Newcombe House & Kensington Church Street

Fire Safety Strategy

September 2017

Audit sheet

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Contents

Executive Summary

The fire safety strategy for the proposed development has been designed in accordance with the functional requirements of the Building Regulations 2010. To comply with these functional requirements the standard guidance in Approved Document B (2006)[1] [incorporating 2013 amendments] and BS 9991:2015[2] has been used.

The proposed development meets the requirements of the standard guidance. In addition some design and specification has been proposed and integrated which enhance the level of fire safety requirements of the applicable standard guidance, for example:

1. fully sprinklered;
2. two firefighting lifts; and
3. enhanced automatic fire and alarm detection.

The proposed fire strategy has been developed by a team of fully qualified (Chartered) fire engineers and discussed with the Approved Inspector.

It is proposed that during the detailed design stage, as is best practice, details of the fire strategy will be developed further and discussions with London Fire Brigade will take place.

It is proposed by the client and design team to have the fire engineering team involved during all design and construction phases i.e. from early concept up to completion and hand-over to ensure a constant and regular communication of the fire strategy principles to all stakeholders during all design and construction stages.

The client intends to hold a fire safety meeting with all relevant stakeholders prior to completion of the buildings to fully brief the management agency about the fire strategy concept and how it has been implemented during the construction phase.

Furthermore it is proposed to allow for the early involvement of the London Fire Brigade (LFB) during the detailed design and construction stage and furthermore prior to handover. It is intended through direct consultation, that the LFB become familiar with the new development prior to occupation.

1. Introduction

This report has been prepared by Hoare Lea LLP (HL) on behalf of Notting Hill Gate KCS Ltd to outline the fire safety strategy for the 'Proposed Development' at Newcombe House and Kensington Church Street. HL have been involved in the design of the site for five years. The information will form the basis of the future strategy for the redeveloped site.

In preparation of this document, it has been assumed that detailed aspects of the design and construction will, unless stated otherwise in this report, be in accordance with the recommendations of Approved Document B and Volume 2[1] and appropriate British Standards.

2. Means of Warning and Escape

2.1 Evacuation Strategy

A 'defend in place' evacuation strategy is proposed for the residential areas. This is currently code compliant with ADB and should the applicable regulations change in the future to require a simultaneous evacuation or staged evacuation the scheme should be capable of accommodating that without further design changes.

2.2 Automatic Fire Detection system

All apartments will have LD1 detection which is code compliant with ADB. All non-residential areas will be L1 standard which exceeds the standard required by the ADB and BS.

2.3 Internal Apartment layouts

For the private apartments within the Corner Building, the design has been based on the principles outlined in the BS. A qualitative analysis of the internal layouts has been conducted. Although the layouts in the corner building exceed some of the parameters such as size, this is considered acceptable based on the enhanced sprinkler protection and LD1 detection to the apartments. This will provide the occupants of those flats with an equivalent level of fire safety to that which would be provided if the parameters of those apartments met the applicable requirements but did not include the proposed extra sprinkler protection and LD1 detection (both of which exceed the relevant requirements).

The internal apartment layouts for the social housing will be based on the code-compliant layouts in the BS and ADB.

2.4 Protection of the Staircore

Mechanical smoke ventilation is to be provided to the Corner Building to protect the common corridor and stair. This has been designed to extract a volume of $4m^3/s$ (that is equivalent of extracting a room 2m by 2m by 1m every second) out of the common corridor with the replacement air coming in from the staircore. The velocity through the open stair door keeps the escape stair clear of smoke for the evacuation of other levels and to aid Fire Service operations.

2.5 Staircore in Corner Building

The Corner building is provided with a single stair serving all residential floors up to Level 17. This is code compliant with the guidance of ADB and considered acceptable based on the full package of fire safety measures which are to be incorporated into that building such as sprinklers and non-combustible cladding. Furthermore:

1. The tower serves a maximum of two apartments per floor (21 units in total) and therefore has a low population;
2. The travel distances from all apartment doors to the stair door is approximately 3m. The ADB allows a distance up to 15m in sprinklered apartment buildings;

3. The enclosure of the staircore is constructed of concrete;
4. The stair is completely separated at ground floor from the basement stair.
5. The lifts that carry down are protected by fire curtains at the basement lobby level giving three door protection to the lift shaft. The lobby in front of the lift is also protected by the mechanical smoke ventilation system.

2.6 Retail Escape

The retail escape will be generally separated from the residential cores. One stair which is located in KCS 2 shares the final escape corridor and door but the stairs are not continuous. All other stairs from the basement discharge separately or are not connected with the residential levels above ground.

2.7 Corner building and office use.

The office within the corner building is separated by fire resisting construction from the residential levels. It has its own fire escape stair and doesn't share any means of escape provisions with the residential levels. Secondary means of escape is provided at Level one via the surgery stair. On Levels 2 and 3 access is only via the single stair. This is considered acceptable for the following reasons:

1. The top office level is only approximately 12 m above ground level;
2. The office is sprinklered to BS 12845 (an office of this height is not required to be provided with sprinkler protection);
3. The office has an L1 detection system;
4. Levels 2 and 3 will be limited to 100 occupants per level.

2.8 Gas within the scheme

There is no 'gas' distribution to the residential areas of the any of the buildings. The gas distribution is in the basement and will be fully compliant with the Gas Regulations.

3. Internal Fire Spread

3.1 Structural Fire Protection

ADB and the BS require that all flats are separated from other areas by 1 hour fire rating. The Corner Building will be a concrete frame and provide flats with 2 hours fire rating. To provide additional protection, the party walls will be increased to 2 hour protection between flats and other areas in the Corner building.

3.2 Sprinklers

The scheme will be fully sprinklered. The sprinkler system will be designed, installed and tested in accordance with BS EN 12845 for the commercial areas and with BS 9251 in the residential areas.

The sprinkler coverage includes the following areas which do not require sprinkler protection under the applicable fire safety requirements:

- The basement car park area (at basement level 2) is sprinklered when not required by ADB (Basement level 1 is sprinklered in accordance with BS EN 12845 as it is a commercial area).
- The residential flats will be sprinklered to Category 3 (rather than Category 2 which the BS recommends). This means the sprinkler is capable of delivering 280 litres of water per minute (double that of a Category 2 system.) This is equivalent of 0.28m^3 of water every minute. That is the equivalent of a bath tub per minute; and
- The common corridor areas of corner building will be sprinklered to Category 2 (BS9251) which is not required by the BS.

4. External Fire Spread

4.1 Construction of External Walls

The external envelope of a building should not provide a medium for fire spread if it is likely to be a risk to health and safety.

4.1.1 Buildings with a storey exceeding 18m in height

The external walls should satisfy the performance criteria described in BRE report BR135 (which will require that the fire performance of the entire proposed wall build up has been validated by full scale fire testing). Alternatively, each element of the external wall build up, including any insulation product, filler material (not including gaskets, sealants or similar) etc. should be of limited combustibility. *Note: Whilst this is may be considered as a greater provision than recommended in the Approved Document latest Government guidance has clarified that the requirement for limited combustibility applies to the whole of the external wall build up and not just to the insulation/filler elements.*

Hence any external wall build up that includes any material that is not of limited combustibility will require supporting fire test evidence to satisfy BR135.

In addition, the external wall surface should achieve Class 0 (National Classification) or Class B-s3, d2 or better (European Classification) surface spread of flame classification, and cavity barriers in any external wall cavity are required in accordance with Section 9 of the Approved Document.

The full description of limited combustibility is provided in Appendix A of Approved Document B. Note that timber is not a material of limited combustibility and cannot be made to be limited combustibility with the addition of fire retardant treatments.

Under no circumstances should polymer core rainscreen cladding (e.g. Aluminium Composite Material, ACM) be used in the external wall build up.

4.1.2 Buildings with no storeys exceeding 18m in height

Either the external walls should satisfy the performance criteria described in BRE report BR135 or the external wall surface should be in accordance with Diagram 40 of Approved Document B for surface spread of flame classification, and cavity barriers in any external wall cavity are required in accordance with Section 9 of the Approved Document.

In addition, the external wall surface should achieve Class 0 (National Classification) or Class B-s3, d2 or better (European Classification) surface spread of flame classification unless it can be demonstrated by fire engineering calculation that this is not required for space separation requirements.

4.2 Corner Building Cladding

- The cladding is designed as a continuous curtain walling system with stone facing panels in selected locations. The materials are defined as having limited combustibility in accordance with ADB. Smaller components of the cladding system such as gaskets etc. are not defined as having limited combustibility but given their quantities they are considered acceptable and compliant with ADB for the use in the intended locations.

4.3 Description of other facades

The planning drawings illustrate the following:

KCS 1 & KCS 2, 4 storey buildings with concrete structure and non-load bearing external walls.
External walls are proposed with brick faced cavity walls with partial filled cavity.

WPB 2 – Cube, 3 storey building with steel and concrete structure and non-load bearing external walls.
External walls are proposed as an open Corian rainscreen finish across the building. The rainscreen is proposed with solid and perforated panels on an aluminium support grid.

WPB3, 5 storey building with concrete structure and non-load bearing external walls.
External walls are proposed with brick faced cavity walls with partial filled cavity.

Perimeter Buildings are low-rise buildings. Their materials and details are to be developed in accordance with the relevant building regulations, including the use of limited combustibility materials as appropriate.

Please refer to the full planning information for further details. The details listed above are subject to design development and consultants' input in the next stage of the project development and will comply with the guidance of Approved Document B.

5. Access and Facilities for the Fire Service

5.1 Firefighting lifts

ADB and the BS require one firefighting lift to be provided to the Corner Building to aid fire fighter access to the upper levels. In this scheme two fire-fighting lifts to the Corner Building are proposed, to allow fire service access at the same time as evacuation of mobility impaired persons, such as those in wheelchairs and pregnant women. This is considered to be another fire safety measure over and above what is required by the applicable codes for such a building with a single stair. The lifts are protected against the ingress of water and provided with a second power supply.

5.2 Facilities for the Fire Service

A ‘wet’ riser is provided to the Corner Building. The wet riser tank, which contains 45m^3 of water and pumps, should, therefore, minimise the risk of fire service personnel suffering from low water pressure at the highest levels of the Corner Building.

The Fire Service and Ambulance Service will also have good fire vehicle access to the scheme and nearbywater hydrants; see the diagram below.

Figure 1. Fire Service vehicle and personnel access routes.

It is proposed that during the detailed design stage, details of the fire strategy will be further developed and discussions with London Fire Brigade will take place.

Furthermore it is proposed to allow for an early involvement of the London Fire Brigade during design development and construction stage, and prior to completion of the building. This would be in form of inviting the Local Fire Brigade to become familiar with the new development prior to occupation.

6. Conclusion

In our considered opinion, the fire safety measures proposed for the Notting Hill Gate site not only meet the current legislative requirements in England and Wales but provide significant enhancements and ensure that the functional Requirements of the Building Regulations are met.

7. Reference

[1] Department for Communities and Local Government (DCLG), *Approved Document B: Fire Safety - Volume 2: Buildings Other Than Dwellinghouses*, 2006th ed., vol. 2. NBS, 2006.
[2] British Standards Institution (BSI), *BS 9991: Fire safety in the design, management and use of residential buildings - Code of practice*. BSI Global, 2015.
[3] Her Majesty's Stationery Office (HMSO), *The Building Regulations 2010, England and Wales*. The Stationary Office, 2010.
[4] UK Government, *Regulatory Reform (Fire Safety) Order 2005*. 2005.