INTRODUCTION

Description

This Fire Statement has been prepared on behalf of Prudential UK Real Estate Nominee 1 Limited and Prudential UK Real Estate Nominee 2 Limited (the "Applicant") in support of an application at 247 Tottenham Court Road, London, W1T 7HH, 3 Bayley Street, London, WC1B 3HA, 1 Morwell Street, London, WC1B 3AR, 2-3 Morwell Street, London, WC1B 3AR and 4 Morwell Street, London, W1T 7QT (the "Site") for full planning permission for:

Demolition of 247 Tottenham Court Road, 3 Bayley Street, 1 Morwell Street, 2-3 Morwell Street and 4 Morwell Street and the erection of a mixed use office led development comprising ground plus five storey building for office use, flexible uses at ground and basement, residential use, basement excavation, provision of roof terraces, roof level plant equipment and enclosures, cycle parking, public realm and other associated works 247 Tottenham Court Road

The existing uses of the buildings are described below::

3 Bayley Street

The existing building joins the northern boundary with 247 Tottenham Court Road and is comprised of ground plus five storeys. The upper floors contain four residential dwellings and the first floor forms part of the office at 247 Tottenham Court Road.

1 Morwell Street

The existing building is made up of ground plus two stories and contains two residential dwellings. 2-3 Morwell Street At ground floor, the existing building is linked to the shop at 242 Tottenham Court Road, and is currently occupied by Tiger on the ground and lower ground floors. The first and second floors (and part of the basement) are in use as an office and are accessible from office floorplates on Tottenham Court Road.

4 Morwell Street

The existing building is occupied by the Architectural Association at basement, ground, first and second floor and comprises a mix of storage, studios and offices.

Aim of Report

This report describes key fire strategy principle for the building. It is intended to support the planning application.

Guidance

The fire strategy for the residential is based on guidance in BS9991: 2015 *Fire safety in the design, management and use of residential buildings – Code of practice.*

The fire strategy for the non-residential areas is based on guidance in BS9999: 2017 *Fire safety in the design, management and use of buildings – Code of practice.*

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Competency

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

Jensen Hughes are a highly experienced team of specialist fire engineers that have been operating in the UK and Ireland for nearly 30 years (predominantly under the name JGA). The qualifications of the author of this report are given below:

Report By: Kurt Reuben MSc

Checked By: Jack Lalor MEng

Approved By: Approved by Luke Roscoe, MEng, AIFireE

Luke Roscoe is an Associate Member of the Institution of Fire Engineers. Luke is a Technical Director at Jensen Hughes (England) and has over 8 years of experience in developing building Fire Strategies. He has extensive experience in fire strategies for residential buildings ranging from Private residential, Private Rented Sector, office and retail buildings. He has extensive experience in developing fire engineering solutions including fire and smoke and evacuation modelling for all range of building types, including extensively in residential buildings.

CONSTRUCTION METHODS AND MATERIALS

The building consists of 2 basement levels and 6 storeys above ground with a roof terrace.

The basement is formed with secant piled walls and an RC liner wall with the retaining walls propped in the permanent condition by in-situ RC slabs at the ground floor, B1, -level, and B2-level. The primary foundations are the B1-level and B2-level raft slabs.

The building superstructure is to be framed with precast concrete columns, steel Delta beams with precast planks. Overall stability is provided by RC cores located at the north and south ends of the building.

The faced is constructed from precast concrete panels with decorative features embedded in them including glazed ceramic cladding to Tottenham Ct Rd and Bayley St and brick faced panels to Morewell Street. These panels are stacked from the ground floor and restrained on every floor. All of the upper areas have high performance glazing with some opening lights to provide access to balcony areas. The ground floor of the building has precast panels clad in basalt with curtain walling shopfront glazing to retail and other units at this level. Access and egress doors are a mixture of glazed/metal faced depending on their situation.

The roof covering is a proprietary built-up, reinforced bitumen membrane warm roof covering system to structural deck with areas of green sedum roof and a paved terrace area surrounded by raised planters. The roof supports areas of plant, including photo voltaic panels, zones of which are enclosed by a powder-coated metal screened plant enclosure. There is a BMU, with associated trackway, to access the north and west facades of the building.

Internally the commercial aspect of the building is predominantly a shell with a raised access floor and exposed concrete ceilings. The cores contain toilets, lifts and stairs which are lined/formed from a drywall system with a variety of applied finishes. The residential units will be fully fitted out with the spaces formed from drywall with a plasterboard ceiling, soft and hard floor finishes and carpentry items such as kitchens and wardrobes installed. The retail units are left as a bare shell.

EVACUATION STRATEGY

Residential Areas

The residential accommodation will operate a stay-put evacuation strategy whereby only the occupant in the affected flat will evacuate in the first instance.

The residential ancillary areas at ground floor will operate a simultaneous evacuation strategy. Level access is provided at ground floor.

Occupants who do not require assistance are able to exit their apartment and reach the stair within a compliant travel distance. The stairs exit to an entrance lobby from which ultimate escape is available via the front of the building.

Occupants requiring assistance are able to reach the stair within a compliant single direction travel distance. The stair will provide a safe place of refuge. A firefighting lift is provided and will provide an option to assist the evacuation of disabled occupants.

There are no basement areas within the residential development.

A detailed management plan for evacuation will be developed by the building management team prior to completion and operation of the building.

Commercial Areas

All commercial areas will operate a simultaneous evacuation strategy.

Occupants who do not require assistance can reach either of the stair cores within compliant travel distances. Both stairs exit to outside via protected corridors.

Occupants who require assistance can reach either of the stair cores within compliant travel distances. Both stairs are provided with areas of refuge and emergency voice communication points on all levels above and below ground.

Future tenants of the retail units at ground/basement will be responsible for developing a fire strategy and management procedures that are in line with the fire strategy principles of the building.

There are level exits to outside from each commercial space at ground floor level.

The plant and office ancillary areas at 1st basement level will have access to both stairs cores which are provided with refuge areas and emergency voice communication points.

The plant areas at 2nd basement level have access to only 1 stair. Travel distances to the stair are compliant and a refuge with emergency voice communication point is provided.

A detailed management plan for evacuation will be developed by the building management team prior to completion and operation of the building. Mobility impaired occupants will await rescue once they have reached a designated refuge point.

ACTIVE FIRE SAFETY SYSTEMS

Sprinklers

The top floor of the building is more than 11m above ground. Therefore, sprinklers will be provided throughout the building.

In the residential parts of the building this will be a residential sprinkler system designed in line with BS 9251.

In the commercial areas this will be a commercial standard sprinkler system designed in line with BS EN 12845.

Automatic Fire Detection

Apartments will be open plan. As such, the residential areas will be provided with at least an LD1 standard of automatic fire alarm and detection.

Non-residential areas will be provided with a minimum of an L3 standard of automatic fire alarm and detection.

RESIDENTIAL – MEANS OF ESCAPE

Apartment Layouts

The apartments are all open plan. They will be sprinklered and provided with LD1 detection and alarm.

The duplex apartments on the 4th floor will be designed with a 30-minute protected hallway as there is no alternative escape route at the upper level of the apartments (5th floor)

It will also be ensured that cooking appliances are located such that they do not prejudice escape from any part of the apartment.

Common Corridors

The common corridor at each level will be provided with a mechanical smoke extract shaft (typically 0.6-0.8m^2 subject to supplier specification).

Travel distances within the corridors are short, at up to approximately 5.4m. This is well within recommended limits for a sprinklered residential building.

Disabled Evacuation

The lift will be a firefighting lift and will be suitable for evacuation in a fire event. However, it cannot be used for independent self-evacuation before the fire service arrive. This is because of the following reasons:

- As per Fujitec's correspondence the lift cannot be certified in accordance with EN86-71 as a firefighting lift upon detection goes to ground and waits for fire service control.
- To comply with BS 9999 evacuation lifts should have a trained member of staff on site to drive the lift. Given the size of the development there is no on-site concierge to operate the lift. This will be the case for the majority of developments across the country and is not unique to this scheme. Therefore, as per Fujitec's correspondence it cannot be certified as an evacuation lift under current guidance.

It is clear that guidance for lift design has not caught up with the recommendations of emerging fire guidance including the London Plan which does not give any recommendations for design of lifts for self-evacuation.

It is therefore proposed to provide a fully code compliant firefighting lift and no evacuation lift or evacuation functionality as part of the firefighting lift. This has been updated in the fire strategy and has been agreed with Building Control.

Building Regulations guidance does not require any specific measures to be provided for escape for mobility impaired occupants and the government have confirmed that the new guidance within an as-yet unpublished update to the Approved Document B will not call for evacuation lifts as a matter of course in tall buildings.

The firefighting lift will be available to support the evacuation of the occupants once the fire service arrive if necessary.

Not providing an evacuation lift still meets the functional requirements of the Building Regulations as: -

- Occupants requiring assistance are able to reach the stair within a compliant single direction travel distance. The stair will provide a safe place of refuge.
- A refuge and associated emergency voice communication (EVC) point will be provided which is above the recommendations of guidance for a residential building.
- There is only a total of 8 apartments in the building. Therefore, the number of occupants escaping would be limited and should not disrupt firefighting operations.

Final Escape from the Stair

The stair will discharge to outside at ground via the entrance lobby. The lobby itself will not contain any fire risk other than fire rated post boxes, a single metal/Class 0-treated timber bench and will not give direct access to any service risers. Service risers at ground will be accessed via a lobby that is to be designated as Keep Locked Shut. Each riser will be enclosed with 2-hour fire resistant construction with FD120S doors that will also be designated as Keep Locked Shut.

The lobby to the refuse store will have at least 0.4m^2 permanent ventilation.

COMMERCIAL AREAS – MEANS OF ESCAPE

Risk Profile

The office areas have been assessed as an A1 risk profile. This is suitable for a sprinklered office.

The retail areas have been assessed as a B2 risk profile. This is suitable for a sprinklered retail unit.

Occupancy

The means of escape have been assessed based on standard floor space factors as recommended in ADB. These are:

- $2m^2$ / person in retail sales areas
- $30m^2$ / person in retail back of house and plant areas
- $6m^2$ / person in all office areas

On this basis the highest occupancy at any office level is 202 at Level 1. The total occupancy above ground is 923.

The highest occupancy in any retail unit is 131 at ground. However, this will be reviewed as the design develops to allow for any tenancy splits or other design changes.

Travel Distances

In line with BS9999 guidance:

- Travel distances after fitout in office spaces (A1 risk profile with AFD) will be limited to 29.9m in a single direction and 74.75m where there are multiple escape routes.
- Travel distances after fitout in retail spaces (B2 risk profile with AFD) will be limited to 23m in a single direction and 57.5m where there are multiple escape routes.
- Travel distances in plant areas (A2 risk profile with AFD) will be limited to 25.3m in a single direction and 63.25m where there are multiple escape routes.

Storey Exits

Office

All storey exits will be at least 1050mm wide at the upper office levels. This provides capacity for 1050 / 2.805 = 374 occupants per floor after discounting access to one escape stair which is sufficient for an occupant density of $6m^2$ / person.

Office terraces access from the office floorplate are considered inner rooms and will be limited to 60 occupants. The roof terrace will have access to both stair cores. Doors from the terraces will be at least 850mm wide.

Exits from reception will be at least 850mm wide.

Retail

All retail units will have level access to escape routes. Exits will be at least 1050mm wide and their capacity will be calculated based on 3.485mm / person. This is in line with BS9999 guidance for a B2 risk profile with AFD.

This will be reviewed as the scheme develops as necessary to allow for any sub-division of the retail units into separate tenancies.

Stair Capacity

There are two stairs serving from basement to roof level. Each of these is 1200mm wide and will be accessed via protected lobbies at each level. This provides capacity for 705 occupants per stair – a total of 1410. This is sufficient for the simultaneous evacuation of all floors.

Both stairs will discharge to outside via a protected corridor at ground. All parts of the final escape route, including the doors, will be at least as wide as the stair they serve.

Bicycle Storage

Escape from the cycle store will be via an open stair which discharges to outside at the rear of the building. This is considered reasonable given the low occupancy of the cycle store.

Mobility Impaired Occupants

There is a disabled refuge in each stair core to accommodate the escape of occupants requiring the use of a wheelchair. This will be at least 900mm x 1400mm and provided with an emergency voice communication system.

FIREFIGHTING

Fire Service Access Provisions

The firefighting provisions and access points are shown in the figure below.

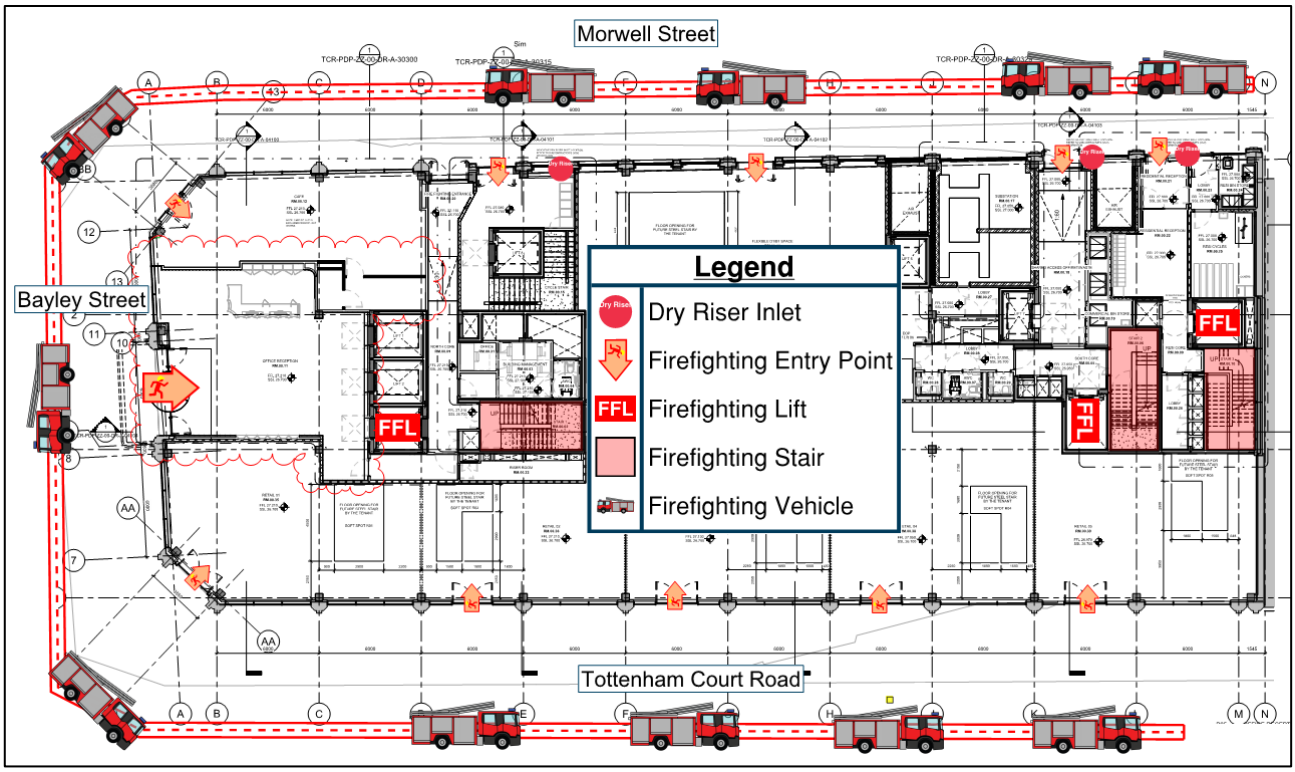

Figure 1: Fire Service Access Provisions (Internal layout is indicative and subject to change)

Residential

The top residential floor will be more than 18m above ground level. The stair core will therefore be designed as a firefighting shaft comprising:

- A firefighting stair at least 1.1m wide;
- A firefighting lift opening into the common corridor within 7.5m of the firefighting stair;
- A dry fire main outlet within the stair enclosure at each level;
- A smoke vented corridor;
- 1m^2 AoV at head of the stair
- 2-hour fire rated enclosures to the firefighting stair and firefighting lift

Office

The top floor is more than 18m above ground and has an area over 900m^2. Therefore, two firefighting shafts will be provided.

The firefighting shafts will be designed in accordance with the following: -

- A 1.2m wide firefighting stair;
- Smoke vented lobby;
- 1m^2 AoV at head of the stair
- Dry fire main outlet;
- 2-hour fire resistant enclosure;
- Firefighting lift with backup power.

Basement Smoke Venting

The basement will be provided with either:

- Natural smoke vents achieving 2.5% of the area of the basement or of each compartment
- A mechanical smoke extract system designed to achieve 10 air changes per hour and be able to withstand gas temperatures of up to 300^{o}C for 1 hour.

STRUCTURE AND COMPARTMENTATION

Structure

Any elements of structure which support the residential will achieve 60 minutes fire resistance. Elements of structure which only support the commercial uses will achieve at least 60 minutes based on the provision of sprinklers.

Compartmentation

All walls and floors separating the residential areas from the commercial space will achieve 120 minutes fire resistance. Walls and floors enclosing apartments will achieve 60 minutes' fire resistance.

Full height compartmentation achieving 60 minutes fire resistance will be provided between different uses, e.g. between office areas and retail areas. Compartmentation achieving at least 60 minutes fire resistance will be provided between retail areas under separate tenancies.

Compartment floors in the office areas are not required. However, the floor between basement and ground will be a compartment floor achieving 60 minutes' fire resistance.

EXTERNAL WALL CONSTRUCTION

As the top floor height of the building exceeds 18m above ground floor, external walls should be constructed of materials achieving Class A2-s1, d0 or better. The following items are exempt from this requirement:

- Cavity trays when used between two leaves of masonry;
- Door frames and doors;
- Electrical insulations;
- Insulation and water-proofing materials used below ground level;
- Membranes;
- Seals, gaskets, fixings, sealants, and backer rods;
- Window frames and glass.