided in the building as the height of the top-most storey is less than 30 m.

4.4.5 The building will have an automatic fire detection and alarm system designed as minimum L2 category in accordance with BS 5839-1.

4.4.6 In general, internal linings should achieve the surface spread of flame and fire classifications outlined in Table 7 at a minimum.

Table 7 – Internal linings

Location	Class	European Class
Small rooms ≤30 m²	Class 3	D-s3, d2
Other rooms	Class 1	C-s3, d2
Circulation spaces	--	B-s3, d2
Notes: Parts of the wall area in rooms may be of poorer performance than specified above, but not poorer than Class 3 or D-s3, d2. This variation is limited to a total area not exceeding one half of the room floor area, subject to a maximum of 60 m² in non-residential rooms.		

4.5 External fire spread

4.5.1 The building height is more than 18 m, therefore materials used for external walls and specified attachments should achieve Class B-s3, d2 or better, in accordance with BS EN 13501-1.

4.5.2 The maximum allowable unprotected area for each elevation should be calculated in the next stage. The partition wall, north-west and north-east, should be provided with 90 minutes fire resistance.

4.5.3 External walls should be constructed such that they will not support fire spread at a speed that is likely to threaten people in or around the building.

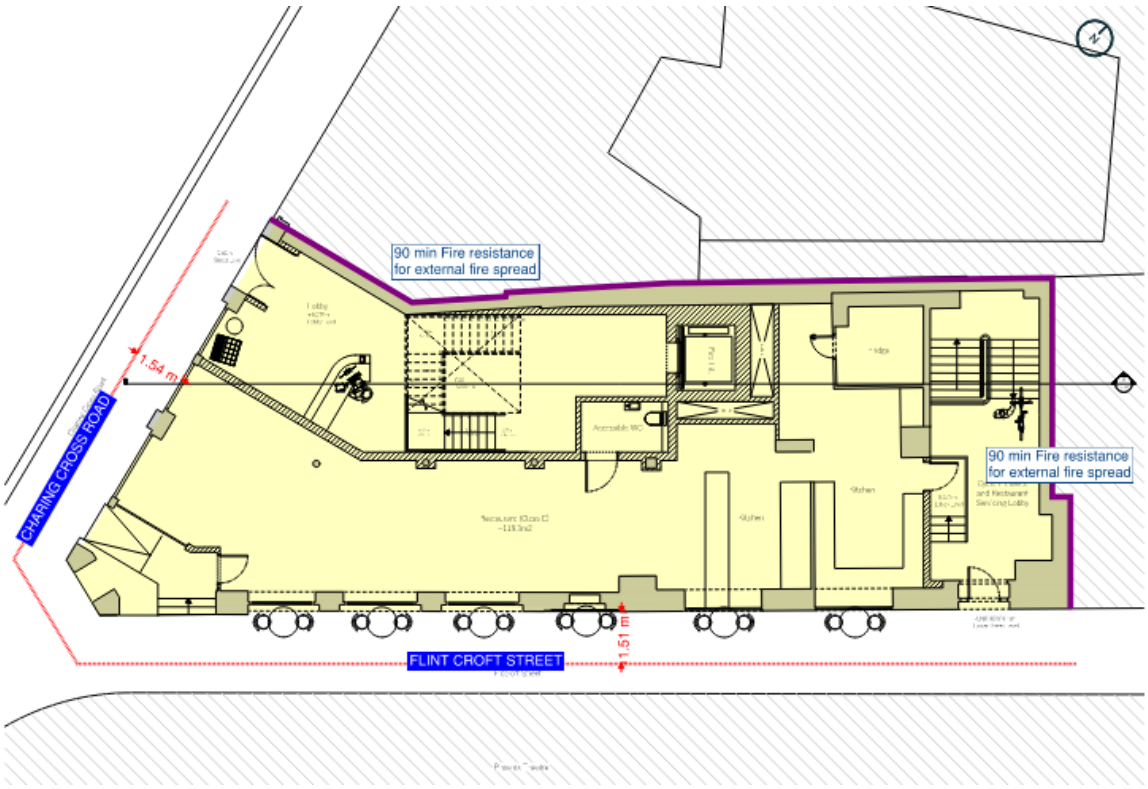

Figure 2 – Relevant boundaries

4.5.4 Roof coverings should be designated as $B_{roof}(t4)$ or "classified without further test" (CWFT) as $B_{ROOF}(t4)$ due to relevant boundaries being less than 6 m away from the building. No thermoplastic rooflights are proposed within the buildings.

4.5.5 The roof surface finishes materials are CWFT in accordance with Commission Decision 2000/553/EC or are Green Roofs and Walls designed in accordance with DCLG 2013/ GRO 2014 guidance on a roof and roof terrace.

4.6 Fire appliance and assembly points outside space

4.6.1 Fire and rescue service vehicle access around and into the building will be provided via Flitcroft street to the south-west and Charing Cross road to the south-east. Figure3 presents the fire-fighting access around the buildings. Fire-fighting access points into the building are shown with red arrows.

4.6.2 Stair 2 will be fitted with dry fire main whilst fire appliance access will be provided to within 18 m and within sight of a suitable entrance giving access to the fire main. The fire appliances cannot access Stair 1 within 18 m from the hardstanding, however this deemed acceptable as this is an existing condition, and the proposed works will not make the fire-fighting access worse than existing. The dry riser inlet for Stair will be located within 18 m of the entrance.

4.6.3 The access route to the block should be appropriate for the pump appliance access requirements, typical values are noted in Table 20 of BS 9999 in order to ensure accessibility for fire appliances conducting firefighting operations.

4.6.4 Access to and egress from the building will be via an unobstructed pedestrian pathway. Occupants evacuating will be using this pathway to reach the assembly points. The location of the assembly points should be determined upon pre-occupation Fire Risk Assessment.

4.6.5 The figure below shows indicative fire appliance access route, perimeter access and access points into the building. Assembly point locations will be developed as part of the building management plan.

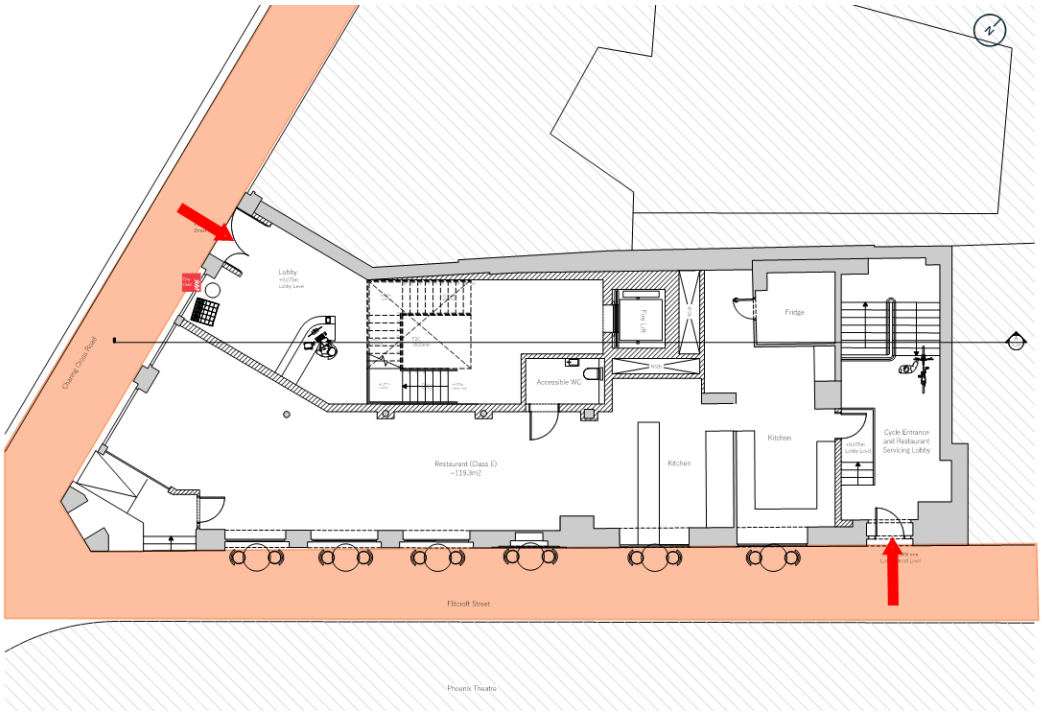

Figure 3 – Indic ative fire appliance access route

4.7 Firefighting access and equipment

4.7.1 The dry riser in accordance with BS 9990 will be provided within each firefighting stair. The dry riser inlet will be adjacent to the main entrance, being easily accessible to the fire & rescue service appliances. Though the main will require a horizontal run within the building to reach each stair core, this is considered an acceptable arrangement for meeting the recommendations where of a distance no greater than the 18 m anticipated in Figure 20(b) of BS 9999.

4.7.2 All areas of the buildings are within the maximum hose laying distance of 45 m from the dry riser outlets within the firefighting stairs, as recommended by BS 9991. As such, having a second dry riser per core is not considered necessary.

4.7.3 Water will be supplied for fire-fighting use via the public hydrant system. The existing hydrants are located on the Charing Cross Road to the south of the building. All dry riser inlets and entry points into the building are located less than 100m from the fire hydrants, as such additional fire hydrants are not required.

4.7.4 A water supply capable of providing a minimum 1,500 litres per minute at all times is recommended. Water supplies will be designed and installed in accordance with BS 9990.

4.7.5 Fire extinguishers should be provided throughout the buildings. The type of extinguisher should be determined based on the use and content of each unit, in accordance with BS EN 3-7 and BS EN 3-10.

4.8 Future development of the asset and the 'Golden Thread' of information

4.8.1 The 'Golden Thread' refers to a concept where the fire safety information of a building is to be updated and maintained through the whole life cycle of the building. The fire safety information should be maintained and updated as the development evolves in line with the principles of the golden thread.

4.8.2 Under Regulation 38 of the Building Regulations, a fire safety strategy report should form part of the information handed over to the management company to enable them to be effective.

4.8.3 Those fire safety elements identified within the fire strategy may only be modified following suitable review and approval under the Building Regulations by a building control body.

4.8.4 The Regulatory Reform (Fire Safety) Order 2005 (FSO) places legal obligations on management. Under the Order, the responsible person must carry out a fire safety risk assessment and implement and maintain a fire management plan.

4.8.5 In workplaces, the responsible person is the employer. Or anyone who has any extent of control over the premises. Some examples include a branch manager, building supervisor, the facilities management company, etc.

4.8.6 Building management should develop fire safety plans, fire safety manuals, a management and evacuation plan, an emergency information pack for the fire and rescue service. The information should be kept up to date. Management of fire safety must be integrated with all other management systems.

4.8.7 Management systems should also include procedures for anticipating and taking into account, either on a permanent or a temporary basis, changes to the occupancy (e.g., number of occupants, familiarity of occupants, etc.) and / or fire growth characteristics (e.g. types of combustibles including fire growth rates, quantity of combustibles, storage / use of combustibles including high risk items, etc.) of the building and its contents over the life cycle of the building.

4.8.8 Maintenance and testing are essential to ensure that fire safety systems will operate correctly in the event of a fire. Good housekeeping will be encouraged to ensure that the effectiveness of the fire safety provisions are not adversely affected.

5 Declarations and recommendations

5.1 Declarations

5.1.1 The fire safety of the proposed development and the fire safety information satisfies the requirements of London Plan Policy D12A.

5.1.2 The proposed development satisfies the London Plan Policy D5(B5) requirement for fire evacuation lifts.

5.1.3 This assessment is based on BS 9999:2017 (Fire safety in the design, management and use of buildings).

5.2 Design recommendations

5.2.1 An assessment of travel distances will be required once the internal layouts are known.

5.2.2 Refuges needs to be provided within the protected lobby of the Basement level.

5.2.3 External fire spread of the south-east elevation to be evaluated in detail during the next stage