

FIRE ENGINEERING

PLANNING FIRE STATEMENT (INCORPORATING LONDON PLAN POLICY D12)

6 AVONMOUTH STREET, ELEPHANT AND CASTLE, LONDON SE1 6NX (OFFICE SCHEME)

Ref – F10245

Version – 03 (OFFICE SCHEME)

Status – Issue

Date: 25 05 2022

SCOPE

This report is a Fire Statement. It aims to be presented as a Fire Statement form as required by the Gateway 1 for “relevant buildings” [requirements found in Article 7A or 9A of the Town and Country Planning (Development Management Procedure and Section 62A Applications) (England) (Amendment) Order 2021].

It can also be presented as a Fire Statement as required by the London Plan - Policy D12(B) for “major development proposals”.

The fire safety matters within this are only relevant to the extent that they are relevant to land use planning. This statement does not go into the same detail you would expect in a submission to Building Control. This statement is aimed to support the consideration of information on fire safety issues relevant to land use planning specifically site layout and access.

Application information	
1. Site address line 1	6 Avonmouth Street
Site address line 2	Elephant and Castle
Town	London
County	London
Site postcode (optional)	SE1 6NX
2. Description of proposed development including any change of use (as stated on the application form):	<p>Demolition of existing building and structures and erection of a part 2, part 7, part 14, part 16 storey plus basement mixed-use development comprising 1733sqm (GIA) of space for Class E employment use and/or community health hub and/or Class F1(a) education use and 233 purpose-built student residential rooms with associated amenity space and public realm works, car and cycle parking, and ancillary infrastructure.</p> <p>The development comprises a single new-build block. The block will have a total of 16 storeys (B2, B1, G+15). Part of the ground floor, the first basement level (B1) and the first floor (1F) will include a flexible space (for either employment use, community health club or education use) which will be served by two protected stair cores.</p> <p>The second basement level (B2), as well as the remainder of the ground floor, will comprise residential ancillary accommodation (plant, stores etc). With the exception of the first floor, all the above-ground floors will provide residential student accommodation, in the form of cluster flats and studio flats. The above-ground floors will be served by a single stair core, which will be designed as a firefighting stair. The seventh floor of the block (7F) will also include an external landscaped terrace.</p>
3. Name of person completing the fire statement (as section 15.),	<p>Marios Alexandrou – MEng (Hons), MSc, CEng, MIFireE, GIStructE</p> <p>Principal Fire Engineer – Clarke Banks (Fire Engineering) Limited</p>

relevant qualifications and experience.	<p>Masters Degree (Honours) in Civil and Structural Engineering from the University of Sheffield (UK) – 1st Class - MEng (Hons) – 2014</p> <p>Masters Degree in Fire & Explosion Engineering from the University of Leeds (UK) – Distinction - MSc – 2018</p> <p>Chartered Engineer registered with the Engineering Council – CEng - 2021</p> <p>Full Member of the Institution of Fire Engineers – (MIFireE) - 2021</p> <p>Graduate Member of the Institution of Structural Engineers – (IStructE) - 2015</p> <p>My career in fire engineering started in September 2014 when I joined a specialist fire consultancy. During the first 5 years of my career, I worked on multiple projects (mainly UK based) of various scales and types and on different design or construction stages. My technical involvement in these projects included the delivery of fire strategy reports, CFD and / or FEA analyses, Field of Application reports for various fire resisting products or systems and other technical reports and assessments. In 2019 I joined a multi-disciplinary and multi-national company where my project type experience broadened both in terms of project nature and size as well as project location. I worked on prestigious and iconic projects around the world including mega and giga masterplans. I collaborated with multi-national design teams including multiple disciplines. I have been involved at all levels of project delivery including the consultation stages and consulted with local statutory bodies in and out of the UK. I also participated in the development of UK standards / codes of practice and guidance documents as a member of a specialist BSI committee and a member of an SCA (Smoke Control Association) working group.</p>
4. State what, if any, consultation has been undertaken on issues relating to the fire safety of the development; and what account has been taken of this.	A request for information has been submitted to the London Fire Brigade on 10.09.2021, in relation to the existing hydrant network. A response has been received on 13.09.2021, with the information included as part of this statement.

5. Site layout plan with block numbering as per building schedule referred to in 6.
(consistent with other plans drawings and information submitted in connection with the application)



Figure 1: Site Location Plan

The principles, concepts and approach relating to fire safety that have been applied to the development

6. Building schedule

Site information				Building information			Resident safety information		
a) block no. as per site layout plan above	b) block height (m) number of storeys excluding basements number of storeys including basements	c) proposed use (one per line)	d) location of use within block by floor level	e) standards relating to fire safety / approach applied	f) balconies	g) external wall systems	h) approach to evacuation	i) automatic suppression	j) accessible housing provided
6 Avonmouth Street	55.325 m (to roof parapet level); 18 storeys (B2, B1, G+15) 2 basement storeys (B2, B1)	flexible use (Employment space)	B1, G, 1F	BS9999	no balconies	Class A2-s1, d0 or better	simultaneous	yes- other (BS 9251:2021 coverage for residential areas; and	N/A non resi
		service area (Residential plant and storage spaces)	B2, G	BS9991			simultaneous	BS EN 12845 for all other area areas not supported by BS 9251:2021	N/A non resi
		residential flats, maisonettes, studios	2F-15F	BS9991			stay put		M4(3) 5% M4(3)
		flexible use (External rooftop terrace for residents)	7F	BS9991			simultaneous		N/A non resi

7. Explain any specific technical complexities in terms of fire safety (for example green walls) and / or departures from information in building schedule above

- The building is classed as a relevant building as per Regulation 7. As such, the external wall construction as well as specified attachments (i.e. including balconies) will only include materials achieving A2-s1,d0 or better. Permitted exceptions will apply as stated in Regulation 7.
- The proposed development will be located in close proximity to all site or relevant boundaries. The proposed siting of the building will be supported by external wall fire-resisting construction as commensurate with the proximity to the boundaries, in order to ensure that the functional requirements in relation to Part B4, Schedule 1, of The Building Regulations 2010 are met. Any external wall areas located less than 1m from relevant boundaries will be fully fire-rated. External wall areas more than 1m away from the relevant boundaries will be evaluated using the methodology in Building Research Establishment report 187 (BRE 187);
- The development will include landscaped terraces on the seventh floor. The designs will ensure compliance with Fire Performance of Green Roofs and Walls (DCLG, 2013) as well as ensuring that minimum requirements under Part B4, Schedule 1, of the Building Regulations 2010 are also achieved. All balustrades and parapets shall be classed as forming part of the external wall construction, with both being subject to the requirements of Regulation 7.

8. Explain how any issues which might affect the fire safety of the development have been addressed

- The development is expected to include both studio flats and cluster flats;
- All cluster flats will be designed in line with the requirements listed in Section 9.8 of BS 9991. Studio flats are expected to be designed in line with Section 9.4.2a) of BS 9991;
- The common Means of Escape for the protected internal corridors serving residential areas will be provided in line with Figure 6b of BS 9991. Common corridor travel distances (i.e from the entrance door of a studio flat or cluster to the door into the stair) will be limited to 15m;
- The common corridors will be ventilated using a natural smoke shaft, which should meet the requirements listed in Clause 14.2.3.2 in BS 9991. Inlet air will be provided via an Automatic Opening Vent (AOV) sited at high level above the stair core;
- As part of the lift bank serving the residential floors, 1 no. evacuation lift will be provided, in line with the London Plan Policy D5;
- In accordance with Table 4 of BS 9991, the minimum period of fire resistance for elements of structure is 120 minutes (REI 120) (based on a topmost storey height of more than 30m above lowest adjoining ground);
- The residential premises will be covered by a Category 4 automatic fire suppression system designed, installed, commissioned and maintained in line with BS 9251:2021;
- In line with BS 9251:2021, a limited number of ancillary areas (plant, stores etc) may be covered by the residential grade sprinkler systems, subject to the limitations presented in Tables 3 and 4 of BS 9251:2021. Any residential ancillary areas not feasibly covered by BS 9251 suppression will be covered by a BS EN 12845 system;
- All flats (clusters, studios), common corridors, will be designed as standalone compartments achieving a fire resistance of 60 minutes (EI60 where not load bearing);
- All compartment floors (including the ground floor slab and below-ground floors) will achieve a rating of 120 minutes (REI 120) ;
- The firefighting stair (residential stair core) and firefighting lift will be designed as 120-minute fire-resisting shafts (REI 120);
- The residential premises will be separated from the commercial premises by 120-minute fire-resisting compartment walls and floors (REI 120);
- All ductwork penetrations through fire-resisting lines will be provided with fire-dampers rated for the wall that they are located within;
- Dampers passing through protected escape routes, or through compartment walls or floors will be ES (fire and smoke classified) fire dampers.
- The commercial areas will be served by two protected stair cores, designed as protected shafts achieving a minimum fire resistance of 120 minutes REI 120);

- Disabled refuge points fitted with Emergency Voice Communication (EVC) equipment will be provided within both of the protected stair cores serving the commercial areas at both B1 and 1F at both B1 and 1F. The ground floor is expected to be provided with step-free access;

9. Explain how any policies relating to fire safety in relevant local development documents have been taken into account.

LONDON PLAN POLICY D5(B5) – EVACUATION LIFTS

REQUIREMENT

The policy states that proposals should "...be designed to incorporate safe and dignified emergency evacuation for all building users. In all developments where lifts are installed, as a minimum at least one lift per core (or more subject to capacity assessments) should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building".

PROPOSAL

As part of the lift bank serving the residential areas, one of the lifts will be an evacuation lift. The remaining lift will be a firefighting lift.

One of the lifts forming part of the lift bank serving the commercial spaces on 1F and B1 should be an evacuation lift.

Evacuation lifts should be designed in line with the guidance presented in BS EN 81-20, BS EN 81-70, and BS EN 81-76. The guidance presented in Annex G.2 of BS 9999 should also be incorporated.

The evacuation lifts will be automatic and be able to be used by any occupant within the building should this be required. Fire-fighting personnel and building management staff (if available) will be able to override this process.

The management plan, and the level of reliance of the evacuation lift operation on management staff input, should be reviewed against the proposed staffing levels for the scheme.

LONDON PLAN POLICY D12(B) – FIRE STATEMENTS

REQUIREMENT

The policy states that:

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

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

1) the building's construction: methods, products and materials used, including manufacturers' details

- 2) the means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach
- 3) features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans
- 4) access for fire service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and positioning of equipment, firefighting lifts, stairs and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these
- 5) how provision will be made within the curtilage of the site to enable fire appliances to gain access to the building
- 6) ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures."

PROPOSAL

- 1) The construction methods on product limitations will be driven by the primary use of the blocks. It is expected that the building structure will be formed by either reinforced concrete or steel frame construction. The external wall construction will comply with the Regulation 7 requirements throughout.
- 2) The means of escape provisions are outlined below:
 - a. Student residential areas (B2, G, 2F and above):
 - i. The residential units will be either cluster flats or studio flats. All cluster flats will be designed in line with the requirements listed in Section 9.8 of BS 9991. Studio flats are expected to be designed in line with Section 9.4.2a) of BS 9991;
 - ii. The common Means of Escape for the protected internal corridors serving residential areas will be provided in line with Figure 6b of BS 9991. Common corridor travel distances (i.e from the entrance door of a studio flat or cluster to the door into the stair) will be limited to 15m. The common corridors are expected to include natural ventilation; and
 - iii. Users which are disabled or require level access will be provided with egress via the aforementioned evacuation lift. The ground floor means of escape are expected to be fully accessible to disabled users.
 - b. Employment space areas (B1, G, 1F):
 - i. The occupants on B1 and 1F will be provided with egress via either of the two protected stair cores serving the premises. These stair cores will be discharging directly to the outside at ground. Ground floor occupants will be provided with exits directly to the outside; and
 - ii. Users which are disabled or require level access will be provided with access to at least evacuation lift, which should be provided to serve the employment space areas. The other protected stair core should be provided with disabled refuge points. All ground floor areas are expected to be provided with level egress direct to outside.
- 3) The features which reduce the risk to life are outlined below:
 - a. Fire detection and alarm systems: Standalone residential detection and alarm systems (BS 5839-6, Grade D1 Category LD1) for the flats and Category L2 detection and alarm systems (BS 5839-1) for the common residential areas of the block. Alternatively, the entirety of the residential premises (flats and ancillary areas) may be covered by a BS 5839-1 system provided that the cause and effect strategy is consistent with the evacuation strategy for these areas. For the employment space areas, a standalone Category L2 system (BS 5839-1) is expected to be provided, to be fully confirmed upon fit-out.

- b. The compartmentation strategy will be developed to BS 9991 (for the residential areas, including residential ancillary accommodation) and to BS 9999 for the employment space areas on B1-1F. The compartmentation strategies will be commensurate with the proposed evacuation strategies, scale and expected use for the scheme. Openings within passive fire compartmentation elements will be fitted with suitably rated doors, fire dampers, or active fire barriers.
 - c. Active fire safety measures: The residential flats (and corridors) will be covered BS 9251:2021 automatic fire suppression, while the remainder of the areas (both residential ancillary areas which cannot be covered off the BS 9251 system, and employment space areas) will be covered by a BS EN 12845 automatic suppression system. The primary stair lobby for the residential areas is expected to be provided with either natural ventilation in the form of AOVs opening into a natural smoke shaft. The residential stair core will be provided with 1m² automatically openable vents, sited at high level above the stair core. Additional ventilated lobbies are expected to be required where the residential stair connects to residential ancillary areas. The firefighting lift will be designed based on BS EN 81-72. The two evacuation lifts (one for each of the premises) will be designed based on BS EN 81-20, BS EN 81-70 and BS EN 81-76. The dry and wet rising mains and associated equipment should be designed based on the guidance of BS 9990.
 - d. Maintenance and monitoring: All of the aforementioned systems are expected to be regularly monitored and maintained in line with manufacturer's requirements and the relevant design standards for each system. The maintenance and monitoring operations for all such systems must be adequately recorded.
- 4) The access for fire service personnel and equipment are discussed in detail in Sections 10-14 of this statement (below).
 - 5) The access for fire service vehicles is discussed in detail in Sections 10-14 of this statement (below).
 - 6) Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures:
 - a. The continuity and development of the Golden Thread is the responsibility of the whole design team with the Duty holder taking the lead. Clarke Banks (Fire Engineering) will continue to ensure the golden thread of information is kept in line with direction and leadership coming from the Duty holder. Clarke Banks (Fire Engineering) aim to support the appointed Duty holder in collating the Golden Thread of building information, insofar as applicable and relevant to the strategic fire safety design requirements.
 - b. The design team are committed to incorporating all information that this statement has discussed, including any further developments which may arise as the design progresses, into the main fire strategy. This information shall be made available to any building owner throughout the life span of the building. This will culminate in a package of information being handed over to the building owner as per Regulation 38 of The Building Regulations 2010.
 - c. This will ensure that the information to understand the building, including any steps needed to keep both the building and people safe throughout its lifespan are readily available.

Emergency road vehicle access and water supplies for firefighting purposes

10. Explanation of fire service site plan(s) provided in 14. including what guidance documents have informed the proposed arrangements for fire service access and facilities?

- The Fire Service access provisions are based on the requirements listed in BS 9991 and BS 9999;
- Fire Service vehicle access will be provided via Avonmouth Street and Tiverton Street, which run north and east, and south of the proposed development, respectively. This will provide immediate access to the ground floor firefighting lobby serving the residential floors (both above- and below-ground);

- The proposed route will also provide immediate access to the two protected stair cores serving the employment space areas on the first floor and Basement level -1, as well as direct access to the ground level of the employment space areas. These areas should also be provided with one evacuation lift;
- The residential premises will be provided with one residential type firefighting core (comprising a firefighting lift and evacuation lift, a firefighting stair including a wet rising main, connected by the protected residential lobbies);
- The residential premises will also include an evacuation lift as detailed above sited adjacently to the firefighting lift. This is intended to avoid the need for occupants to use the firefighting lifts in the event of an emergency;
- Special signage will be provided to the residential stair core to enable the Fire Service to conduct operations effectively. Wayfinding signage in accordance with the amended Approved Document B Volumes 1 & 2:2020 will be provided in support of firefighting operations;
- All internal flat areas will be reachable within 60m from a dry main outlet located in the firefighting stair, on a route suitable for laying hose, given that the building has been provided with full sprinkler systems in accordance with BS 9251;
- The wet rising main inlet point for the residential premises will be located on the face of the building, within 18m and a clear line of sight from the fire service appliance parking location;
- The employment space areas will be provided with at least 15% accessible perimeter, expected to be provided via the south-west façade.

11. Emergency road vehicle access - can emergency road vehicles access the site entrances indicated on the site plan?

- Yes. Due care will be given to ensure that the vehicle access route (consisting mainly of the public Avonmouth Street and Tiverton Street) achieves the requirements for a pump appliance as shown in Guidance Note 29 (London Fire Brigade). Any access / security measures in and around the site (especially any barriers or bollards preventing vehicle access) will need to be by-passable by the Fire Service. This will be confirmed by tracking exercises.

Is the emergency vehicle tracking route to the siting points for appliances clear and unobstructed?

- Yes – Access is carried out via existing public roads.

12. Siting of fire appliances

- Fire Service vehicle access will be provided via Avonmouth Street and Tiverton Street, which are both public roads. These run north, east (Avonmouth Street) and south (Tiverton Street) of the proposed development. This arrangement is shown indicatively in Figure 2 of this report, however this will also be confirmed by tracking exercises;
- This will allow fire appliances to park within 18m from, and have a clear line of sight to, the wet riser main inlet point for the residential areas (shown indicatively as a red dot in Figure 2 of this report). Immediate access into the residential lobby expected to be provided next to the wet riser inlet point; and
- This will also allow fire appliances to park within 18m from entrance points located as part of the accessible perimeter serving the Basement level -1, Ground and the 1st Floor employment space areas (shown as red arrows to the south of the development, in Figure 2 of this statement).

13. Suitability of water supply for the scale of development proposed

- Public hydrants (existing) are expected to be provided within 100m of this building, as it is in a prominent central location. A request for information has been made to the London Fire Brigade Water Team via email on 10 09 2021, with a response received on 13 09 2021;
 - The existing hydrant is located on the east of the proposed development, on the pavement running east of the site boundary (shown indicatively in Figure 2 of this statement). This hydrant is located approximately 15m away from the likely inlet point for the residential core. Similarly, it would be located approximately 30m away from the entrance points located on the accessible perimeter serving the employment space areas;
 - This hydrant has been confirmed as operational by the London Fire Brigade;
- a) Nature of water supply:
- Hydrant – public
- b) Does the proposed development rely on existing hydrants and if so are they currently usable / operable?
- Yes
- The London Fire Brigade water team have confirmed (email dated 13.09.21) that an existing hydrant is currently located on Avonmouth Street, directly across from the proposed development. This hydrant location has been shown indicatively in Figure 2 of this statement.

14. Fire service site plan

Fire service site plan is: inserted in the form – see below.

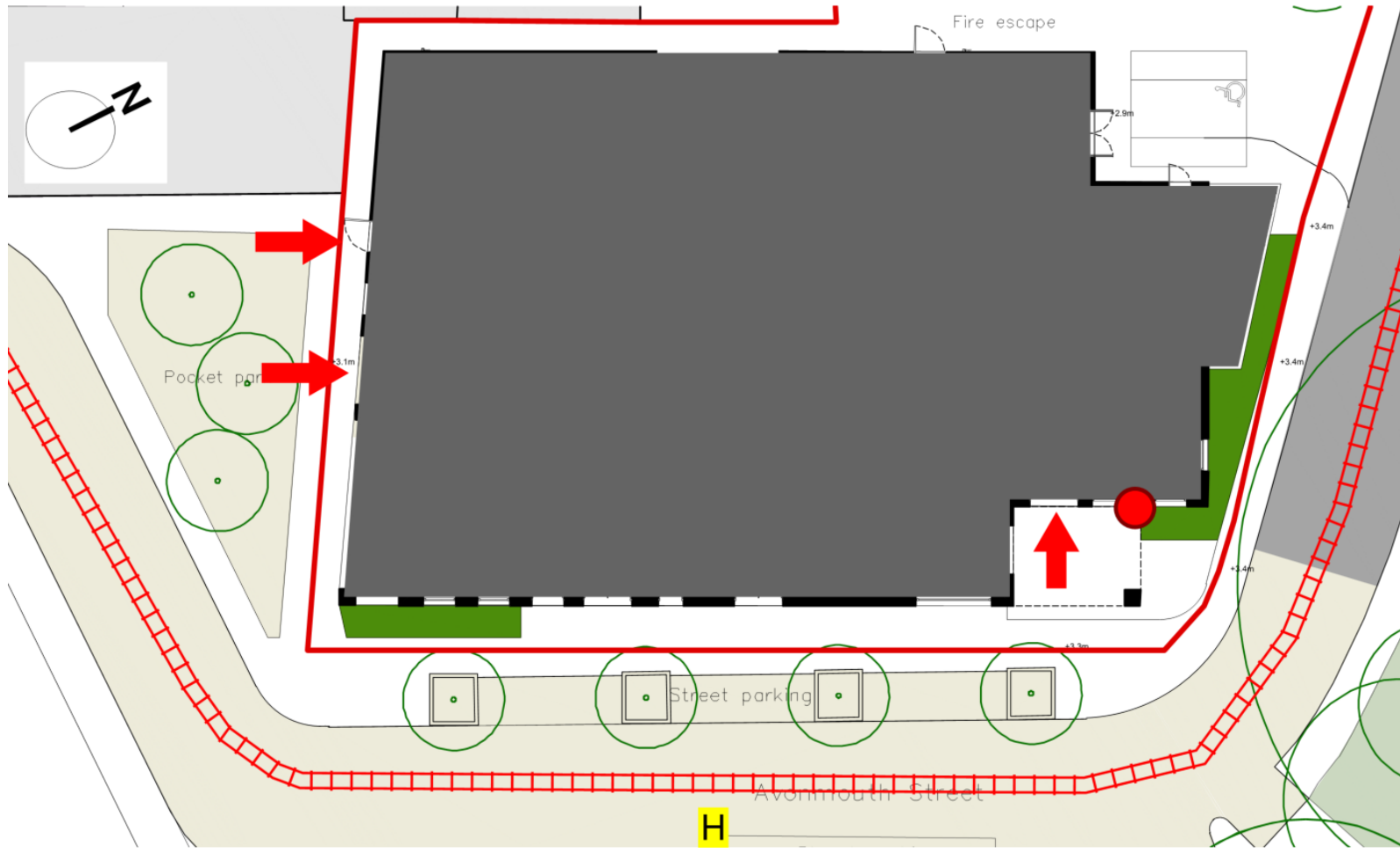



Figure 2: Indicative Fire Service Access Routes

Fire statement completed by	
Signature	 Marios Alexandrou MEng (Hons), MSc, CEng, MIFireE, GIStructE
Date	25/05/2022