

# Manor Road. Revised Fire Safety Statement.

## Hoare Lea competency statement

All Hoare Lea design projects are headed by chartered engineers with proven experience on a wide range of fire safety consultancy projects.

Our staff have appropriate expertise and experience of fire safety design on a wide range of complex buildings, not only in the UK, but also world-wide. Whilst most of our work is conducted to satisfy safety regulations within the UK (e.g. Building Regulations and associated legislation), our staff have been responsible for developing fire safety strategies based on the NFPA standards and other international codes.

All work produced at Hoare Lea have been reviewed and approved by a senior chartered fire engineer to ensure the work is suitable for submission.

## 1. Introduction.

On behalf of Avanton Richmond Development Ltd, a detailed planning application (ref. 19/0510/FUL) was submitted to the London Borough of Richmond Upon Thames (LBRuT) in February 2019 for the redevelopment of the Homebase store at 84 Manor Road, North Sheen.

The application was considered at LBRuT Planning Committee on 3 July 2019 and was recommended for refusal by LBRuT officers. The Planning Committee resolved that they were minded to refuse the Application in line with the officer's recommendation for six reasons relating to affordable housing; design; residential amenity; living standards; energy; and absence of a legal agreement.

On 29 July 2019 the Mayor issued a Direction pursuant to Article 7 of the Town and Country Planning (Mayor of London) Order 2008 and powers conferred by Section 2A of the Town and Country Planning Act (1990) that he would act as the LPA for the purposes of determining the Application.

Further to the Mayor's direction to take over the Planning Application for his determination, the Applicant, in consultation with the GLA and TfL, has taken the opportunity to review the scheme with the principle aim of increasing the delivery of affordable housing through additional density and addressing other issues raised in the Mayor's Stage 2 Report.

The proposed changes necessitate an amendment to the Applications description of development. The revised description of development is as follows:

Demolition of existing buildings and structures and comprehensive phased residential-led redevelopment of five buildings of between three and ten storeys to provide 433 residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), a police facility (Use Class B1), a bus layover with driver facilities (Sui Generis Use), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works.

The amended scheme is referred as the 'Amended Proposed Development' and its previous iteration that was considered at LBRuT Planning Committee in 3 July 2019, is referred to as the 'Original Proposed Development'.

This Revised Fire Safety Strategy has been prepared to take account of the amendments to the scheme since the application has been called in by the mayor of London including, layouts of the cores and addition of a new residential Block E which will be built above a bus layover space.

This Revised Fire Safety Statement has been prepared in support of the full planning application for the Manor Road development in response to emerging Policy D11 of the draft London Plan (2019). Policy D11 details that fire safety should be considered at the earliest opportunity to ensure the safety of the building users. Major developments should:

- Include safety features in the design to reduce risk to life in a fire case scenario;
- Construct the development to minimise risk of fire spread;
- Provide suitable and convenient means of escape for all occupants of the development;
- Adopt a robust evacuation strategy which all building occupants will be confident in; and
- Provide appropriate firefighting appliance access and equipment for use in a firefighting scenario at the development.

This Fire Statement addresses the main fire safety items and principles and provides an overview of the requirements and recommendations that the amended proposed development will meet in regard to the functions set out above.

The development is shown in Figure 1. The five residential blocks comprise a range from one to four building cores with height ranging from 3 to 10 storeys.

The fire safety strategy for the Manor Road development will be based on the guidance of:

- BS 9991:2015 *"Fire safety in the design, management and use of residential buildings – Code of practice"*;  
and
- BS 9999:2017 *"Fire safety in the design, management and use of buildings – Code of practice"*.



Figure 1: Site plan of Manor Road.

The fire strategy of the development has been revised following the addition of a new residential Block E, located above a bus layover space, and alterations to the internal layouts of the common corridors serving the blocks. These changes alter the means of escape travel distance and necessitate a new fire strategy for the residential Block E.

The following materials are proposed for the development;

- Frame: Reinforced concrete frame;
- Floors: Concrete floors and finish / Insulated ground floor slab;
- Roof: Insulated flat concrete roof finished with blue roof and green roof and PV panels;
- Walls: Brick, cavity, rockwool insulation (duo slab or similar), breather membrane, particle board, vapour barrier, 2x layers of plasterboard (reconstituted stone detailing including sills and lintels);
- Balconies: Reconstituted stone and steel balustrades;
- Windows: Aluminium frame (Scheuco or similar); and
- External Doors: Aluminium doors (schueco or similar).

The above materials are subject to change as the design develops during RIBA Stage 3.

The proposed materials will meet the aforementioned guidance to meet the requirements set out in Building Regulations 2010 and will be further developed as the design progresses at the next stage. The materials will meet the minimum periods of fire resistance of elements of structure and any fire classifications for materials used in the external wall, as detailed within this fire statement.

## 2. Fire safety overview.

### 2.1 Building description, means of escape and fire safety systems

#### 2.1.1 Residential accommodation

The fire safety provisions and strategy for the residential buildings will be based on the guidance of BS 9991. The residential accommodation consists of single stair buildings. All the residential blocks, including blocks with a height of less than 30m above the fire and rescue service access level at ground, are provided with a residential sprinkler protection system within all the apartments to allow for flexibility in apartment layouts and extended corridor travel distances.

Block E has a balcony approach to the apartments and will meet the balcony approach recommendations as per the recommendations of BS 9991.

The residential buildings will operate a “stay-put” evacuation strategy. That is, upon activation of the fire alarm and detection system, only the occupants in the apartment of fire origin will evacuate. The occupants of other apartments will remain in place, unless otherwise instructed by the fire and rescue service, protected by a high level of compartmentation.

The draft London Policy Plan requests provisions for evacuation of disabled users of the residential premises. Therefore, the firefighting lift will be programmed to also be used as an evacuation lift, this will be determined by the fire brigade and will not be under the resident’s control. The stair will be designed and compartmented as a safe space for disabled residents to await rescue.

Following an initial review of the amended proposed development, the residential common corridor travel distances will be designed to meet the maximum permissible distances permitted by guidance of BS 9991 and supported by a fire engineering justification.

#### 2.1.2 Commercial units

Commercial units will be provided at the ground floor of Core A-C and Core D-A. The use of the commercial premises is likely to be flexible retail/community/office uses (use classes A1, A2, A3, D2, B1). The fire safety provisions and strategy for the flexible retail/community/office units will be based on the guidance of BS 9999.

The commercial units are designed to meet the travel distance limitations set for commercial spaces and are only located at ground floor to allow occupants to escape directly to the outside.

The flexible retail/community/office units are located within blocks with a height below 30m from fire vehicle access level, therefore, it is not considered necessary to provide commercial sprinkler protection to the units.

### 2.1.3 Bus layover

A bus layover is proposed at ground floor, below the residential apartments of Block E and will be assessed against the guidance of BS 9999. The buses will not be parked overnight but may be parked for an extended time. Due to the higher fire load buses present, the buses will be parked in a location where natural smoke and heat ventilation can be achieved directly to the outside. The bus driving facilities will also be under the Block E, which is provided with open sided construction for smoke ventilation. The final exit passageways to the escape stairs serving Block E, discharges away from the bus layover space.

## 2.2 Internal fire spread (structure)

The loadbearing elements of structure for the blocks in the Manor Road development, other than Block B, will have a minimum period of 60 minutes fire resistance, in accordance with appropriate guidance documents. This is due to the building height range below 30m and above 5m with provision of residential sprinklers in the apartments,

Block B has a building height above 30m, the loadbearing elements of structure will have a minimum period of 120 minutes fire resistance.

The flexible retail/community/office units will be separated from the residential sections with 120 minutes fire resistance construction given that the flexible retail/community/office areas will not be sprinkler protected.

The bus layover, below Block E, will be fire separated from the residential Block E with a higher 90 minutes fire resistance given that the bus layover will not be sprinklered and the parking space is located externally.

## 2.3 External fire spread

### Spread of fire between buildings.

The RIBA Stage 2 fire safety strategy includes a preliminary space separation analysis to establish the necessary boundary distance around each building. At this stage, there is not considered to be significant risk of spread of fire between buildings due to the provision of sprinkler protection for the residential premises, a high level of compartmentation, indicative distances between buildings and protection to building façades.

### Insulation materials/products

In accordance with Regulation 7(2) of Building Regulations 2010 (as amended December 2018), as all blocks, other than Block E will have a storey height in excess of 18m above the lowest adjacent external ground level, the external wall construction and specified attachments, including balconies, solar shading or solar panels, should achieve European Classification A2-s1, d0 or Class A1. This does not apply to the following:

- cavity trays when used between two leaves of masonry;
- any part of a roof (other than any part of a roof which falls within paragraph (iv) of Regulation 2(6)) if that part is connected to an external wall;
- door frames and doors;
- electrical installations;
- insulation and water proofing materials used below ground level;
- intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part B of Schedule 1;
- membranes;
- seals, gaskets, fixings, sealants and backer rods;
- thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part L of Schedule 1; or
- window frames and glass.

Additional guidance on the application of this Regulation is provided in Section 10 of Approved Document B (2019), including guidance on membranes, window spandrel/infill panels, thermal breaks and shop signage.

It is recognised that the recent changes to the Building Regulations are not reflected in the guidance of BS 9991 (2015) and BS 9999 (2017). On this basis, it is proposed to supplement this report with the relevant section of Approved Document B which accounts for the aforementioned changes.

Block E does not have a storey that exceeds 18m in height and, therefore, either the external walls should satisfy the performance criteria described in BRE report BR 135, or the external wall surface should be in accordance with Figure 17 of BS 9991 for surface spread of flame classification, and cavity barriers in any external wall cavity are required in accordance with Clause 19 of BS 9991.

Note: In practice, it may be necessary for external surfaces to achieve a Class B-s3, d2 or better (European Classification) surface spread of flame classification to avoid the walls contributing to the space separation (unprotected areas) calculations.

Notwithstanding the above, the Ministry of Housing, Communities and Local Government has released additional guidance relating to the provision of balconies, which has been endorsed by their expert panel. In accordance with the advice note (published in June 2019) it is recommended that balconies should be achieve a European classification A2-s1, d0 or Class A1 to minimise the risks associated with balcony fires. In practise this would preclude the use of timber in external balcony constructions.

#### **2.4 Access and facilities for the fire and rescue service**

The buildings within the Manor Road development will be provided with dry risers, since the height of each building is less than 50m.

Fire and rescue service vehicle access should be provided to within 18m of each dry riser inlet connection point, typically on the face of the building adjacent to the entry door leading into the cores. The fire main inlet should be visible from the fire and rescue service vehicle. A preliminary review of the site plan shows good fire and rescue service vehicle access – shown by the green lines in Figure 2.

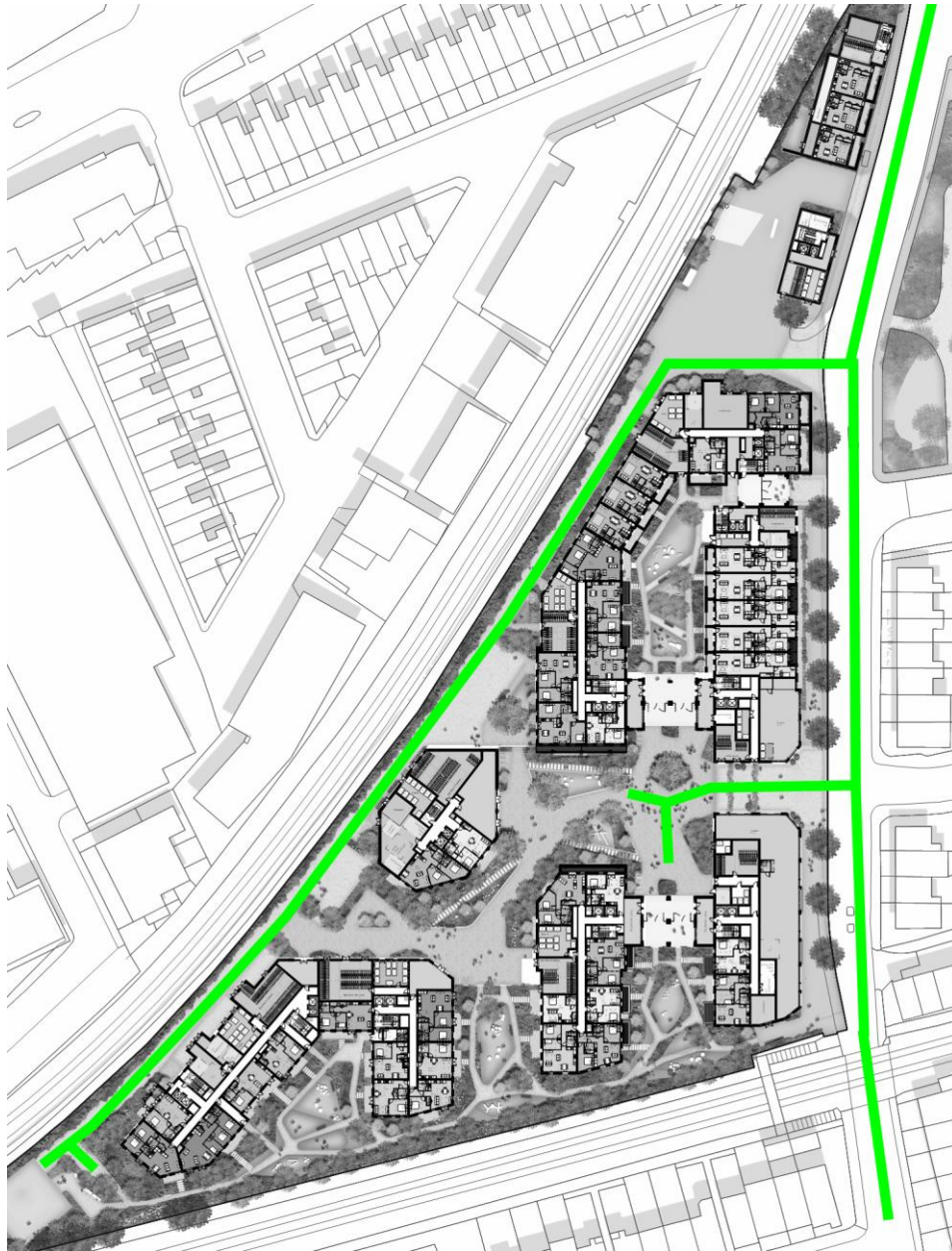


Figure 2: Preliminary assessment of the fire and rescue service.

Firefighting shafts will be provided as per the guidance of BS 9991 and BS 9999 to buildings with a height above 18m to assist the operations of the fire and rescue service. Firefighting shafts as standard comprise:

- A fire-fighting stair (1100mm minimum clear width);
- A fire-fighting lift;
- A fire main with an outlet at every floor level;
- Smoke ventilation to the firefighting stair;
- Smoke ventilation to the common corridor, adjacent to the firefighting stair.

Firefighting stairs and firefighting lifts will be enclosed in construction with a minimum period of 120 minutes fire resistance, whilst the residential common corridors will be enclosed with a minimum period of 60 minutes fire resistance. For further details, refer to BS 9991 Figure 35.

The buildings, with a height of below 18m and to meet a hose criterion of 60m, will be provided with a fire main in the protected stair.

## **2.5 Construction, design and management regulations**

Design projects undertaken in the UK are subject to the requirements of the Construction (Design and Management) Regulations 2015 (CDM 2015), the objective of which is to ensure that health and safety issues are properly considered during a project's design and development so that the risk of harm to those who have to construct, use and maintain the building is reduced.

As a designer, in accordance with Regulation 9 of the CDM regulations, Hoare Lea Fire will take into account the general principles of prevention in the preparation of this report and where reasonably practicable, eliminate, minimise and/or control foreseeable hazards associated with the design. Where elimination is not reasonably practicable, Hoare Lea Fire will be required to provide 'pre-construction' information in respect of any significant and/or unusual project-specific hazards that remain.

## **2.6 Materials and Workmanship**

Regulation 7 of the Building Regulations requires that all building work should be carried out in a workmanlike manner, with adequate and proper materials that are appropriate for the circumstances in which they are used, are adequately mixed and prepared, and are applied, used or fixed so as to perform the functions for which they are designed.

Further guidance is provided in the Approved Document supporting Regulation 7.

Independent certification schemes exist to provide additional confidence that products are manufactured and installed to an appropriate and consistent standard. Such schemes can assist in ensuring that the Material and Workmanship requirements of Regulation 7 are satisfied. It is therefore suggested that, where appropriate, manufacturers and installers that are subject to independent certification schemes are specified on this scheme.

Recent changes to Regulation 7 prohibit the use of combustible materials within the external wall construction and specified attachments including balconies, solar shading or solar panels, within residential buildings which have a storey more than 18m above the lowest adjacent external Ground level.

## **3. Conclusion.**

This fire safety statement has been prepared to outline the main items relating to fire safety for the Manor Road development following a review of the amended proposed development. This statement demonstrates that the proposals have considered fire safety at the earliest stage. The outlined items will be further developed as part of the RIBA Stage 2 fire safety strategy which will demonstrate how the proposed development will meet the functional requirements of Part B of Schedule 1 of the Building Regulations 2010.