JGA

Fire Engineering Consultants

BELGARD GARDENS – PHASE 1
INTRODUCTION

The development is a large residential scheme at Belgard Gardens Tallaght consisting of apartment blocks consisting of 438 units and student accommodation with 403 bed spaces. As part of the planning process, a fire strategy review has been undertaken on behalf of the applicant, Atlas GP Ltd, to assess the issues likely to impact planning such as stair cores, fire brigade access etc.

The development will consist of a mixed use residential development (total GFA 55,180 sqm) comprising a new urban quarter and streets with 5 no. blocks to provide 438 no. apartment units (including live/work units) and associated amenity facilities, a 403 no. bedspace student accommodation scheme and associated amenity facilities, childcare facility (c.380 sqm), 6 no. retail / commercial units (c.632 sqm in total) and a security room (c.52 sqm). This will comprise phase I of the overall development of the c.7.2 ha. site and will be located on a net site area of 3.45 ha. (excluding proposed temporary car park at grade).

The development will consist of the demolition of all existing buildings on the site ranging from one to three storeys in height and the removal of hardstanding throughout. Proposed buildings for demolition include 2 – 3 storey Belgard Square (c.11,362 sqm) and associated single storey security hut (c.9 sqm); 3 storey Belgard House (c.9,706 sqm) and associated single storey security hut (c.14 sqm); 2 storey former Uniphar factory (c.7,780 sqm), associated 2 storey office building (c.1,033 sqm) and associated single storey security hut (c.14 sqm).

The proposed development will consist of:

- 5 no. blocks ranging from 4 – 10 storeys comprising a new urban quarter and streets to provide 438 no. apartment units consisting of 158 no. 1 beds, 230 no. 2 beds and 50 no. 3 beds (total apartment units include 8 no. live/work units with a total c.509 sqm work areas at ground floor) and c.732 sqm of tenant/resident service amenities, all within Blocks A1, A2, A3 and B1;
- Balconies / winter gardens / terraces to be provided on all elevations at all levels for each residential block;
- Block B2 to comprise a 403 no. bedspace student accommodation scheme and associated student amenity and staff facilities (c.815 sqm);
- Childcare facility (c.380 sqm) and external playing area (c.242sqm);
- 6 no. retail/commercial units (c.632 sqm in total);
- Security room (c.52 sqm);
- 107 no. car parking spaces below podium (a temporary car park at grade will be provided until such time as the completion of the permanent below podium car park);
- 22 no. car parking spaces at surface level;
- 1,227 no. bicycle parking spaces below podium and at surface level;
- 4 no. semi-private courtyards of c.5,516sqm;
- Public plaza (c.2,366 sqm);
- Public realm & landscaping (c.7,442sqm).

The proposed development will include the provision of a new north – south street bisecting the site (to later connect to the planned Airton Road Extension) with 2 no. East – West internal streets proceeding east towards Belgard Road (pedestrian access only onto Belgard Road) and proceeding west (to later connect to lands in ownership of SDCC if required). Works to public roads to include replacement of roundabout with a signalised junction and provision of cycle lanes on Belgard Square North and provision of a pedestrian crossing at Belgard Road.

The proposed development will also include boundary treatments, public lighting, green roofs, solar panels, ESB substations and switch rooms, CHP plant, commercial and residential waste facilities and

all ancillary works and services necessary to facilitate construction and operation. The proposed development will also include provision of site boundary protection where required to facilitate development phasing.

B1 MEANS OF ESCAPE

The means of escape design for the apartments has been based on the guidance in BS 9991:2015, the code of practice for fire safety in residential buildings. The apartment blocks will be provided with residential sprinklers within the apartments themselves, which will permit open plan design. In addition to this, travel distances in the common corridors may be doubled from 7.5m to 15m in a single direction and 30m where there is an alternative. Smoke ventilation in accordance with BS 9991:2015 will be provided in the common corridors.

The means of escape for the student accommodation will be based on Section 9.8 of BS 9991:2015 for cluster accommodation. Smoke ventilation in accordance with BS 9991 will be provided in the common corridors.

With regards to the internal layout of the apartments, as noted above, the apartments can be open plan. However, kitchens should be enclosed in open-plan flats having an area exceeding 8 m × 4 m. In addition, cooking appliances in open-plan flats having an area smaller than 8 m × 4 m should not be adjacent to the entrance of the flat.

Research by the BRE only extended to apartments up to 16m x 12m with the kitchens being enclosed from the living area up to 8m x 4m. Although the majority of the proposed open plan apartments do not exceed the limit of 16m x 12m, it is proposed to provide open kitchens greater than 8m x 4m. It did not note that a larger open kitchen would present an additional risk. In addition, it should be noted that the Scottish Technical Handbook does not provide size limitation on open plan kitchens in open plan apartments.

In open-plan apartments, it is general practice for occupants to 'wedge' open doors, e.g. doors to the enclosed kitchen. It is common knowledge that this practice occurs and is typically carried out by occupants as the opening and closing of doors in a small apartment footprint can be considered a nuisance. Therefore, if a fire occurs within the kitchen of an open-plan apartment where the door is fixed open, the fire resisting enclosure to the kitchen can be considered ineffective. In addition, the latest addition of the ADB does not require self-closing devices to be placed on the internal fire doors within a dwelling. Although, the BRE study does not take into consideration the presence of open plan kitchens larger than 8m x 4m, it does however consider the possibility of doors being open in their fire modelling.

The research study by BRE confirmed that the results indicated that open plan apartments with a sprinkler system and an enhanced detection system can provide a level of safety that is at least as good as that of a similar ADB compliant design. It also noted that by providing sprinklers, there is evidence that sprinklers makes it easier for people to escape, by reducing the chance of people being trapped by smoke in rooms other than that of the fire origin. Overall BRE confirmed that the results support the conclusion that sprinklers significantly reduce the risk in open plan apartments.

Based on the above, it is therefore considered acceptable to adapt an open plan apartment layout with an open kitchen design for the Belgard Gardens development. The open plan apartments are situated on a single level only and have ceilings with a minimum height exceeding 2.25m. Each apartment will be provided with a Grade D LD1 Fire Alarm and Fire Detection System and a sprinkler system will be designed in accordance with BS EN 9251: 2014.

A BRE study will be carried out to justify the open plan design at Belgard Gardens and will need to be submitted to Dublin Fire Brigade along with the FSC compliance report in due course.

Final exits from stair cores will be located so that they provide a safe route of escape to the external of the building and also provide an entry point for fire fighters which will be close to fire fighting facilities, such as hydrants and dry risers.

B2 INTERNAL FIRE SPREAD (LININGS)

Internal wall and ceiling linings and thermoplastic material to be used in windows, roof lights, and ceilings/lighting diffusers are to comprise materials which meet the appropriate classifications specified in Section 2 of TGD B. In particular, wall and ceiling linings are to achieve the following minimum classifications: -

Location	Surface spread of flame Classification [1]
Rooms > 30m^2 at Ground Floor, Common areas of apartments, Escape routes, Places of special fire risk	Class 0 (national) or Class B – s3,d2 (European)
All other rooms	Class 1 (national) or Class C – s3,d2(European)
Sanitary facilities	Class 3 (national) or Class D – s3,d2 (European)

Note 1: Performance criteria as specified in Appendix A of TGD B

B3 INTERNAL FIRE SPREAD (STRUCTURE)

The basis for compliance will be the relevant recommendations of Section 3 of TGD B.

The period of fire resistance for elements of structure will meet the requirements of Table A2 of Appendix A to TGD B for the various blocks depending on their height, i.e. 60 minutes, 90 minutes or 120 minutes.

Each apartment and student cluster will form a separate fire compartment.

B4 EXTERNAL FIRE SPREAD

The basis for compliance will be the relevant recommendations of Section 4 of TGD B and BRE Report BR 187 (2014) 'Building Separation and Boundary Distances'.

For buildings that are greater than 18m in height, any material in the external wall construction is to be of limited combustibility for all components except for masonry cavity wall construction complying with TGD-B Diagram 17.

Alternatively, the complete proposed external cladding system will be assessed according to the criteria in BR 135 2013 and compliance will be demonstrated by a fire test carried out in accordance with BS 8414:1 Part 1 or BS 8414:2 Part 2. Such work will be carried out by an independent accredited testing body.

The extent of glazing permitted on the external elevations will be assessed based on the distance to the relevant boundary and the size of each fire compartment. It is unlikely that the external glazing will require to be fire resisting given that the units will be sprinklered and each unit will be a separate fire compartment.

B5 ACCESS AND FACILITIES FOR THE FIRE SERVICE

As the blocks are greater than 18m in height they will be provided with fire fighting cores including lifts and dry risers. Adequate roadways will also be provided around the site to allow fire appliances to park within 18m and within sight of the dry riser inlets. A sufficient number of fire hydrants will be provided around the site, located in positions suitable for fire fighters to easily access them. Hydrants can be shared between different blocks to reduce the total number required. JGA have agreed with OMP and OCSC the location of hydrants and fire tender access routes around the buildings.

CONCLUSION

The fire strategy has been assessed and is being submitted with the planning application to demonstrate that it will be possible in due course to obtain a Fire Safety Certificate without requiring changes to the scheme that would require planning permission.