

LONDON PLAN FIRE SAFETY POLICY D12(A)

Planning Fire Safety Strategy

Lytton Court – 2 storeys roof extension

PROJECT: Lytton Court – dwellings

DATE OF ISSUE: 13th March 2025 - v2

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REVIEWED BY: Romain HOURQUEIG

SUBJECT: Planning Fire Safety Strategy – Demonstrating compliance with Policy D12(A)

1 Introduction

The proposed planning application is for the construction of a two-storey roof extension for the provision of three additional residential units, on the building located at 14 Barter St, London WC1A 2AH.

The objectives of this Planning Fire Safety Strategy (PFSS) are to set out how this planning application satisfies the Policy D12 Fire Safety of the London Plan 2021.

The proposed development is a non-major development and is therefore required to demonstrate compliance with Policy D12(A), such as through the submission of a PFSS. This report has been developed following the standard report guidance described in the ***London Plan Guidance (LPG) – Fire Safety – February 2022***.

Ultimately, the design will meet the functional requirements of Part B1-B5 of the Building Regulations 2010 and follow the guidance provided in ***ADB Volume 1: Dwellings – 2019 edition – incorporating 2022 amendments and forthcoming 2025-2026-2029 changes***.

2 Competency statement

The PFSS has been written by Camille Le Compagnon who is a fire safety engineer employed by Studio Fahrenheit and reviewed by Romain Hourqueig who is the co-founder of Studio Fahrenheit.

2.1 Author: Camille LE COMPAGNON

Camille is an engineer, specialized in energy and thermal sciences, with software development skills. She graduated in France (Master of Science) and has been employed in fire consultancy for over 10 years undertaking roles such as:

- *Design, explosion and fire engineer in Belgium performing fire hazard analysis for nuclear power plants.*

- *Fire engineer in New Zealand developing performance-based fire engineering designs for buildings.*
- *Project manager in France designing and installing sprinkler systems to industrial and public buildings.*
- *Fire engineer at Studio Fahrenheit developing fire strategies for buildings internationally.*

Camille has worked with NZ fire Regulations, Australian Standards, British Standards, NFPA and performed advanced computer modelling of fire/smoke (B-Risk, FDS) and evacuation (Pathfinder).

2.2 Reviewer: Romain HOURQUEIG

Romain Hourqueig is a well-regarded Fire Engineer with over 20 years practical experience. Romain is the president of the SFPE (Society of Fire Protection Engineers) – French Chapter and a member of the CTBUH (Council for Tall Buildings & Urban Habitat) – French Chapter. He is also an Associate of the Institute of Fire Engineers in the UK.

Romain co-founded Studio Fahrenheit in 2019 that delivers fire & life safety services to clients in France and abroad (without geographical limits) across all sectors of the built environment. Before that, his most recent position was to head up the fire engineering team at WSP UK and at WSP France. His experience involves projects in all types of sectors, also where different fire regulations are applicable: varying from the UK (British Standards), Russian SNiP standards, Middle East (American NFPA standards), Belgium Royal Decree to Morocco & France (French standards).

Romain served 10 years as a retained fire-fighter in France. He is a regular teacher on fire safety engineering at the French National School for Fire Brigade Officers (ENSOSP) and former professor at the engineering school of Rouen (INSA).

3 Building description

The Lytton Court project is an existing 4-storey high residential building, plus basement, located at 14 Barter St, London WC1A 2AH. The proposal includes the construction of a two-storey roof extension for the provision of three additional residential units.

The building is bounded by Barter Street to the North and by Bloomsbury Ct to the West which provides pedestrian route along the West façade. As a result, the North and West façades are accessible from the public street.



Figure 1: Building location (googlemap view)

Currently, the highest storey is situated 9.2m above ground level, which will increase to 15.4m following the works. The residential units are accessed via a common single stairway and a lift, both are preceded by a common protected lobby. On L1 and L2, an additional lobby space separates the staircase. It appears that AOVs are installed in the façade to provide natural smoke ventilation for the entrance hall on the ground floor, as well as the small lobbies preceding the stair on L1 and L2, but not on L3.

Residential amenities, including refuse store, are located on the ground floor and resident's stores are located in basement.



Figure 2: Proposed front elevation (North elevation)

The fire strategy advice in this document was developed based on the drawings and information provided by Rodic Davidson Architects.

4 London Plan Policy D12(A)

4.1 Suitable unobstructed outside space for fire appliances and assembly points

The main fire service access will be from Barter Street. This is existing and unchanged by the proposals. A high-reach fire appliance can park either at the corner of Barter Street, approximately 10m from the building entrance and dry riser inlet, or directly in front of the main entrance. Barter Street has a width exceeding 3.7 meters, meeting access requirements. Since the building entrance is situated at the corner of Barter Street, fire appliances have sufficient space to manoeuvre easily along different sections of the street, ensuring efficient access for firefighting operations.

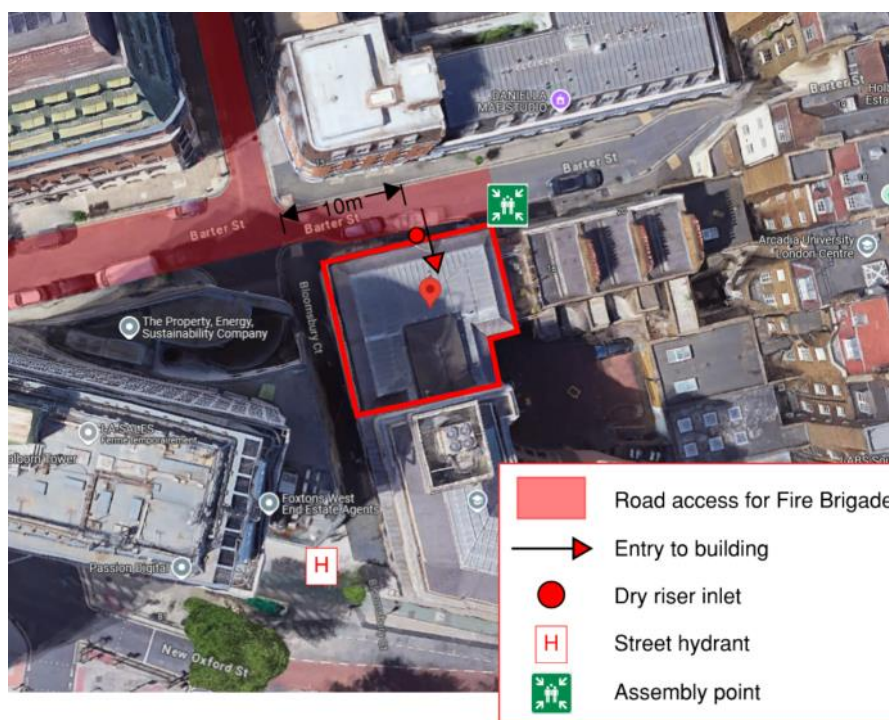


Figure 3: Vehicle access for Fire Brigade

Assembly points should be designated in a safe location, far enough from the building to avoid interference with fire and rescue operations or the risk of falling debris. Occupants may gather at the northeast section of Barter Street, which offers unobstructed outdoor space and is suitable as an evacuation assembly area during both the construction phase and subsequent occupation.

4.2 Passive and active safety measures to reduce the risk of life and injury

No alterations are proposed to the existing dwellings, as access to these areas is not available. However, all new construction and renovation works will fully comply with the latest regulations. In addition, common circulation spaces and protected escape routes will be upgraded where necessary to ensure compliance for

the new storeys and ensure the full extent of the escape routes will meet part B1 of Building Regulations. This is described below.

The new flats will be provided with a category LD2 automatic fire detection & alarm system, in accordance with BS 5839-6.

As part of the proposed works, a mechanical smoke shaft will be added to serve every common lobby to allow smoke ventilation, thus protecting the staircase and lift shaft against smoke ingress. A cross sectional area of 0.7m² is allocated for the smoke shaft, subject to confirmation through CFD analysis at a later stage in the project.

Automatic opening vents (AOV) will be installed into the smoke shaft in all lobbies, along with a 1m² AOV at the top of the staircase to act as fresh air inlet. Common lobbies will be provided with a category L5 automatic fire detection & alarm system, in accordance with BS 5839-1 to operate the smoke ventilation system upon smoke detection. Currently, only the staircase is protected from smoke ingress through AOVs installed in the façade, providing natural smoke ventilation for the adjacent lobby, while the lift shaft remains unprotected. This configuration does not apply to L3, where no smoke ventilation is currently provided. The proposed upgrades will extend smoke ventilation across all floors, ensuring L3 benefits from the same level of protection as the other levels. Additionally, the lift shaft will now be safeguarded against smoke ingress, which was not previously the case.

Since the property's top storey will be approximately 15m high when measured in accordance with ADB, a minimum structural fire resistance of R60 is required. It is assumed that the existing structure meets this rating, as this was the standard requirement for residential buildings over 5m under the Building Regulations.

A high degree of compartmentation will be provided across the building, with the minimum fire resistance periods meeting the following:

- Floors: EI 60
- Separation between basement stair & upper stair: EI 60.
- Separation between flat and any part of the building: EI 60 with E30Sa doors.
- Protected escape stair: EI 60
- Lift shaft: EI 60
- Smoke shaft: EI 60
- Protected lobby: EI 30
- Party walls: EI 60
- Refuse room: EI 60. The refuse room is located on ground floor (unaltered) and preceded by a protected lobby. The external door of the refuse room is louvered which allows permanent natural ventilation to outside. This existing configuration is acceptable and will remain.

Uninsulated glazing may be incorporated between the stair and lobby if the following conditions are met:

- Glazed screen is E30
- Glazing extends only above 1100mm.

Glazing within the stairway partition on the existing lower storeys must be upgraded to meet this requirement, if it does not already comply.

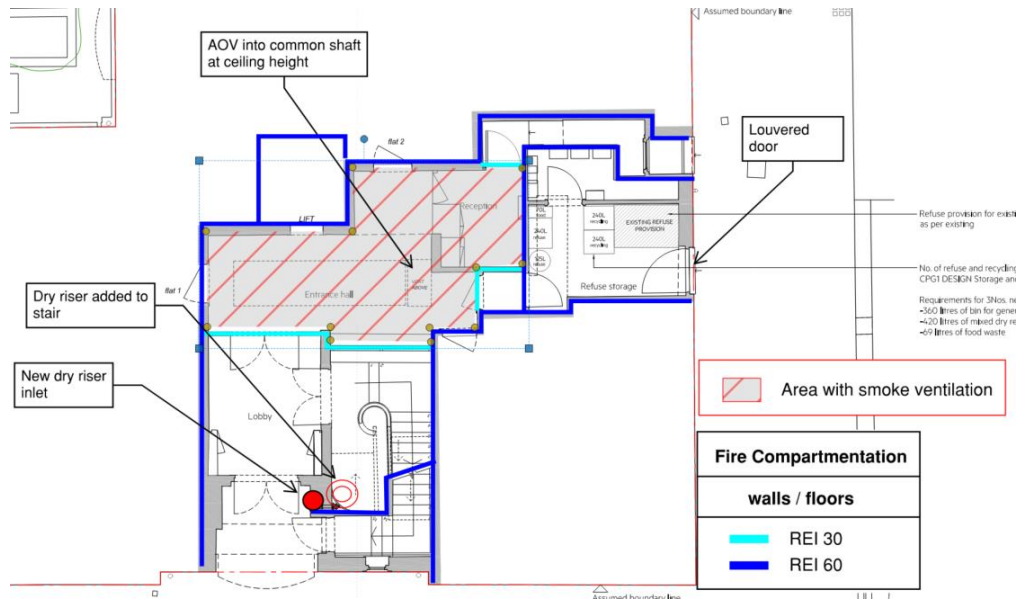


Figure 4: Ground Floor – communal areas

Additional fire-resistance measures:

- A new E30Sa fire door will be provided to the lift shaft at the basement and Level 5 to prevent smoke spread into the shaft, to act a protected lobby.
- The lift will be provided E30 lift landing doors.

The three new dwellings are all accessed from Level 4, which is located 12.2m above ground level. One of the flats is a duplex unit, with its main entrance on Level 4 and an internal protected stair and entrance hall (EI30). The two other flats have protected entrance halls (EI30) as well.

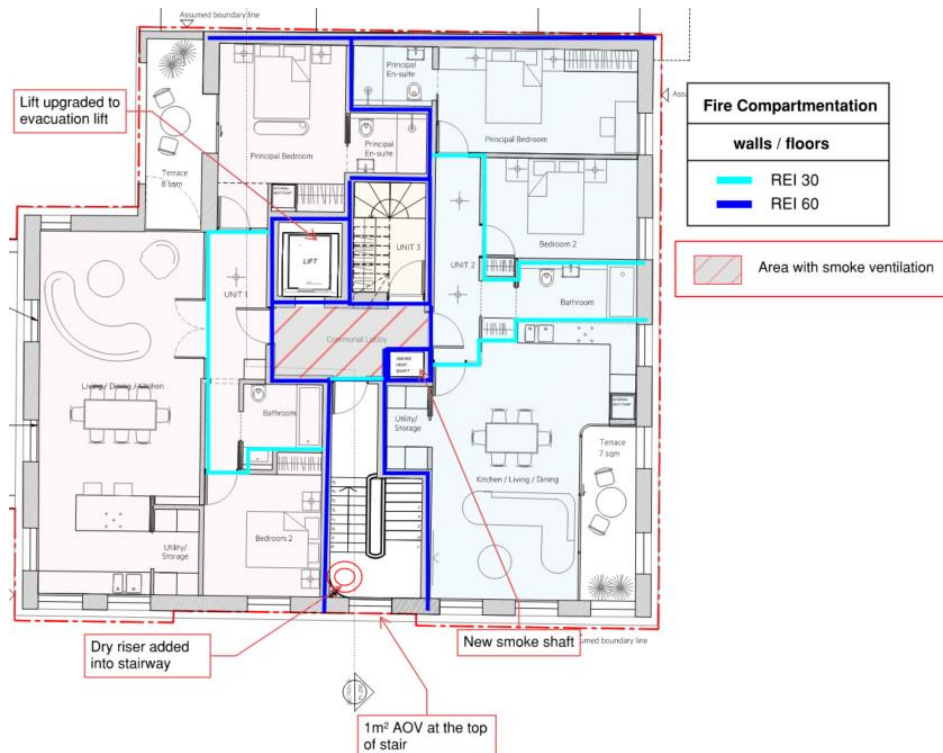


Figure 5: New 4th floor

The basement is not currently equipped with smoke ventilation, and no additional ventilation will be installed as part of this project since the existing configuration of the space remains unchanged. The fire safety in the building will not be compromised and will be enhanced by the addition of a new E30Sa fire door to the lift shaft at the basement level. This measure will prevent smoke from spreading into the lift shaft, thereby protecting upper floors and improving overall compartmentation and fire containment within the building.

The existing block is not sprinklered. The new extension will be provided with a **residential sprinkler system** in accordance with **BS 9251:2021**, ensuring that the newly introduced storeys adhere to current regulatory expectations, in accordance with the **Approved Document B May 2020 amendment - Circular letter 2020**, dated 26 May 2020 from MHCLG :
(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/924446/Approved_Document_B_May_2020_amendment_-_Circular_letter_2020.pdf).

4.3 Construction products methods and materials to minimise fire spread risk

New dwellings will be constructed as 'fire compartments', with one hour fire rated walls separating them from other dwellings and from common lobbies.

The flights and landings of the escape stair will achieve A2-s3,d2 throughout.

The proposed building construction methods and materials, as specified by Rodic Davidson Architects, are summarized as follows: the existing building appears to be cavity brickwork walls. Presence or type of existing insulation is unknown. This will be investigated as part of the design work. The fourth floor will feature cavity brick walls matching the existing structure, while the mansard fifth floor will be clad in zinc. Mineral insulation

will be installed in external walls. The roof will be finished with zinc cladding, incorporating rooflights, a planted green roof, and integrated photovoltaic (PV) panels.

The external wall construction of the extension will achieve Euroclass A2-s1, d0 or better, with materials such as brickwork, zinc, and mineral wool insulation meeting this standard. The existing is to remain unchanged unless investigations into insulation provide need for remediation.

Where cavities are present in external walls, cavity barriers (E30 I15) will be provided in accordance with ADB Vol 1 to reduce fire spread within cavities at:

- *the junction between each compartment floor/wall and the façade.*
- *Around openings (windows, doors, ventilation ducts, etc.).*

Terraces will be provided to the extension. These will be constructed on top of the floor slab and therefore will be wholly constructed of Euroclass A2-s1,d0 or better.

Since the building is within 6m of adjoining buildings, the roof covering must be classified as **B_{ROOF}(t4)**. Zinc cladding will comply.

Where green roof is provided, the structural roof deck must be classified as **B_{ROOF}(t4)** and it is recommended that the depth of growing layer should be a minimum of 80mm and the organic content should not exceed 50% (as stated in DCLG guidance on “fire performance of green roofs and walls”).

Compartment walls (around the lift shaft and smoke shaft) will extend through the roof at least 375mm above the surface of the adjoining roof covering to reduce the risk of fire spread over the roof beyond compartments, in compliance with ADB.

Rooflights must be non-plastic and meet C-s3,d2 minimum.

A 500mm wide strip of pebbles (non-combustible) will be provided around photovoltaic panels to reduce the risk of fire spread over the roof.

The external envelope of the building should not contribute to undue fire spread from one part of a building to another. This will be achieved by complying with Building Regulation ADB Vol 1 Section B4. Fire spread risks to property boundaries will be addressed in the fire strategy report submitted for building control approval. However, the provision of sprinklers and the sufficient setback of the new storeys from neighbouring buildings indicate that external fire spread challenges are not envisaged.

4.4 Suitable means of escape and evacuation strategy for all building users

The new dwellings will adopt the same evacuation strategy as the existing property: a stay put evacuation strategy, i.e., only the dwelling on fire evacuates.

The building is provided with a single protected stair that leads to a ground floor lobby, which provides access to both the main entrance hall on one side and the exterior on the other. The basement stair currently discharges directly outside and is fire separated from the upper stair.

A protected ventilated lobby (60 min fire rated) precedes the protected stair and serves all dwellings. Escape distances in lobbies are in line with prescriptive guidance (7.5m maximum).

The new dwellings are designed with protected entrance halls (EI 30), ensuring a maximum travel distance of 9m within the protected entrance hall. The duplex flat has an internal protected stair (EI30) and protected entrance hall serving all habitable rooms.

The building is provided with a lift, currently out of service. The lift will be upgraded to function as an evacuation lift, in line with Policy D(B5) of the London Plan.

Due to the existing configuration of the building, full compliance with 2026 amendments of ADB related to evacuation shafts cannot be achieved. Ideally, the evacuation lift lobby should be located within an evacuation shaft containing the stairway, lift, and evacuation lobby, with direct access to the stairway and no direct access from flats. Since the building is existing, flats currently open directly into the evacuation lift lobby, and reconfiguring this is not feasible.

However, several upgrades are proposed to enhance the current provisions and mitigate risks:

- **Smoke Protection:** a smoke extraction system will be installed to protect the staircase and lift shaft from smoke ingress.
- **Dual Power Supply:** Secondary power supply for the lift will be designed to ensure it remains usable throughout the time required for evacuation.
- **Lift Landing Doors:** Lift landing doors must achieve a minimum fire resistance of E30. To enhance fire protection, E30Sa fire-rated doors will be installed at the lift entrances in the basement and the flat on Level 5, serving as fire and smoke barriers equivalent to a protected lobby.
- **Lift Operation Mode:** The evacuation lift will function in driver-assisted mode, supplemented by automatic operation, as the building is not continuously managed 24/7. The lifts should switch to automatic evacuation mode on “confirmed fire” or mains power failure. The automatic evacuation procedure will be based on the safety rules described in the 2019 DRAFT *EN 81-76 “Safety rules for the construction and installation of lifts – Part 76: evacuation of persons with disabilities using lifts”* and will be detailed at a later stage in the project.

These proposed upgrades are designed to improve fire safety and bring the building closer to compliance with current evacuation lift requirements, despite the constraints of the existing building layout.

It is a combination of all of the fire protection measures within the building that come together to safeguard the single stair design: fire detection to alert occupants, compartmentation to limit fire spread and growth; provision of protected entrance halls within dwellings and protected ventilated lobbies to prevent smoke impacting means of escape and fire-fighting operations.

4.5 Robust evacuation strategy which can be periodically updated

The residential scheme will adopt a ‘stay-put’ policy where only the fire affected dwelling will evacuate – all others will remain in place. The critical part of the fire strategy for the building is the maintenance of internal

compartmentation. This shall be independently verified on completion of the building and regularly reviewed as part of the fire risk assessment. Any deficiency noted should be rectified by a competent contractor.

The client/estate management team will ensure fire risk assessments are carried out at least annually and that the evacuation strategy plan is clearly communicated to all occupants and periodically reviewed, updated and published as appropriate.

4.6 Suitable access and equipment for firefighting

Internal Fire Brigade access remains unchanged and is through a lobby leading to either the protected escape stair and or the ventilated entrance hall.

A new dry riser system will be provided in the escape stair with its inlet valve located in the north façade, in front of the Fire Brigade attendance point (within compliant distance of the vehicle parking spot). On each level, the hose run distance from the fire mains outlet located in the stair, to the furthest point in the storey, will be within 45m (existing flats) and 60m (new flats), which complies with ADB Vol 1.

A manual override switch should be located at ground level in the staircase to manually control the staircase AOV for fire service use.

A secure information box will be installed in the building to store essential information for use by the fire service during an incident.

An existing street fire hydrant is located at the end of Bloomsbury Ct, within 45m from the dry riser inlet (at building entrance). This hydrant is confirmed to be operational by the Fire Brigade (Officer Lester Thompson). As this is within 100m, it satisfies the ADB requirement for firefighting water supply.

5 Conclusions

The above assessment and measures demonstrate that the Lytton Court roof extension complies with the requirements of the London Plan Policy D12(A) and may be considered acceptable with regard to fire safety planning.