Elephant Park H1 Development

Fire Statement

May 2021

Prepared by OFR Consultants

lendlease

Application documents

Affordable Workspace Strategy

Application Form and Ownership Certificate

Arboricultural Method Statement

Archaeological Desk-Based Assessment

Basement Impact Assessment

CIL Additional Information Form

Construction Environmental Management Plan

Daylight and Sunlight Report

Development Consultation Charter Engagement Summary

Draft Delivery and Servicing Management Plan

Design and Access Statement

Detailed Circular Economy Statement

Drainage Strategy

Energy Statement

Environmental Statement

Existing and Proposed Drawings

▶ **Fire Statement**

Flood Risk Assessment

Health Impact Assessment

Marketing Strategy

Phase 1 Geo-Environmental Assessment

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Transport Assessment (inc. Travel Plan)

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1. INTRODUCTION

1.1. Introduction to Planning Application

1.1.1. This Fire Statement has been prepared by OFR Consultants on behalf of Lendlease (Elephant & Castle) Limited ("Lendlease") to support an application for full planning permission ("the Application") for the redevelopment of land comprising Plot H1 ("the Site") within the Elephant Park Masterplan, Elephant and Castle, London, SE1 ("the Elephant Park Masterplan"). This standalone development proposal is referred to as "the H1 Development".

1.1.2. Plot H1 currently forms Phase MP5b within the Outline Planning Permission ("OPP") granted on 23 March 2013 for the Elephant Park Masterplan (LBS Ref: 12/AP/1092). Outline planning permission was granted under the OPP for development of Plot H1 for a mix of land uses, with matters of scale, appearance and landscaping reserved. The approved development on Plot H1 under the OPP is referred to as "the OPP Plot H1 Parameters".

1.1.3. The Application for Plot H1 seeks full planning permission to develop an office-led building (Class E) on the Site. It is being sought through a standalone planning application because it takes a form which is not capable of being approved in detail through the submission of reserved matters pursuant to the OPP. However, the H1 Development has been designed with the intention that it is to be delivered alongside the adjacent plots that have been and are being delivered under the OPP and will complete the Elephant Park Masterplan. In addition to the Application for the H1 Development, a non-material amendment application will be submitted in parallel to amend the Reserved Matters Application (RMA) approval for Plot H2, alongside a revised RMA for the Park, in order to align the public realm proposals hereby submitted with those approved on the neighbouring plots. This is explained further in Section 3.

1.1.4. The Elephant and Castle Town Centre has evolved significantly over the past decade and the Application for Plot H1 has been prepared to respond to the emerging context. Additionally, the New Southwark Plan and London Plan set ambitious targets for increasing employment space in the Borough within the Elephant and Castle Opportunity Area. The establishment of a new landmark commercial building in this location will provide new employment and business opportunities for local people and add to the vibrant mix of land uses at Elephant Park and the new Town Centre.

1.2. Introduction to the Fire Statement

1.2.1. OFR Consultants have been engaged by Lendlease to develop the fire safety strategy for the H1 Development in support of the Application in line with the Building Regulations.

1.2.2. This Fire Statement forms part of the planning documents, as required by the London Plan, updated and published in March 2021.

1.2.3. Policy D5 [refer to citation 1 in References] 'Inclusive Design' of the London Plan requires developments to incorporate evacuation lifts to ensure safe and dignified emergency evacuation for all building users, including those requiring level access from the building.

1.2.4. Policy D12 [refer to citation 2 in References] of the London Plan requires development proposals to achieve the highest standards of fire safety, embedding these at the earliest possible stage. This document follows Policy D12 of the London Plan with respect to the information that is:

- The building's construction: methods, products and materials used, including manufacturers' details,
- 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,

- Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans,
- 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,
- How provision will be made within / on site to enable fire appliances to gain access to the building; and
- Ensuring that any potential future modifications to the building will consider and not compromise the base build fire safety/protection measures.

1.2.5. The aim of this document / Fire Statement is therefore to demonstrate the relevant fire safety aspects of the design to date. This document does not constitute the detailed fire strategy developed under the Building Regulations which will be drafted as the scheme progresses. However, this Fire Statement evidences the provisions made for the safety of occupants and protection of property as well as the provision of suitable access and provisions for firefighting in light of London Plan fire safety policy requirements and the rationale for these measures.

1.2.6. OFR Consultants are working and will continue to work with the design team to ultimately demonstrate that the building satisfies the functional requirements of Schedule 1 Part B of the Building Regulations 2010 [Refer to citation 3 in References].

2. SITE AND SURROUNDINGS

This section provides details of the Elephant Park planning permissions and the Site in its existing context.

2.1. Elephant Park

2.1.1. Elephant Park is located in Elephant and Castle, within the administrative boundary of Southwark Council ("the Council"). The Masterplan occupies an area of 9.71 hectares, and is bounded by:

- New Kent Road (A201) to the north,
- Rodney Place and Rodney Road to the east,
- Wansey Street to the south; and
- Walworth Road (A215) and Elephant Road to the west.

2.1.2. Heygate Street bisects Elephant Park with junctions to Walworth Road to the west and Rodney Place and Rodney Road to the east.

2.2. The Outline Planning Permission

2.2.1. The Council granted two planning permissions for Elephant Park on 27 March 2013: the OPP and the Demolition Planning Permission (ref: 12/AP/3203).

2.2.2. In summary, the OPP granted consent for up to 254,400 sqm of residential floorspace, up to 16,750 sqm of retail floorspace, up to 5,000 sqm of business floorspace and up to 10,000 sqm of community, culture and leisure floorspace, alongside a new energy centre, a new park ("The Park"), and public realm.

2.2.3. The OPP reserved the detailed design elements of Elephant Park for future approval at the Reserved Matters stage but did establish a series of approved parameters and principles for the Development within three approved application documents: the Parameter Plans, the Development Specification and the Design Strategy Document ("DSD"), as well as being accompanied by a section 106 agreement that was entered into on the same date that the OPP was granted.

2.2.4. The OPP introduced five specific character areas within Elephant Park which were established to create a variety of experience and richness to the development: 1 - The Park; 2 - Walworth Road; 3- New Kent Road; 4- Walworth Local and 5- Rodney Neighbourhood. These are shown on Figure 1 below.

Figure 1 - Extract of character areas from the consolidated Design Strategy Document (Feb 2013)

2.2.5. Elephant Park was further sub-divided into 12 individual development plots (H1 to H7, H10, H11a, H11b, H12, and H13) plus a Pavilion to be located in the new park at the centre of the scheme (known as plot 'PAV1'), refer to Figure 2 below. The individual development plots comprise a mix of residential and/or other land uses and included varying heights and massing to fit into the specific character areas in which they are located and the surrounding urban context. In particular, the height and massing of all tall buildings within Elephant Park was informed by a townscape assessment that takes into account both local and strategic London views. The plots are delivered within five phases, which are defined on the Phasing Plan (the most recent version of which is provided in Figure 2 below).

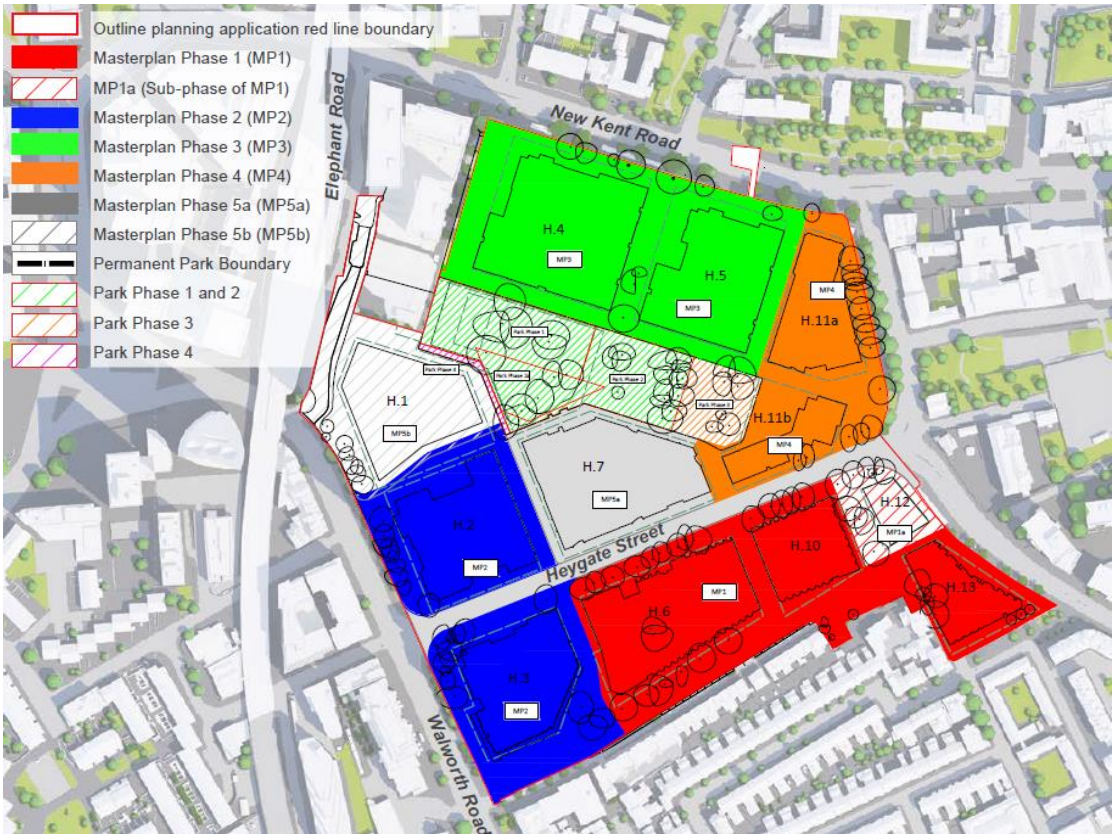

Figure 2 – Elephant Park phasing plan identifying the individual development plots

2.2.6. In addition to the built floorspace, the OPP provides significant areas of open space, including The Park, gateway spaces, pocket parks and new streets. Mature trees have been retained where possible and will be complemented with new landscape and new trees, which will ensure that there will be no net loss of trees on the Elephant Park site.

2.2.7. In March 2021, the Council approved a Detailed Phasing Plan for Elephant Park (Figure 2) setting out the current proposed sequence of construction works in respect of all phases and plots in the development. This Detailed Phasing Plan identified that Plot H1 would form part of the final phase MP5, sub-phase MP5b, of the Masterplan.

2.2.8. The Council approved the RMAs for the first phase of Elephant Park comprising Plots H6, H10 and H13 and associated public realm in February 2014. In December 2014, the Council approved the Reserved Matters Application for the second phase comprising Plots H2 and H3 and associated public realm. In October 2015, the Reserved Matters for the Energy Hub (Plot H12) and associated public realm were approved by the Council. RMAs for the third phase comprising Plot H4 and associated public realm, were approved by the Council in May 2017, and for Plot H5 and associated public realm in September 2017. RMAs for the fourth phase, comprising Plots H11a and H11b and associated public realm, were approved by the Council in September 2018. Most recently, the RMA for Plot H7 within Phase MP5a was approved by

the Council in March 2020, and Reserved Matters for the Pavilion (Plot PAV1) were approved in October 2020. Plot H1 is the only plot within the Masterplan that does not have Reserved Matters Approval.

2.2.9. In response to the increased employment targets of the Council and in the context of the evolving Town Centre, the H1 Development is being brought forward as an office, further enhancing the mixed use nature of the Elephant Park Masterplan. The H1 Development and the OPP have been designed to interface and co-exist to deliver the Elephant Park Masterplan, and it is the intention that H1 will be delivered alongside the development that has been constructed and/or approved under the OPP. The Application has been structured to interface with the OPP so that the OPP and the H1 Development can be developed out harmoniously and without either prejudicing the other. It is intended that a planning obligation will accompany the H1 Development and will secure that, upon commencement of the H1 Development, no further development will be undertaken pursuant to the OPP within the areas of the OPP that also benefit from the permission granted pursuant to the Application. In this way, it will be clear that the H1 Development supersedes the OPP in this area of the Elephant Park Masterplan. The H1 Development is brought forward without prejudice to the lawfulness, deliverability and acceptability of what has gone before under the OPP, and is capable of implementation alongside the OPP.

2.2.10. The Planning Statement submitted in support of the Application describes how this planning application has been structured in relation to the OPP. In order to explain the relationship between the H1 Development and the OPP more generally, a Reconciliation and Comparison Statement is included in Appendix 1. The Reconciliation and Comparison Statement provides a technical overview of the H1 Development in comparison with the OPP Plot H1 Parameters and a reconciliation of the Elephant Park Masterplan to show how the H1 Development and the composite RMA approvals for all other Plots granted under the OPP come together to provide a final reconciliation against the development controls of the OPP.

2.3. Plot H1

2.3.1. The Site is bounded by:

- Castle Square and Sayer Street to the north,
- Sayer Street, the Pavilion and The Park to the east,
- Walworth Road and Elephant Road to the west; and
- Deacon Street and Plot H2 to the south.

2.3.2. As shown in Figure 3 below, the Site is largely surrounded by other elements of Elephant Park and sits at the confluence of The Park and Walworth Road Character Areas, marking the westernmost plot within the Masterplan. The Site is largely vacant however, at present, it contains a temporary modular building providing staff welfare in relation to the ongoing construction of the Elephant Park Masterplan along with accommodating the meanwhile use of the Urban Farm, as consented by Southwark (20/AP/2612) in November 2020.

2.3.3. The land uses surrounding the Site, particularly within the Elephant Park Masterplan, are primarily residential in character with commercial uses at ground level. To the east of the Site is The Park, the main public open space within the Elephant Park Masterplan. The southern boundary is characterised by Plots H2 and H7 which comprise mixed residential and commercial land uses. The area to the north and west is more varied and is characterised by the commercial uses within Castle Square and along Walworth Road, one of the main arterial routes in the Borough. There are no designated heritage assets (Conservation Areas or Listed Buildings) in close proximity to the Site.

2.3.4. The Site is situated within close proximity to the significant transport infrastructure around Elephant and Castle, with the Underground Railway Station to the north-west, and mainline Railway Station on the west side of Elephant Road. Further details are provided in the Design and Access Statement, prepared by Acme, that accompanies the Application.

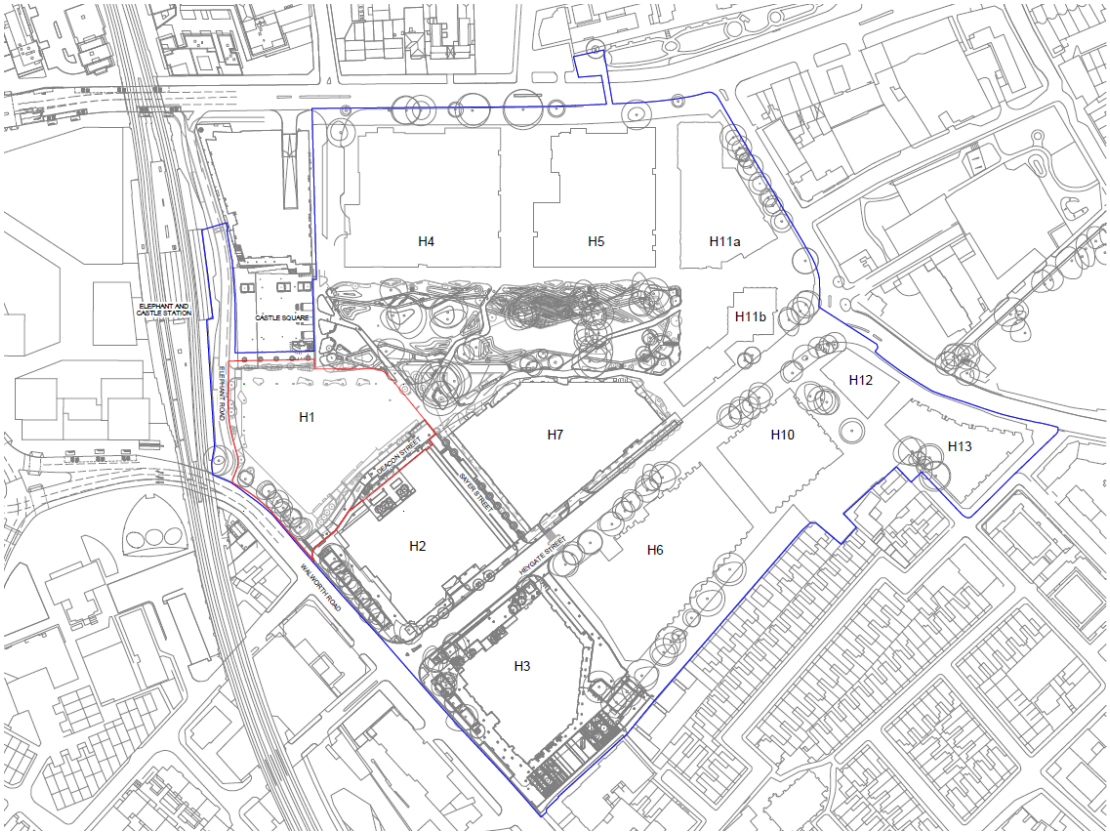

Figure 3 - Application Site boundary shown in red. OPP boundary line shown in blue.

3. DESCRIPTION OF DEVELOPMENT

This section describes what is being applied for in the Application for the H1 Development, explains why it is coming forward as a standalone planning application and how it relates to the Elephant Park Outline Planning Permission (OPP).

3.1. Description of Development

3.1.1. This section should be read in conjunction with the Design and Access Statement which is submitted in support of the Application and describes the principal components of the H1 Development.

3.1.2. This Application seeks full planning permission for the H1 Development. Specifically, the Application seeks approval for:

'Redevelopment of the site to provide a building of ground plus 17-storeys (including a mezzanine floor) with basement and rooftop plant providing office floorspace (Class E) and areas of flexible floorspace for the following uses; office/retail/services/food and drink/medical or health floorspace (Class E), including ancillary cycle parking, accessible car parking, servicing, landscaping, public realm improvements and other associated works incidental to the development.'

3.2. The Proposed Development

3.2.1. Working in partnership with Southwark Council, Lendlease is delivering a £2.5 billion regeneration programme on 28 acres of land in the centre of Elephant and Castle creating one of the capital's most exciting places to live, work and visit. The vision for Elephant Park is to breathe new life into this special part of Central London, building on Elephant and Castle's heritage to create thousands of high-quality new homes, jobs, business opportunities and green space for locals and Londoners.

3.2.2. The H1 Development will contribute to this vision by delivering an employment led development with an emphasis on health and wellbeing which maximises the connection with The Park. The vision for the Site is a direct response to its location, which will complement the transformation of Elephant and Castle Town Centre by diversifying the mix of uses in the neighbourhood and providing local employment and business opportunities to the area, whilst strengthening the connection between Elephant and Castle Town Centre and Walworth.

3.2.3. The H1 Development comprises ground plus 17 storeys (including mezzanine) with a basement level and rooftop plant, extending to a maximum height of 85.730 m AOD (including rooftop plant). The building will serve as a key focal point within Elephant Park and along Walworth Road, with the tallest element situated adjacent to the railway line and stepping down towards the neighbouring residential buildings.

3.2.4. The Application proposes 63,599 sqm (GIA) of floorspace, comprising 49,351 sqm (GIA) of offices, 8,681 sqm (GIA) of flexible of floorspace at ground floor, mezzanine and first floor level suitable for office, retail, food and drink, medical and health uses, alongside 5,566 sqm of shared plant, servicing and cycle parking facilities. All proposed uses fall within Use Class E of The Town and Country Planning (Use Classes) Order 1987 (as amended). A full breakdown of the proposed floorspace is provided in Table 3.1.

Table 3.1: Total Development Floorspace

Land Use (All Class E)	Floor Level	NIA (sqm)	GIA (sqm)	GEA (sqm)
Offices	02 - 16	40,783	49,351	49,565
Offices / medical or health	Mezzanine - 01	4,300	6,728	6,795
Offices / retail / services / medical or health	GF	259	264	277
Offices / retail / services / food and drink	GF	1,683	1,689	1,728
Ancillary (loading bay, plant, cycle facilities and other BOH space)	GF / Roof / Basement	-	5,566	6,258
Total	**All**	**47,025**	**63,599**	**64,624**

3.2.5. The H1 Development also proposes to provide 10% (GIA equivalent) of the office floorspace in the H1 Development as affordable workspace in line with emerging policy. As an alternative to the proposed affordable workspace, there is also a possibility that a new health hub to serve the local area could be provided within the H1 Development. Further information is provided in the supporting Affordable Workspace Strategy.

3.2.6. A key ambition of the H1 Development is to be open and accessible, evident through the provision of the active lobby - an extensive, publicly accessible ground floor space serving both future office occupants and the wider public. The ground floor frontages around the building will reflect the hierarchy of the adjacent streets and routes, with the frontages along Sayer Street North, Elephant Road and Walworth Road providing the main active frontages. This will enhance the surrounding streetscape and the relationship between the H1 Development and The Park, whilst also helping to strengthen the relationship between Elephant and Castle Town Centre and Walworth. The main office entrance is situated along the north elevation fronting Sayer Street North as it turns to meet Elephant Road, ensuring maximum visibility and accessibility for workers and visitors accessing the building from Elephant and Castle Railway and Underground Stations (through the viaduct archway pedestrian routes to be delivered as part of Delancey's Elephant and Castle Town Centre development).

3.2.7. The proposed H1 Development building will be complemented by the enhancement of the surrounding public realm, including Sayer Street North, which will be a pedestrian priority route and cycle route, along with improvements to Deacon Street and completion of the Elephant Road and Walworth Road landscape. The H1 Development public realm proposals have been developed in response to the key landscape Character Areas identified in the OPP, which define Elephant Park. The stepped approach to the massing facilitates the provision of external amenity space serving the office accommodation in the form of roof terraces, which will also allow for a strong visual connection between The Park and the building, whilst responding positively to the Site's prominent position on Walworth Road. The outdoor terraces and integration of public realm in the design of the H1 Development is also increasingly important in supporting occupier health and wellbeing in a post-Covid-19 workplace environment.

3.2.8. All servicing will be carried out from an internal loading dock, accessed from Deacon Street, with vehicles both entering and exiting Deacon Street from Walworth Road to minimise disruption to the wider street network within the Masterplan. The H1 Development will be car free other than allocated accessible spaces located on Deacon Street. Long stay cycle parking is proposed within the basement of the H1 Development, accessed from Walworth Road with further short stay cycle parking in the surrounding public realm.

4. DESIGN APPROACH AND METHODOLOGY

4.1.1. The fire strategy for the building will be based upon the guidance given in BS 9999: 2017 [refer to citation 4 in References] as well as the associated guidance documents and codes referenced within it. Where it is not considered appropriate to apply guidance, fire engineering principles will be employed to support performance-based solutions.

4.1.2. The minimum fire safety goal for each building is to provide a reasonable standard of health and safety in accordance with the current social, economic and sustainable context. For each element of the scheme this will be achieved by satisfying the functional requirements of Schedule 1 Part B of the Building Regulations 2010, the Construction Design and Management Regulations 2015 (CDM) [refer to citation 5 in References] and the management requirements of the Regulatory Reform (Fire Safety) Order 2005 (RRO) [6].

4.1.3. Upon completion, the building owners, or managers (including tenants) will need to undertake fire risk assessments and have these available for inspection by the fire service at any time. This shall typically be undertaken annually by a competent person or when there are significant changes in the building and is carried out to ensure that the fire strategy is upheld throughout the life of the building and that the risk of fire is kept suitably low. The fire strategy highlights items/ issues that need to be considered specifically as part of any fire risk assessments for this building.

4.1.4. OFR Consultants are applying a long-established methodology based on BS 7974 [refer to citation 7 in References] and the International Fire Safety Engineering Guidelines, which includes actively involving stakeholders to weigh in on the strategy development. The aim of the process is to identify the aspirations of the project and its constituent parts, the associated fire safety objectives and the key issues that impact the development of a suitable fire strategy for the unique building. This process is typically applicable to complex or unusual projects where performance-based fire engineering is necessary.

4.1.5. Stakeholders that will and are being consulted includes;

- Lendlease,
- MLM Building Control (including their third-party reviewer - Sweco),
- Prof. Jose L. Torero (professor at University College London; as an independent third-party adviser to the client),
- London Fire Brigade (LFB),
- Design team members and consultant team; and
- Building management team.

4.1.6. BS 7974 provides a performance-based framework for an engineering approach to fire safety which will be applied to the design of the building to show that regulatory requirements can be satisfied. This performance-based framework will be used to support alternative approaches to those captured in BS 9999 or where a performance-based approach is required due to the complexity of the scheme. One of the main stages that comprises the basic design principles of the performance-based framework within BS 7974 is a Qualitative Design Review (QDR). The QDR process can be described as:

The interaction of fire, buildings and people gives rise to an almost infinite number of possible scenarios; therefore, before attempting to carry out detailed quantified analysis, the significant fire hazards should be identified, the problem simplified, and the required extent of quantification established.

4.1.7. The QDR is a structured technique which promotes the clear setting of fire safety goals and allows the design team to think of the possible ways in which a fire hazard might arise and establish a range of strategies to maintain the risk at an adequate level. The fire safety design can then be evaluated quantitatively or qualitatively against the acceptance criteria set by the team.

4.1.8. The fire strategy which has been developed in an iterative manner informed by factors including client brief, changes with the regulatory environment, etc.

4.1.9. The design team has already started engaging with the Building Control Officer and London Fire Brigade. Their advice and feedback have been informing the design process and the development of the fire strategy.

4.1.10. The fire strategy for the building is being developed with recognition of the varied and in some instances changing occupant demographic including, the different uses and the corresponding likely fire scenarios within the building, the nature and extent of the building's management and with reference to the documents identified. The fire strategy is to cover the means of escape, structural requirements, external and internal fire spread, access and facilities for the fire service, and the associated functional objectives of the Building Regulations.

5. COMPETENCY

5.1.1. This Fire Statement has been reviewed by a Design Director of OFR who has 18 years of experience in fire engineering, is a registered fire engineer with the Engineering Council with the post-nominals CEng (Chartered Engineer) after their name and is a registered member with the Institution of Fire Engineers with the post nominals MIFireE after their name. This Fire Statement is approved by a Technical Director of OFR who has over a decade of experience in fire engineering, a registered fire engineer with the Engineering Council with the post-nominals CEng (Chartered Engineer) after their name and is a registered member with the Institution of Fire Engineers with the post nominals FIFireE after their name.

5.1.2. This is consistent with the guidance contained within Policy D12.

6. MEANS OF ESCAPE

6.1. Evacuation Strategy

6.1.1. The building will evacuate following a 'phased evacuation' protocol consisting of the evacuation of cassettes, i.e. compartments consisting of two floors, starting from the cassette of fire origin and followed by the cassette directly above it. Note that the ground floor and the mezzanine are considered to be a single compartment that will evacuate simultaneously. The basement will evacuate in the first phase in the event of a fire anywhere in the building.

6.1.2. The cassette approach allows for accommodation stairs to be installed between floors. Open staircases may span up to a maximum of three floors, provided that the stair is enclosed at either the top level or the bottom level to limit the spread of smoke to only two floors for which the evacuation strategy is based upon. The fire resisting enclosure can be provided in the form of a fire shutter or fire rated glass achieving two hours fire resistance. It shall be noted that the structural integrity of the building relies on containing a fire to the floor of origin. Therefore, it must be ensured that tenants adequately mitigate fire spread via potential future open connections between floors, even when these only span two floors.

6.1.3. In the event of a fire on the upper floor of a cassette which has an open staircase, the fire floor and the floor below it will evacuate in the first phase, as illustrated in Figure 4. On the other hand, if a fire occurs on a floor that is not linked to any other floor, the fire floor and the floor above will evacuate in the first phase.

6.1.4. The cassette approach limits both business interruption and the impact of a false alarm within the building by evacuating a limited number of people instead of a full building evacuation. However, if the building needs to be evacuated entirely, this staggered approach of evacuation provides a buffer zone so as not to overload the stair whilst allowing for a faster evacuation of the entire building.

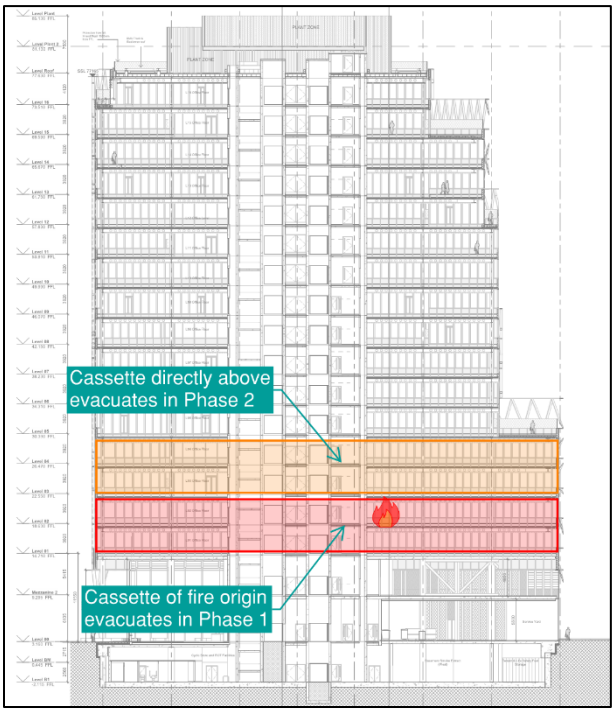

Figure 4 – Phased evacuation

6.2. Horizontal Egress

6.2.1. Levels L01 – L09 are to be provided with four separate storey exits whereas levels L10 – L16 are to be provided with 3 separate storey exits. It is noted that between L10 and L16, a single fire may affect two storeys exits due to their proximity. Providing more than one exit means that occupants have alternative means of escapes which allows them to turn their back should the chosen exit is compromised. Additionally, it also allows for longer travel distance limits. Exits have been sized to accommodate and distribute design populations so that if a fire causes an exit to be unusable, the remaining exits are still adequate for the occupant load.

6.2.2. Limiting travel distances to values recommended in guidance reduces the distance travelled to reach a place of relative safety. Travel distances are measured to the core as this is a fire sterile space which is separated from the office by fire rated doors with smoke seals. All exits into the core and into the stairs shall be at least 1050 mm wide, except for the escape route into one of the stairs which shall be at least 1200 mm wide between levels L10-L16, and open in the direction of escape.

6.2.3. In the ground floor main entrance lobby, six exits are provided which satisfies the recommendations for the design occupancy. As the design and layouts develop, exits will be reviewed and adjusted if necessary, to provide for adequate means of escape. Multiple escape routes are provided from the service yard; therefore, escape travel distances are in line with guidance recommendations.

6.2.4. The mezzanine level has a large plant space and two affordable office spaces. All rooms have two means of escape which satisfy travel distance recommendations. From the affordable office to the left of the core, one of the two escape routes is via the goods lift lobby. A management strategy will be in place to ensure that this route is always kept clear. Due to the low occupancies on this level, escape doors into the core may be 850 mm wide.

6.2.5. The basement consists primarily of plant space and cycle storage facilities. The cycle store will comprise approximately 850 cycle racks. the required exit width from the cycle store is 3240 mm. A total of five exits is provided from the cycle store into the core. Each of these exits shall be at least 850 mm wide.

6.3. Vertical Egress

6.3.1. Three protected escape stairs with a width of 1350 mm have been provided for the building; each running from Levels 01 to 09, two of which extends up until Level 16. The protected escape stairs are sized to support the maximum expected occupancy for the building based on the evacuation philosophy, typical occupant densities for a building of this nature and to support firefighting operations. The firefighting stairs are protected by mechanical smoke ventilation system to mitigate smoke ingress and are connected to the outside of the building via protected escape routes on the ground floor level.

6.3.2. All three stairs serve basement level. To mitigate a fire at basement level from compromising the escape of occupants from the upper floors, separation is provided within the stair at ground level.

6.4. Escape for Mobility Impaired People (MIP)

6.4.1. Under the Regulatory Reform (Fire Safety) Order 2005, it is the duty of the responsible person along with their appointed safety assistants to aid everyone to a place of ultimate safety outside the building in the event of an emergency.

6.4.2. Any disabled member of staff will have a Personal Emergency Evacuation Plan (PEEP) and the procedures are to be practiced. A Generic Emergency Evacuation Plan (GEEP) will need to be written for visitors who would need assistance to escape. Disabled refuges measuring 1400 x 900 mm will be included within each of the stair lobbies at every level. These are to be located such that they do not impede the movement of occupants onto stairways and will be

clearly identified. Furthermore, all refuges are to be provided with emergency voice communication between the refuges and management/security positions. This system will conform to BS 5839-9:2011 [refer to citation 8 in References].

6.4.3. One of the firefighting lifts shall be used for the evacuation of mobility impaired occupants. This is in line with Policy D5 of the Publication London Plan which states that at least one lift per core should be suitable to evacuate people requiring level access from the building. Once the Fire Service arrives, they will decide on which firefighting shaft they will use to tackle the fire. Each level will therefore be provided with at least one secondary firefighting lift not being used by the Fire Service during operations. Therefore, this lift may continue to be used to support MIPs evacuation until such a time the fire service require access to this lift.

6.5. Final Exits

6.5.1. The stairs are connected to two escape routes which will be adequately protected. To achieve this, lobbies will be provided between the escape routes and any ancillary space that may contain fire load. The lobbies will be ventilated if accessed from the service yard. Ventilation will be provided either by natural or mechanical means to outside.

7. ACTIVE AND PASSIVE FIRE PROTECTION SYSTEMS

7.1.1. A balance of passive and active fire safety systems is to be employed within the building to support and enable the life safety objectives agreed with the project stakeholders.

7.2. Structural Fire Performance

7.2.1. In the event of a fire, the structure shall remain stable for a reasonable period, in accordance with Regulation B3(1). This necessitates that elements of structure be adequately designed to suitably withstand the effects of fire in cognisance of the performance objectives and the consequences of failure. The building is to be constructed, in part, from mass timber elements (CLT floor slabs), with the remainder of the frame being of traditional construction (concrete core, with a steel frame). Mass timber, in certain conditions / applications, can be considered to be beyond the scope of common guidance documents used to achieve compliance with the Building Regulations. In October 2020, the Structural Timber Association published a guidance document for compliance with Building Regulations Part B3(1) [refer to citation 9 in References]. The H1 Development is categorised as a Consequence Class (CC) 3 building which means that it has high consequence of failure. For CC3 buildings, only performance-based compliance routes are recommended, whereby it be demonstrated that the structural system has a reasonable likelihood of withstanding the full duration of a fire (burn-out).

7.2.2. For mass timber elements, the fire strategy demonstrates that once involved in a fire, combustion can stop after the contents of the enclosure is consumed. The remaining section is then sized to support the applied loads both during and beyond a fire.

7.2.3. The extra fuel attributable to the combustion of the structure increases the fire intensity / duration, meaning the traditional elements of construction, e.g. the steel frame, need enhanced fire performance to survive the full duration of a suitably severe fire. In this case, elements not forming the firefighting shaft are afforded a minimum of 105 minutes structural fire resistance. This will be achieved through applied protective coatings to steelwork, or through appropriate cover / dimensioning of concrete elements.

7.2.4. Whilst the strategy demonstrates through calculation adequate performance of the CLT elements, large-scale testing will be undertaken to further show the adequacy of the design proposals.

7.3. Compartmentation

7.3.1. The intention of providing fire compartmentation is to inhibit the potential for fire and smoke to spread throughout entire buildings. Treating each storey as a separate compartment capable of resisting burn-out is important to protect occupants who might have to pass the fire storey during evacuation and to protect the firefighters who might have to work above or below the floor of fire origin. Additionally, compartmentation limits the extent of damage which contributes to business continuity and post-fire recovery.

7.3.2. As the building is more than 30 m in height from topmost qualifying storey to access level, all storeys will be separated by compartment floors as per the recommendations of BS 9999:2017. Some floors are expected to be connected by open accommodation stairs, which would negate the compartmentation between the two levels. This has been considered in the calculations for means of escape. The implications of accommodation stairs for structural fire performance will require consideration by the fit-out tenant(s).

7.4. Protection of Openings, Fire Stopping and Concealed Spaces

7.4.1. Any openings in fire resisting walls will be fire-stopped to the same rating as the wall through which they pass, including all relevant openings for pipes, ducts and conduits for cables, i.e.

those that do not meet minimum recommendations for openings which do not require fire stopping. The number of openings shall be kept to as few as possible and the size as small as is practicable. Penetrations through mass timber elements will generally be avoided, with services routed vertically through risers in the concrete core.

7.4.2. Any ductwork passing through fire resisting enclosures shall either be provided with fire dampers at the compartment line or be fire resisting to the level of the highest fire resisting element it passes through. Duct penetrations into escape routes shall be fitted with automatic fire and smoke (ES) dampers linked to the fire detection and alarm system.

7.5. Detection and Alarm

7.5.1. The building is to be fitted throughout with a category L2 fire detection and alarm system, designed and installed in accordance with BS 5839:1:2017 [refer to citation 10 in References]. Any fit-out detection and alarm system is expected to follow the above recommendation. The system will also include a voice alarm in accordance with BS 5839-8:2013 [refer to citation 11 in References] to support the phased evacuation strategy.

7.6. Sprinkler System

7.6.1. All areas of the building will be served by an automatic sprinkler suppression system. This will be installed in accordance with BS EN 12845:2015+A1:2019 [refer to citation 12 in References].

7.7. Smoke Ventilation Systems

Firefighting Shafts

7.7.1. Each firefighting shaft consists of a firefighting lift and stair connected by a firefighting lobby. Each will be adequately protected against ingress of smoke to maintain tenable conditions within the firefighting stair during firefighting operations.

7.7.2. Both firefighting lobbies are to be provided with a system for heat and smoke ventilation.

Basement and Basement Mezzanine

7.7.3. The basement and basement mezzanine areas will be provided with a system for heat and smoke control to improve the conditions for firefighting. A mechanical smoke and heat ventilation system will be provided.

Service Yard

7.7.4. A system of smoke and heat ventilation will be provided in the service yard, to clear smoke during a fire and after the fire has been suppressed.

7.8. Voice Communication System

7.8.1. An emergency voice communication system will be provided in accordance with BS 5839-9:2011 to support the phased evacuation of the building.

7.9. Emergency Lighting

7.9.1. An emergency lighting system will be installed in accordance with BS 5266-1:2016 [refer to citation 13 in References] and BS EN 1838:2013 [refer to citation 14 in References].

7.10. Emergency Power

7.10.1. Emergency power is to be provided to all life safety systems, including the following:

- Emergency lighting,
- Emergency signage,
- Fire curtains/ shutters,
- Automatic fire detection system,

- Mechanical smoke exhaust systems; and
- Fire Fighting Lifts.

8. EXTERNAL FIRE SPREAD

8.1. Fire Spread over External Wall

8.1.1. The adoption of mass timber as part of the structural framing solution can increase the hazard associated with vertical fire spread. This will be adequately mitigated through a combination of fire safety measures.

8.1.2. Adequately resisting fire spread over external walls will be satisfied by ensuring the materials used to construct the external walls (and attachments to them) and how they are assembled, do not contribute to the rate of fire spread up the outside of the building. Therefore, it is proposed that only materials achieving European class A1/A2 are used.

8.1.3. In order to mitigate floor to floor fire spread over the evacuation timeline, it is proposed to incorporate a non-combustible spandrel (height of 1.4 m) on the curtain walling system between each level. The spandrel is to be constructed of wholly non-combustible materials. The spandrel is to work in conjunction with the sprinkler system to mitigate the potential roll-over of fire from one compartment to the next.

8.1.4. It is noted that the building is to include green/living walls along certain portions of the façade, primarily at ground floor and on the terraces. The use of these walls is considered appropriate, subject to the following conditions being met:

- The green/living wall will be permanently irrigated via a wetting system which has the same level of redundancy as a sprinkler system to avoid the system drying out,
- Green areas will not be located in proximity of windows and doors; and
- Smoking areas and other ignition sources, such as bins, skips and vehicle parking, shall not be located beneath green walls.

8.2. Fire Spread to Adjacent Buildings

8.2.1. The adoption of mass timber as part of the structural framing solution can also increase the hazard associated with fire spread to adjacent properties. Such a hazard will be adequately mitigated through a combination of fire safety measures / considerations.

8.2.2. Resisting fire spread from one building to another can be achieved by limiting the amount of thermal radiation that is received by neighbouring buildings from window openings and other unprotected areas of the building façade, as opposed to protected areas of the façade which concern fire-resisting external wall construction.

8.2.3. An assessment of the external fire spread has been undertaken following the principles detailed in BR 187 [refer to citation 15 in References], adopting an emitted heat flux which considers the presence of timber. The assessment shows that 100% unprotected area is permissible on all façades. It shall be noted that a notional boundary has been set 7 m away from the façade at L1, opposite The Park.

8.3. Roof Covering

8.3.1. The top waterproofing layer of the roof will aim to achieve $B_{ROOF}(t4)$ classification. If the top waterproofing layer does not provide the $B_{ROOF}(t4)$ performance, 30 mm of cementitious board shall be provided between the waterproofing and the insulation, as per the EC Directive 2000/553/EC [refer to citation 16 in References].

9. ACCESS FOR FIRE SERVICE PERSONNEL AND EQUIPMENT

9.1.1. As well as supporting the building occupant life safety objectives, the provision of both passive and active fire safety systems also provides substantial benefits to fire fighter operations. These includes the provision of a means to quickly identify the location of a fire and facilities from which to coordinate a response.

9.2. Vehicle Access

9.2.1. The building has adequate vehicular access throughout its perimeter: Elephant Road to the west, Walworth Road to the southwest, Deacon Street to the southeast, park to the east and a portion of the north, and Castle Square to the rest of the north. This is shown in Figure 5.

9.3. Access into the Building

9.3.1. The height of the topmost storey is in excess of 50 m above fire service access level, with every storey above ground having a floor area greater than 900 m². Therefore, in line with the recommendations of BS 9999, two firefighting shafts are provided, each comprising the following:

- Fire-fighting stair (1350mm wide) with FD30S doors facing onto the FF lobby,
- Ventilated fire-fighting lobby, with a clear floor area no less than 5 m²,
- A wet fire main, with an outlet on each level from basement to L16; and
- Fire-fighting lift, with a FD60 door on the accommodation side and a FD30 door onto the FF lobby.

9.3.2. Overall, the fire-fighting shafts serve every level of the building, including roof level, with FF Shaft 2 extending to roof level and FF Shaft 1 terminating at L16.

9.3.3. Access to the firefighting stairs is provided along Deacon Street.

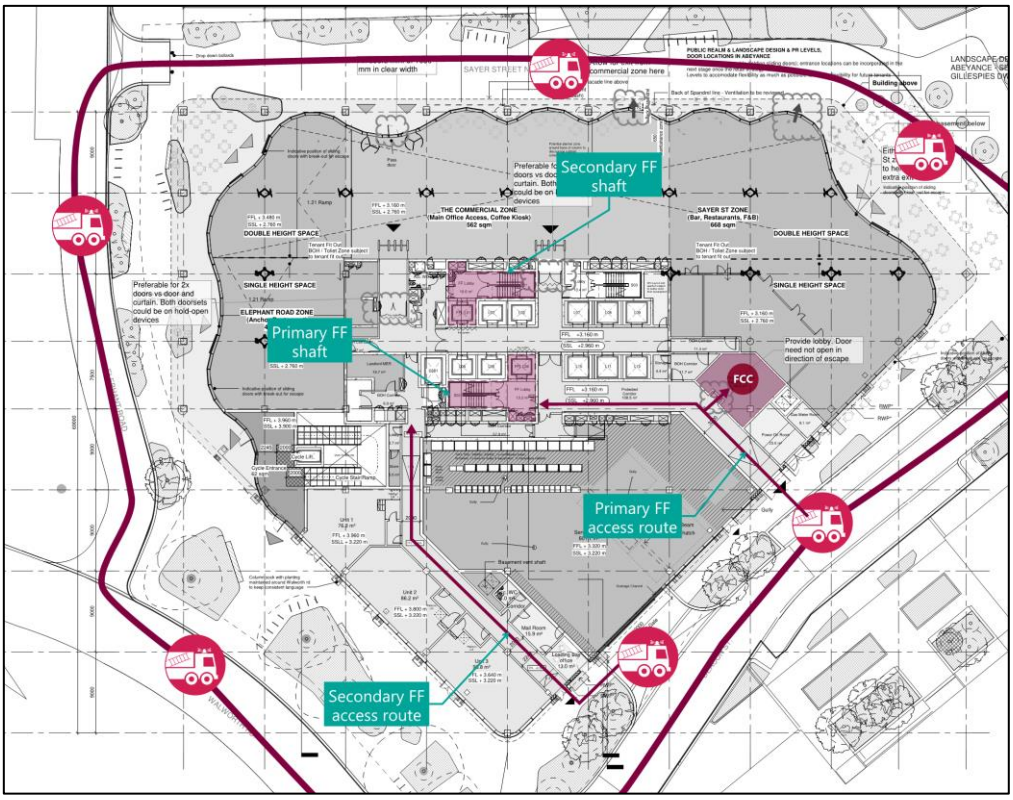

Figure 5 – Fire vehicle access

9.4. Water Supplies

9.4.1. One or more fire hydrants will be provided within 90 m of the entry points to the building (where one does not already exist) and spaced no further than 90 m apart.

9.5. Hose Coverage

9.5.1. Three wet risers are provided in total, one in each stair, to ensure that all areas on each floor are within 60 m of a wet riser outlet, in line with guidance recommendations for a sprinklered building. It is noted that two wet risers will be provided in the FF shafts (one per shaft), whereas the third will be located in the escape stair lobby, which is not ventilated.

9.6. Firefighting Lifts

9.6.1. The proposal is to provide two fire-fighting lifts.

9.7. Fire Control Centre

9.7.1. Due to the complexity of the building and it being designed for phased evacuation, a fire control centre (FCC) will be provided. This will also house security equipment.

9.7.2. The contents of the FCC will be driven by the discussions with LFB to ensure that necessary equipment or information is provided. However, at this stage it is expected to provide the provisions as outlined in BS 9999.

10. MANAGEMENT AND MAINTENANCE

10.1.1. On conclusion of the fire strategy for the building, it will set out and define an overview of the management expectations. This can then be used as a guide to inform the overall building management strategy. At this time, those charged with management responsibilities for the building are yet to be defined. However, the management expectations set out below have been developed in consultation with the client's / developer's fire safety team.

10.2. Overview

10.2.1. Management procedures have a pivotal role to play in fire prevention, control and evacuation of occupants should a fire incident occur an in ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.

10.2.2. The Regulatory Reform (Fire Safety) Order 2005 (FSO) places legal obligations on management.

10.2.3. This section is intended to introduce the FSO, its obligations and provide initial guidance in fulfilling these duties.

10.2.4. It is important that management are aware of their responsibilities detailed in this document and agree that they are sufficiently capable of adequately performing them.

10.3. Regulatory Reform (Fire Safety) Order 2005

10.3.1. The Fire Safety Order came into effect in October 2006 and replaced over 70 pieces of fire safety law. The Order applies to all non-domestic premises in England and Wales, including the common parts of blocks of flats or houses in multiple occupation. The Order removed the legal status of fire certificates, which are no longer enforceable by the Fire Authorities. The 'responsible person' has a duty to make the premises safe and must undertake regular fire risk assessments. It is the responsible person who will be held accountable under the new legislation for any breaches in fire safety.

10.3.2. In workplaces, the responsible person is the employer. In other cases, the owner or person in control of the premises is the responsible person.

10.3.3. Under the Order, the 'responsible person' must carry out a fire safety risk assessment and implement and maintain a fire management plan. The assessment shall be kept under regular review and reassessed if the use of the building has been varied or a material alteration has been made. The significant findings must then be recorded, along with the measures taken to address the risks identified. A competent person shall carry out the fire risk assessment.

10.3.4. The act also extends the duties and obligations of the responsible person to anyone who has any extent of control over the premises.

11. STATUTORY APPROVALS

11.1.1. The approved inspector for the building is ultimately responsible for assessing whether the building is deemed to meet the requirements of the Building Regulations. However, in recognition of the unique and challenging nature of a mass timber building of this height and scale, the following additional steps have been undertaken to date to ensure the requisite fire safety design scrutiny:

- Early consultation has been undertaken with London Fire Brigade to ensure that the fire strategy is developed in cognisance of their needs. Particular consideration has been given regarding the implications of mass timber elements of structure on fire fighter intervention and safety:
- The approved inspector has engaged a third-party peer reviewer with competence and relevant experience in the field of mass timber and fire safety. The reviewer will scrutinise the fire strategy as it develops through the design phases and will advise whether, in their opinion, the design satisfies the requirements of the Building Regulations:
- The client team has engaged a third-party peer reviewer with competence and relevant experience in the field of mass timber and fire safety. The client reviewer will scrutinise the fire strategy as it develops through the design phases to ensure the strategy both satisfies the requirements of the Building Regulations and the client's objectives for robustness (in their opinion); and
- The need for large-scale testing has been identified and will be undertaken as part of the process of evidencing the adequacy of the fire safety design.

12. NEXT STEPS

12.1.1. In due course, the fire strategy which has already been developed will be taken to the point of conclusion to reflect the outputs of the ongoing consultation and demonstrate full compliance with Part B of the Building Regulations. The strategy reports will set out the physical fire precautions within the building and the equipment that is necessary to enable safe management of the premises whilst also highlighting key fire management requirements to help ensure safe operation of the building.

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