

Fire safety statement

Introduction

Salus, as Fire Safety Consultants, have been asked to prepare a statement and commentary in relation to compliance with London Policy D12.

The developers will fully embrace the policy and ensure the development achieves the highest standard of fire safety.

The development in itself is the redevelopment of an existing site with the erection of a 2 storey extension at roof level, an infill extension at ground level, façade improvements and change of use to form 89 residential units with associated landscaping , parking, refuse provision and external alterations.

The following plans should be read in conjunction with this report:

FLU 119/3/18B,17B, 16D,15D,14D,13D,12D,11F and 10A.

The author is a degree qualified Fire Engineer with over 25 years of experience and is a full member of both the Institute of Fire Engineers and the Royal Institute of Chartered Surveyors.

The fire safety design has followed the principles of BS 9991 [1]

Building Construction method and products and materials used

The existing use of the building is a managed residential building for student use. The building structure is a concrete framed structure with concrete floors varying from 4 to 7 floors in height. The building is currently insulated externally with rendered insulation that is combustible. The building will be extended upwards with additional floors so that it becomes a part 6 and 8 storey building which will be over 18m in height.

As part of the works improvements will be made including replacing the external walls because the building is a relevant building as noted in the Building Regulations and as such the external walls will be completely replaced with materials that are of A2-s1-d0 or better. The new walls will be also constructed to the same specification along with the balconies along with relevant cavity barriers around openings and on compartment lines both horizontally and vertically.

The fire resistance of the building will be upgraded to ensure the structure is provided with 90 minutes fire protection.

The strategy relies on good compartmentation between units to ensure the chance of fire spread is minimised. All new walls separating units and units and common areas will be constructed with materials that are non combustible and offer 60 minutes fire resistance if non loadbearing and 90 minutes if load bearing.

All floors will be designed as compartment floors.

The surfaces of all walls internally will achieve a minimum classification of B-s3-d2

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Means of escape for all building users and evacuation strategy

A stay put defend in place will be the strategy adopted for the building in that only the occupants of the unit of fire origin will be notified of a fire and evacuate, all other occupants would be deemed safe due to other fire safety measures proposed including the compartmentation and smoke ventilation, which would also allow safe escape if any occupant felt threatened or requested to evacuate by the Fire Authority.

All units are treated independently and will be provided with a self-contained Grade D BS5839 part 6[2] LD3 fire alarm system and the triggering of any device would trigger a simultaneous evacuation of the unit only.

Smoke detection will be provided in the common parts but this will notify a panel and trigger the relevant smoke ventilator/s to open only. They would not sound an alarm. A full cause and effect will be produced for the fire alarm system.

Each unit will have a 30 minute fire protected entrance hall along with an FD30S self closing fire door to the entrance. All doors will be a certified door set.

The majority of flats have two escape routes with travel distances well within 45m of a protected staircase. However the west wing has a dead end travel distance of 28.3m from the remotest flat to the staircase enclosure. This exceeds the maximum distance within the guidance document and will need a fire engineered strategy which would include the sprinklers provision noted above along with mechanical smoke control designed by a specialist proven with CFD modelling.

All staircases will be protected to at least a 90 minute standard and 120 minutes if deemed as a fire-fighting shaft. See below.

Passive and active fire safety measures

All units will be provided with a fire suppression system designed to BS 9251[3] and will be designed to a category 2 standard.

Each dwelling will have a BS 5839 Part 6 grade D LD3 fire alarm as noted above however the 3 open plan units will have an LD1 system.

Each unit will be enclosed with a minimum of 60 minutes fire compartmentation

The common areas will have smoke ventilation as shown by 1.5m² natural smoke shafts in all corridors next to staircase enclosures. At ground floor the West Block will have a wall mounted AOV

offering an area of 1.5m². For floors 1- 5 inclusive for the west wing due to the dead end travel distance a mechanical smoke control system will need to be designed to ensure tenable conditions for escaping occupants. The 3 staircases will also be provided with a 1m² smoke ventilator These will be Automatic opening vents controlled by the smoke detection provided in the common areas. A full cause and effect will be produced. Please note the detection in the common parts will trigger the relevant AOV only.

The natural smoke shafts will need to extend through the roof by at least 2.5m as they need to extend at least 2.5m above the highest floor it serves and above adjoining structures.

Access and facilities for the fire and rescue service

Due to the height of the building the central staircase will be designed as a fire- fighting shaft with a fire fighting lift and dry riser within the staircase with outlets at all levels.

The enclosure will offer 120 minutes fire resistance

The dry riser is accessible from the external public road as shown on the site plan with the inlet being within 18m of where the Fire Authority would park an appliance

An existing Hydrant is located externally on Church Grove outside of the building and is well within 90m of the building.

The fire- fighting lift and smoke ventilation systems will be supplied with a back -up electrical supply which can be from the main supply via 2 separate intakes.

The west wing is less than 18m in height, however it will be provided with a dry riser within the staircase at all levels. An inlet is provided within 18m of where the Fire Authority would park with outlets at all levels.

Site access for the fire and rescue service

The building and fire- fighting shafts/staircase are accessible from the public highway as shown on the site plan.

Future development of the asset and the Golden Thread of information

Fire safety information will be passed to the end user at completion so that they fully understand the fire safety measures provided as part of the design.

Conclusion

We have reviewed the plans and can confirm that the fire safety measures deliver large improvements to the existing building and a high standard of fire safety which complies with legislative requirements. It incorporates good levels of compartmentation, with construction materials that will mitigate fire spread, fire detection and suppression within each unit to alert the relevant occupants and reduce the chance of spread further, smoke ventilation to dilute toxic gases and to protect the staircases and escape routes from smoke and fire fighting provision to assist the fire service in fighting a potential fire.

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References

[1] *BS 9991:2015 Fire safety in the design, management and use of residential code of practise*

[2] *BS 5839 Part 6: 2019, Fire detection and fire alarm systems for buildings. Code of practice for the design, installation and maintenance of fire detection and fire alarm system in dwellings.*

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[3] BS 9251, *Fire sprinkler systems for domestic and residential occupancies.*

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