Report

Project	Centre for Performance Technology and Equity (PTEQ), London
Report Title	Fire Statement (London Plan)
Our Ref	JM2908/R1 Issue 1

Issue Record

REV	DATE	AUTHOR	REVIEW	APPROVED	SECTION	AMENDMENTS
1	13/09/2024	AA	JR	HW	-	-

Contents

1.0 INTRODUCTION

1.1 Description of Building

A new two-storey building has been proposed by Royal for Centre for Performance Technology and Equity (PTEQ) in London. The building will consist of PTEQ lab space, a breakout area and a storeroom at ground floor, and a research space and multifunction space at first floor. There will also be a roof terrace connected to the multifunction space and a ground floor bin store accessible directly from the outside.

The building will be mainly used for research purposes. However, there will be events within the building that will be accessible by the public.

Figure 1 shows the ground layout.

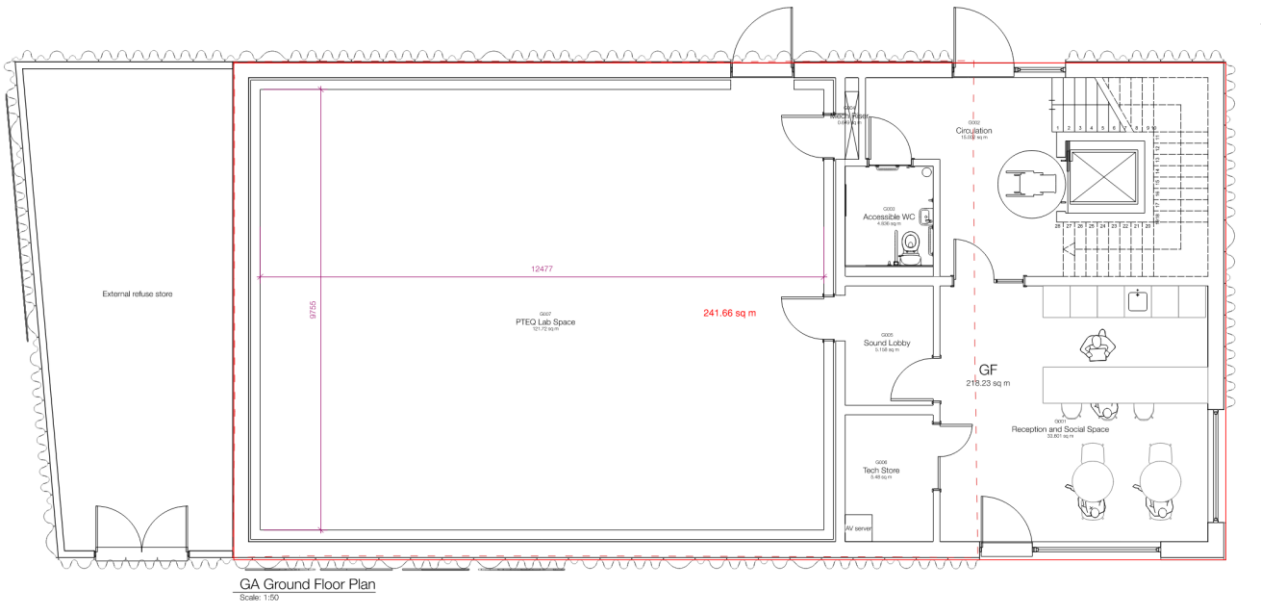

Figure 1: Ground Floor Layout

The top storey height of the building is approximately 4.5m.

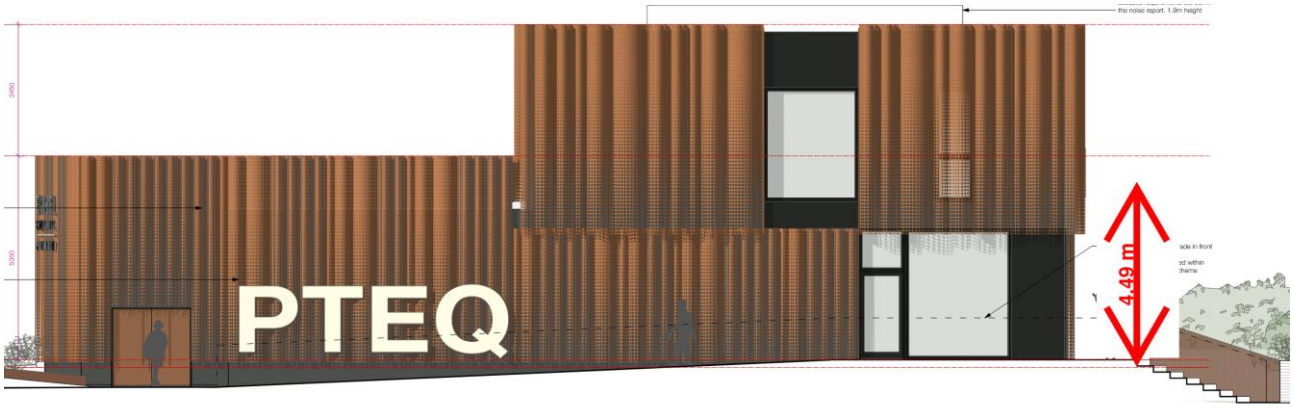

Figure 2: Top Storey Height

1.2 Aim of Fire Statement

This report has been prepared in support of the planning application for the proposed building. This document describes how the proposed design will meet with the requirements detailed in Section 2.0. The Fire Statement is based on the drawings and information provided to Jensen Hughes by Allan Joyce Architects Ltd.

1.3 Reference Drawings

The drawings used for the development of this report are tabulated below.

Drawing Reference	Description	Date received	Architect
4194-201-BGA	GA Proposed Ground Floor Plan	10-09-2024	Allan Joyce Architects
4194-202-BGA	GA Proposed Ground Floor Plan		
4194-203-BGA	GA Proposed First Floor Plan		
4194-201-BGA	GA Proposed Roof Plan		
4194-104	Proposed Landscape Design		
4194-211	Elevation 1		
4194-212	Elevation 2		
4194-213	Elevation 3		
4194-214	Elevation 4		

Table 1: Reference Drawings

2.0 LEGISLATION AND GUIDANCE NOTES

2.1 London Plan 2022 Policy D12 Fire Safety requirements

A) In the interests of fire safety and to ensure the safety of all building users, Policy D12 Fire Safety requires all development proposals to 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 minimize 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) For all major developments, Policy D12 requires a fire statement to be submitted with the proposals. The statement, which should be an independent fire strategy, produced by a third party and suitably qualified assessor 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 London Plan 2022 Policy D5 (B5) Evacuation Lifts

Policy D5 (B5) in the London Plan 2022 requires at least one evacuation lift is being provided where a building has a lift core. The evacuation lift is specifically designed to transport occupants who require assistance to evacuate. The lift should be operated by either the trained building management, a trained operator or the fire and rescue service.

For all major developments, a fire statement needs to be submitted discussing the arrangement for the evacuation lifts that include the following:

1. A capacity assessment to establish the number and size of the evacuation lifts needed in the development
2. An appropriate evacuation strategy to support the lift evacuation
3. A clear evacuation lift management plan to ensure effective use that include competent person on site or measures in place to allow fire service intervention, and appropriate facilities maintenance
4. A declaration of compliance by a suitably qualified fire safety professional on the evacuation lift design and operation.

2.3 Fire Strategy Approach and Building Regulations Guidance

To comply with the requirements of Policy D12, D5 (B5) and the functional requirements of the Building Regulations 2010 (incorporating the building (Amendment) Regulations 2018), the design has primarily followed the guidance available within Approved Document B: Volume 2 2019 (incorporating 2020 and 2022 amendments).

2.4 The Authors of This Statement

In accordance with the London Plan, the statement has been prepared and reviewed by fire engineers who are suitably qualified and competent professionals with the demonstrable experience to address the complexity of the design being proposed.

Jensen Hughes are a highly experienced team of specialist fire engineers that have been operating in the UK and Ireland for nearly 31 years (predominantly under the name JGA). The qualifications of the author of this report are given below:

Report is written by **Azreq Azhar,** Fire Engineer and reviewed by **Janne Raetsaari**, Fire Engineer of Jensen Hughes.

Azreq has more than 3 years of experience in high-level fire engineering. He is an associate of the Institution of Fire Engineers (AIFireE). As a Fire Engineer he possesses wide-ranging experiences in many aspects of fire safety and present realistic solutions in line with current national regulations and standards such as British Standards. He has experience with the UK codes and guidance, e.g. Approved Document B, BS 9999, BS 9991, HTM 05-02, PD 7974, BS 5839 part 1 & 6, BS EN 12845 and BS 9251.

Report is approved by **Henry Wilkinson**, Senior Director of Jensen Hughes, England.

Henry Wilkinson is the Director of the Jensen Hughes Manchester office and has over 15 years experience in developing fire strategies for all building types, including residential buildings. He is a Chartered Engineer with the Institute of Fire Engineers. Henry's experience of residential buildings includes many residential towers, some in excess of 40 storeys. Henry has addressed many fire engineering issues within residential buildings, including extended travel distances in corridors, limitations on flat layouts, interface between residential and non-residential areas, and structural fire engineering analysis.

Some notable residential projects are as follows:

The Lightbox, MediaCityUK

SOYO, Leeds

The Mercian, Birmingham

As part of Jensen Hughes, Henry can draw from the experience of other fire engineers in the UK and around the world, which will ensure the quality and the robustness of the fire strategy developed for the project.

3.0 THE LONDON PLAN 2021

The purpose of a Fire Statement is to show how the requirements of the London Plan have been considered and addressed. In additional to the London Plan itself, development of the design and the Fire Statement has considered the guidance in the GLA document, London Plan Guidance, Fire Safety, February 2022. The table below illustrates where the requirements of the relevant London Plan policies are specifically addressed:

Policy Number	Description	Relevant Section in the Report
Policy D12, Subsection A1(a)	Identify suitably positioned and unobstructed outside space for positioning of fire appliances	8.1
Policy D12, Subsection A1(b)	Identify suitably positioned and unobstructed outside space appropriate for use as an assembly point	5.8
Policy D12, Subsection A2	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	6.0 (passive measures) and 7.0 (active measures)
Policy D12, Subsection A3	The building must be constructed in an appropriate way to minimize the risk of fire spread	4.2
Policy D12, Subsection A4	Provide suitable and convenient means of escape, and an associated evacuation strategy for all building users	5.0
Policy D12, Subsection A5	Develop a robust strategy for evacuation which can be periodically updated and published, and which all building users can have confidence in.	5.1
Policy D12, Subsection A6	Provide suitable access and equipment for firefighting which is appropriate for the size and use of the development.	8.0
Policy D12, Subsection B1	Building's construction: methods, products and materials used, including manufacturers' details.	4.0
Policy D12, Subsection B2	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.	5.0
Policy D12, Subsection B3	Features which reduce the risk to life: fire alarm systems, passive /active fire safety measures and associated management and maintenance plans.	6.0 (passive measures) and 7.0 (active measures)
Policy D12, Subsection B4	Access for fire service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and position of equipment, firefighting lifts, stairs and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these.	8.0 and Relevant Sections in the Report
Policy D12, Subsection B5	How provision will be made within the curtilage of the site to enable fire appliances to gain access to the building.	8.1
Policy D12, Subsection B6	Ensure that any potential future modifications to the building will take into account and not compromise the base build fire safety/ protection measures.	9.**Error! Reference source not found.**

Policy Number	Description	Relevant Sections in the Report
Policy D5, Subsection B5	In all developments where lifts are installed, a minimum one lift per core (or more subject to capacity assessments) should be a suitably sized fire evacuation lift	5.7

Table 2: London Plan Policy Summary

4.0 CONSTRUCTION, PRODUCTS AND MATERIALS

4.1 Construction

The building is generally steel frame with a volumetric modular solution, designed using a beam and post structural solution, primarily hot-rolled longitudinal edges, with rigid square hollow section columns at corner locations to create a rigid frame.

The Building Regulations (Regulation 7) require that building work must be carried out in a workmanlike manner using adequate materials.

Any materials, products or systems are to be appropriate for the circumstances in which they are used using tested and certified products that are installed in accordance with the manufacturers design details and instructions.

Building materials will be required to achieve the minimum standard for fire resistance as outlined in Sections 6.1 and 6.2.

4.2 External Walls

As the building is less than 18m in height, it is not subjected to the external wall performance required for a 'relevant buildings'. However, the outermost external surface needs to achieve Class C-s3,d2, which will be adhered to at the PTEQ building.

Membranes within the external wall will achieve a minimum Class B-s3, d0.

There will be no protection required for the external wall to limit eternal fire spread given the large relevant boundary from the building. The extent of unprotected area to the elevations will be determined using guidance and methods given in BR 187: *External fire spread: buildings separation and boundary distances* taking into consideration the building's proximity to the site boundary / surrounding roads.

4.3 Roof Covering

Roof coverings will achieve Class $B_{roof(t4)}$, or alternatively be a product or materials defined in Commission Decision 2000/553/EC of 6 September 2000, implementing Council Directive 89/106/EEC, that can be considered to fulfil all of the requirements for the performance characteristic 'external fire performance' without the need for testing, such as 50mm thick gravel or 40/50mm thick cast stone or mineral paving slabs.

5.0 MEANS OF ESCAPE FOR ALL BUILDING USERS

5.1 Evacuation Strategy

The occupants in the building will evacuate simultaneously upon detection of smoke anywhere in the building.

5.2 Occupancy

The building will be mainly used as a research facility as well as organising events which would have an increased occupancy. The expected occupancy during these events at each level is 45 people (90 people overall). To ensure the life safety of the occupants is not impacted, the management will manage that the occupancy so it does not exceed the maximum capacity provided by the exits in the building as discussed in Section 5.4.

5.3 Travel Distances

Travel distances in the building will be within the recommended 18m in single direction and 45m where alternative escapes are available.

5.4 Horizontal Exits

At first floor, there will be a single exit into the protected stair. The exits will be sized at least 850mm wide. Given the single exit provision, the occupancy at first floor is limited to 60 occupants. This is beyond the expected occupancy at this level as discussed in Section 5.2.

At ground floor, the PTEQ Lab Space door to the outside will not be signed as an exit (this is only used for loading equipment, etc.), therefore all occupants will have access to the outside via south exit and through an exit into the stair. Discounting the south exit, the exit via stair will be limited to 60 occupants (based on a final exit of 1200mm wide) which is greater than the occupancy expected at this level.

The management will have a robust procedure to ensure the exit capacity is not exceeded.

5.5 Stair

The building will be served by a protected stair with a width at least 1200mm wide. Based on ADB Volume 2 guidance, a 1200mm wide stair will provide a capacity for 240 occupants, which is more than the expected occupancy at first floor. However, the occupancy at first floor is limited by the storey exit as discussed in Section 5.4.

The stair will be designed in line with the guidance in ADB Volume 2.

5.6 Final Exit

The final exit from the stair will discharge directly to the outside, in line with the ADB Volume 2 recommendations.

5.7 Fire Safety Provisions for Disabled Occupants

5.7.1 Evacuation Lift

Provision will be made for the means of escape of disabled occupants by the inclusion of a lift suitable for evacuation in the main stair core, which serves both levels in the building. This will be in accordance with London Plan Policy D5 (B5). A suitable management procedure will be developed as the project progresses.

An evacuation lift will be provided within the enclosure of the protected stair. The evacuation lift will be designed in line with the BS 9999:2017, BS EN 81-70 and BS EN 81-72. The evacuation lift will open within the protected stair which discharges directly to the outside.

5.7.2 Lift Capacity

The February 2022 GLA London Plan Guidance recommends the capacity of evacuation lifts is assessed. Given the small occupancy in the building and the lift only serves one upper level, the lift capacity will not be significantly impacted as occupants would be able to evacuate quickly evacuate the building through the stair. Regardless, occupants will be made aware that they should not be using lifts in the event of fire. Furthermore, the lift will only be used under management control and the use of the lift will prioritise those at most immediate risk. It can therefore be reasonably assumed that a proportion of residents on up to one floor would need to use the lift to evacuate.

5.8 Assembly Points

Assembly points will be allocated for the building. The location of the assembly point will be confirmed in consultation with the Building Management and Fire Service as the scheme progresses.

At this stage, possible locations considered suitable include the roadside of College Cres and Eton Avenue.

6.0 PASSIVE FIRE SAFETY MEASURES

6.1 Structural Fire Resistance

Based on the top storey height of less than 5m, the elements of structure including the first floor terrace in the building will achieve 60 minutes fire resistance. Structures supporting the roof only is not required to be fire resisting, and it is not proposed. This complies with the ADB Volume 2 guidance.

6.2 Compartmentation

Given that there is no sleeping risk in the building, no compartment floor is required.

The following will achieve 30 minutes fire resistance:

- Protected stair
- Store room

The bin store will be separated from the main building by 30 minutes fire resisting construction.

6.3 Internal Wall and Ceiling Linings

Internal wall and ceiling linings will achieve:

- Small rooms of not more than 30m^2 -Class D-s3, d2
- Other Rooms -Class C-s3, d2
- Circulation areas -Class B-s3, d2

6.4 Fire Stopping and Fire Dampers

Penetrations in compartment or fire resisting walls will be adequately fire stopped to achieve the same fire resistance of the wall.

Ductwork systems will be designed in accordance with Section 10 of ADB Volume 2. All fire and smoke dampers will conform to BS EN 15650. Additionally, the dampers will be activated by the smoke detection in the building.

6.5 Cavity Barriers

Cavity barriers will be provided in ceiling and floor voids and any external wall cavities in accordance with ADB Volume 2.

7.0 ACTIVE FIRE SAFETY SYSTEMS

7.1 Sprinklers

Based on the top storey height of less than 30m, the building is not required to be sprinklered, and it has not been proposed for the PTEQ building.

7.2 Automatic Fire Alarm and Fire Detection

7.2.1 Category of System and Specification

The building will be provided with an L3 standard of fire detection and alarm system exceeding the minimum requirement of a manual fire alarm.

7.3 Back-Up Power Supply

Secondary power supplies will be provided to all active life safety systems (such as evacuation lift) in line with the recommendations in BS 9999 guidance (as referenced in ADB Volume 2).

7.4 Emergency Lighting

Emergency lighting will be provided in the common areas in accordance with BS 5266.

7.5 Exit and Emergency Signage

Emergency signage will be provided in accordance with BS 5499.

7.6 Routine Inspection and Maintenance of Fire Safety Installations

Fire safety installations shall be maintained in accordance with the relevant British or European standards. Inspection, maintenance and repair manual shall be part of the fire safety manual and incorporated in the building management plan.

8.0 ACCESS AND FACILITIES FOR THE FIRE SERVICE

8.1 Fire Vehicle Access

The fire service access route, which allow access to the site, is indicated in the figure below. There will be 15% perimeter access into the building which is in line with the recommendations in ADB Volume 2 for buildings smaller than 2000m^2.

The access road via Eton Avenue will be suitable for a fire service pump appliance with a 3.7m clear width. The load-bearing capacity to the access roads will be a minimum of 14 tonnes.

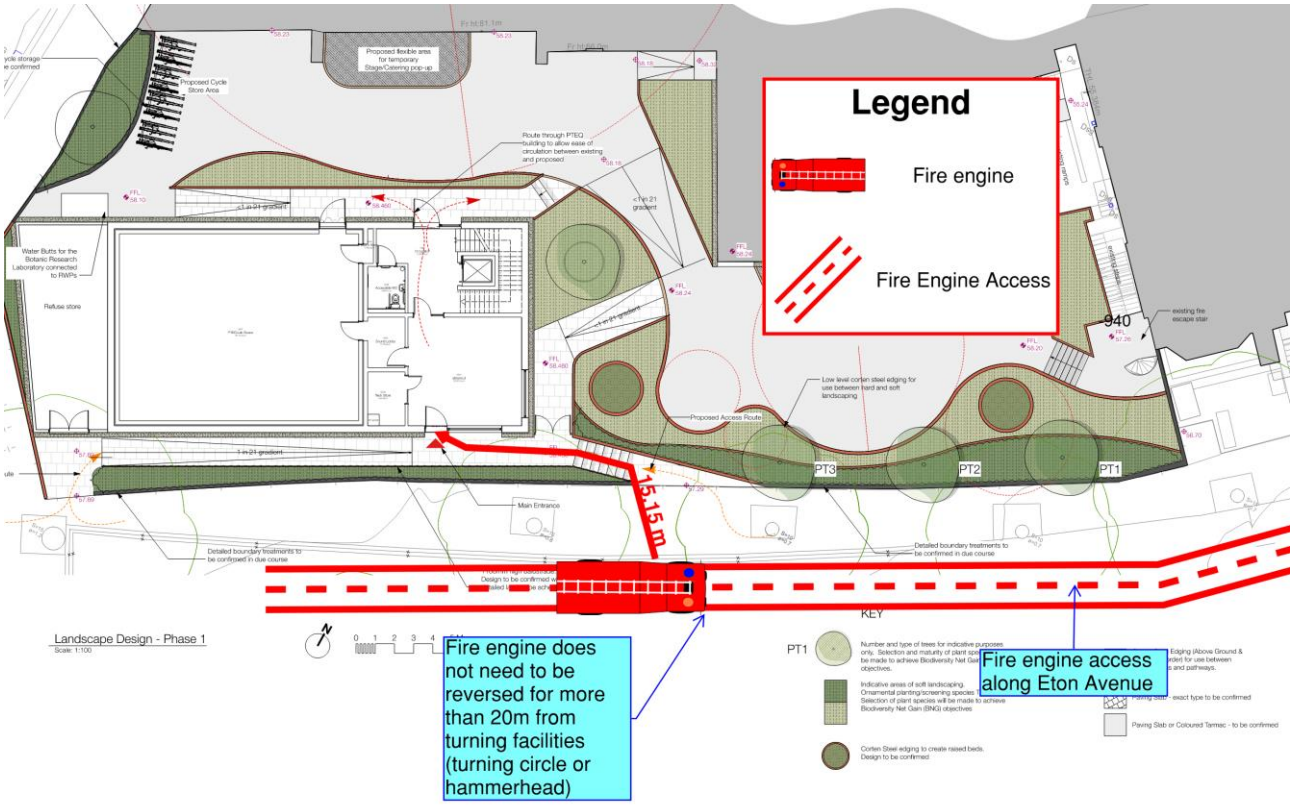

Figure 3: Fire Vehicle Access

8.2 Fire Hydrants

There are existing fire hydrants on site. If the hydrant is not suitable for use, a new hydrant will be provided within 90m of the building entry points.

9.0 FUTURE PROOFING – GOLDEN THREAD OF INFORMATION

In line with the recommendations for providing a 'golden thread' of information, digital records of core fire safety components during the design and construction phases will be provided. Records will be initiated by the relevant duty holders during the design and construction phase, on completion of work the records will be handed over to the building owners to maintain for the life of the building.

A Fire and Emergency File (FEF) will be established for this development to record relevant information throughout the design, construction and life of the building. This will be an ongoing process as the scheme is developed and built and will include this fire statement and subsequent fire strategies as outlines of the key fire safety design provisions of the building, including assumptions of fire loads, occupant characteristics, evacuation strategies, passive fire safety measures, active fire safety systems, fire safety equipment, key fire properties of building materials, access for fire and rescue services. As the design develops relevant documents shall be recorded including technical specifications and product datasheets, detailing specific information on the building materials, safety systems and equipment. On completion of construction the commissioning documents and the operation and maintenance manuals shall be recorded. Throughout the life of the building regular inspections and maintenance are required to ensure the fire strategy is upheld and fire safety systems are operational. Records of inspections, fire risk assessments and maintenance work shall be recorded.

The details of the information retention systems will be determined by the client.

Modification of the following elements of the building may adversely affect the original fire safety strategy:

- Fire detection and alarm systems
- Increasing population
- Changing the use of the areas
- Escape routes
- Number and dimension of escape stairs
- Refuge areas
- Wall and ceiling linings
- Fire protection of the building structures
- Changing fire and smoke doors
- Changing, penetrating fire compartments, cavity barriers
- Increasing fire load in certain areas
- Creating, changing openings on the external envelope
- Changes in the external envelope of the building
- Changes in the environment of the building related to the fire service access points and parking.

10.0 INFORMATION, LIMITATIONS AND ASSUMPTIONS

The information limitations and assumptions used in the preparation of this report are noted below: -

10.1 Drawings

The following information was used for the preparation of this report: -

4194-103Proposed Block Plan

4194-104Proposed Landscape Design

4194-201BGA Proposed Ground Floor Plan

4194-202BGA Proposed First Floor Plan

4194-203GA Proposed Roof Plan

4194-211Elevation 1

4194-212Elevation 2

4194-213Elevation 3

4194-214Elevation 4

10.2 Building Regulations

This report considers building regulations, which deal with life safety. The impact on property protection, including the way the recommendations in this report could affect insurance premiums should be discussed with insurers.

10.3 Other Limitations

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

Unless otherwise described in this report, the fire strategy assumes that the building design, the mechanical and electrical systems, construction methods and materials specifications will comply with current Building Regulations guidance, and relevant British Standards and Codes of Practice. The design of mechanical and electrical systems such as fire alarm and sprinklers are specialist area. Fire Strategy recommendations are given in this report, however, the design and specifications need to be developed at the appropriate stage in consultation with the specialist designers of these systems.

This report has been prepared for the sole benefit, use and information of Royal Central School of Speech & Drama and the liability of Jensen Hughes, its directors and employees in respect of the information contained in the report will not extend to any third party.

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