

**PROPOSED RESIDENTIAL DEVELOPMENT AT  
LONGVIEW, BALLYVOLANE,  
CORK.**

**FIRE SAFETY STRATEGY REPORT.**

**Date: 5<sup>th</sup> November 2019.**

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## 1. DESCRIPTION OF DEVELOPMENT:

The proposal is a new large Residential development that contains a number of separate blocks of apartments and duplex apartments as well as a commercial units and private dwellings.

The development is divided into a number of separate Neighbourhood areas within the overall site.

These Neighbourhoods are annotated as Blocks N1 to N6 and can be summarised as follows;

N1: This area contains a block with apartments and duplex units.

N2: This area contains a number of blocks of apartments, duplex apartments, community centre, crèche facility, retail and doctors surgery unit.

N3 and N4 contain conventional private dwellings.

N5: This area contains duplex apartments.

N6: This area contains a number of standalone apartment blocks with an associated covered carpark.

Under the provisions of the Building Control Regulations 2006 – 2018, each separate building is to be the subject of a separate Fire Safety Certificate Application.

The applications for the Fire Safety Certificates will be submitted to the Local Authority Fire Department and each application will be accompanied by a fire safety compliance report and fire safety compliance drawings.

The reports and drawings will demonstrate in detail how each building is to comply with Part B (Fire) of the Building Regulations 2006 - 2018.

The following documents will be used to demonstrate this compliance;

- i) BS 9991: 2015: Fire Safety in the Design, Management and Use of Residential Buildings – Code of Practice.
- ii) Technical Guidance Document B to the Irish Building Regulations 2006 - 2014.
- iii) BRE Report 187: External Fire Spread: Building Separation and Boundary Distances.

## **2. MEANS OF ESCAPE IN CASE FOR APARTMENTS AND DUPLEXES:**

The layout of the blocks containing apartments is such that there are apartments located at ground floor level and 2-storey or 3-storey duplexes over. All apartments and duplexes are provided with their own entrance door direct from open air. These blocks contain a number of apartments and duplexes and are 3-storey high buildings.

### **2.1 Internal Layout of Apartments:**

- i) The internal layouts of each apartment will be such that all habitable rooms are entered directly from a protected entrance hall. These entrance halls will be enclosed in half-hour fire rated construction and FD30 doorsets.
- ii) The maximum travel distance within an apartment entrance hall will not exceed 9m. This is measured from the door of the most remote room, within the apartment, to the apartment entrance door.
- iii) The exit door from each apartment leads direct to open air.

There are some apartments located at ground floor level where the layout is such that each bedroom is accessed from the living area. In this scenario, the following is to be provided for;

- i) Each bedroom is to be provided with an escape window. The size of window and the area outside the window is to be such that it is suitable for use for escape purposes in a fire scenario.
- ii) The living area is to be fire separated from the bedrooms by half-hour fire rated construction and FD30 doorsets.

These layouts are adequate to ensure compliance with the principles set out under BS 9991: 2015, as required.

### **2.2 Internal Layout of Duplexes:**

- i) The internal layout of each duplex is such that all habitable rooms are to be accessed directly from the stairs serving the duplex. This stairs is to be enclosed in half-hour fire rated construction with access to rooms off the stairs to be by way of self-closing FD30 doorsets.
- ii) Each duplex is to be provided with its exit leading direct to open air.

This layout ensures compliance with the principles set out under BS 9991: 2015, as required.

### 3. MEANS OF ESCAPE FROM APARTMENT BLOCK IN N2:

The apartment block in N2 is a 4-storey building with a mixture of one bedroomed and two-bedroomed apartments at each level.

The layout is such that the apartments on all levels are accessed from a central common corridor that provides access to 2 no. escape stairways.

These stairways are located close to the building extremities so as to ensure there are good alternative routes available on reaching the common corridors.

#### 3.1 Internal Layout of Apartments:

- i) The internal layouts of each apartment will be such that all habitable rooms are entered directly from a protected entrance hall. These entrance halls will be enclosed in half-hour fire rated construction and FD30 doorsets.
- ii) The maximum travel distance within an apartment entrance hall will not exceed 9m. This is measured from the door of the most remote room, within the apartment, to the apartment entrance door.

#### 3.2 Protection of Common Escape Routes:

The common escape routes consist of the common corridors and the escape stairways. These are being fire protected as follows;

- i) Each common corridor is being enclosed in one hour fire rated construction with access to apartments to be by way of self-closing FD30S doorsets.
- ii) Each escape stairway is being enclosed in a one hour fire rated protected shaft with access at each level from the common corridors to be by way of FD30S doorsets.
- iii) Each common corridor is being provided with automatically opening smoke vents.
- iv) Each escape stairway is to be provided with a 1m<sup>2</sup> automatically opening smoke vent located at the head of the escape stairway. The vent will be arranged to open on activation of the smoke detection within the particular stairs. Each vent will also have a manually opening mechanism.
- v) Cross-corridor fire rated doorsets will be strategically located along each corridor so as to ensure the following;
  - No undivided length of corridor is common to more than one storey exit.

#### **4. MEANS OF ESCAPE FROM APARTMENT BLOCKS IN N6:**

There are to be 2 apartment blocks in N6 Block A and Block B and these are linked by a covered single level carpark.

Block A is a 6-storey development with apartments at each level.

Block B is a 5-storey development with apartments at each level.

The site on which the blocks are to be located is split level.

The development also contains ancillary bike storage on the ground floor level of Block B.

The carpark is located at ground floor level and does run under the apartment blocks.

The carpark is covered over and the roof of the carpark is an amenity space.

Each block of apartments in N6 is to be served by a single escape stairway that serves all level and discharges direct to open air at ground floor level.

The apartment blocks in N6 are to be provided with sprinkler protection coverage as specified below.

The introduction of a sprinkler protection system permits extended travel distance allowances for apartment entrance halls and common lobbies/corridors.

##### **4.1 Internal Layout of Apartments:**

- i) The internal layouts of each apartment will be such that all habitable rooms are entered directly from a protected entrance hall. These entrance halls will be enclosed in half-hour fire rated construction and FD30 doorsets.
- ii) The maximum travel distance within an apartment entrance hall will not exceed 15m. This is measured from the door of the most remote room, within the apartment, to the apartment entrance door.  
The extended travel distance within the apartments is permitted under BS 9991: 2015 since the apartment blocks are being provided with sprinkler protection coverage.

##### **4.2 Protection of Escape Stairways and Common Lobbies:**

- i) The maximum dead-end travel distance from within a common lobby to the escape stairway is not to exceed 15m. This is measured from the most remote apartment entrance door to the door accessing the escape stairs.

The extended travel distance is permitted due to the provision of sprinkler protection coverage.

- ii) Each common lobby is to be provided with a 1.5m<sup>2</sup> natural automatically opening smoke vent. This vent will go into a vertical smoke shaft. The smoke shaft will have a cross-sectional area of at least 1.5m<sup>2</sup>. The smoke shaft will vent to open air at the top of the shaft. The smoke shaft will be enclosed throughout its height in 1 hour fire rated construction and each smoke vent into the shaft (from a lobby) will be an FD60S doorset. The vents will be arranged so that only the particular smoke vent serving the smoke-logged lobby will open at any one time.
- iii) Each escape stairway is to be provided with a 1m<sup>2</sup> automatically opening smoke vent located at the head of the escape stairway. The vent will be arranged to open on activation of the smoke detection within the particular stairs. Each vent will also have a manually opening mechanism.

These provisions ensure compliance with the relevant principles set out under BS 9991: 2015, as required.

## **5. MEANS OF ESCAPE FROM NON-RESIDENTIAL AREAS:**

The non-residential areas comprise the following;

- Covered Carpark associated with N6.
- Ancillary Bike Store associated with N6.
- Creche in N2.
- Community Centre in N2.
- Ground floor Retail Units and first floor Doctors Surgery in N2.

The non-residential areas will be provided with sufficient numbers, locations and widths of exits to ensure the following;

- Travel distance limitations set out in Technical Guidance Document B are adhered to.
- The capacities of exits are sufficient to cater for the maximum design occupancies associated with the various uses.

Corridors and stairways serving these areas are to be enclosed in fire rated construction so as to ensure protected escape routes are available from all areas.

## 6. ACTIVE FIRE PROTECTION SYSTEMS:

All areas of the overall development are to be provided with a number of active fire protection systems as part of the fire safety strategy.

Full details of these will be set out in the compliance report submitted with the application for the Fire Safety Certificate.

The following is a summary in this regard;

- i) Apartment Blocks associated with N6 are to be provided with sprinkler protection coverage under the provisions of BS 9991: 2015.  
The system is to be a domestic type system complying with BS 9251: 2014 (Category 2 type system) or a commercial system complying with BS EN12845: 2015.
- ii) Each area of the development will be provided with a comprehensive common automatic fire detection and alarm system that is compliant with IS 3218: 2013. The system will provide Type L2/L3x automatic detection coverage throughout the development.
- iii) In addition to the provision of a common fire alarm system, each dwelling is to be provided with a domestic fire alarm system that is compliant with BS 5839: Part 6: 2019. The domestic systems will be Grade D type systems providing at least Type LD2 detection/alarm coverage.
- iv) The common areas of the development are to be provided with emergency lighting systems that provide coverage to all common circulation areas, non-residential rooms and the areas outside final exits. The system will be compliant with IS 3217: 2013 + A1: 2017.
- v) Maintained illuminated Exit signs will be provided at all storey and final exits serving the building. These will be supplemented by additional Exit signs and directional Exit signs to ensure that all exits and escape routes are readily apparent to the building occupants.  
These signs will be of a type complying with BS 5499: Part 1: 2002.
- vi) All common routes of escape will comply with the general fire protection features set out in Section 1.4 of Technical Guidance Document B.
- vii) The covered carpark associated with N6 is to be provided with adequate levels of permanent natural ventilation. The ventilation is to equate to at least 2.5% of the carpark floor area. The ventilation is to be arranged so as to ensure cross-ventilation and a through flow of air will occur. This will be achieved by the provision of permanent openings strategically located around the perimeter of the carpark and on the roof.

## 7. INTERNAL FIRE SPREAD AND STRUCTURAL FIRE PROTECTION

The provisions for ensuring that Parts B2 and B3 of the Building Regulations are being complied with for the development are set out in the following paragraphs. These are in accordance with the specifications set out under Section B2 and Section B3 of Technical Guidance Document B.

- i) All internal wall and ceiling linings throughout the development will consist of plasterboard/fireline board and plastered masonry. These will achieve a Class 0 rating which ensures compliance with Regulation B2 of the Building Regulations.
- ii) All elements of structure (other than those which solely support the roof covering) will be fire rated to 60 minutes.
- iii) Each individual apartment and duplex is to form a separate fire compartment. The walls and floors fire separating these units from each other are therefore to form compartment walls and floors.
- iv) The non-residential areas will be fully compartmented from the residential areas.
- v) All storage areas will be enclosed in at least 60 minutes fire rated construction.
- vi) The external walls/facades are to be provided with adequate numbers and locations of fire rated cavity barriers so as to ensure the following;
  - The cavity is firestopped where an internal fire barrier meets the external façade.
  - The cavity is firestopped where a fire rated floor meets the external façade.
  - There is no undivided length of cavity that exceeds 20m in length.

Cavity barriers are to achieve at least 30 minutes fire integrity rating and 15 minutes insulation rating.
- vii) All services that penetrate the designated fire barriers within the building will be fully firestopped in accordance with the specific criteria set out in Section 3.4 of Technical Guidance Document B.

## **8. EXTERNAL FIRE SPREAD:**

Regulation B4: External Fire Spread of the Building Regulations is concerned with ensuring the following;

- i) External fire spread will not occur between different buildings on the same site.
- ii) External fire spread will not occur between opposing elevations of different fire compartments in the same building.
- iii) External fire spread does not occur beyond the site boundaries.

This is achieved by ensuring that building and opposing elevations are sufficiently distant from one another having regard for the numbers and areas of windows and doors on the external walls of the development.

The various in the development have strategically located to ensure they are fully compliant in this regard.

The type of roof covering associated with the development will be such as to ensure it achieves at least an AC classification.

In accordance with the provisions of Technical Guidance Document B there are no restrictions on the use of such a roof covering designation.

## **9. ACCESS AND FACILITIES FOR THE FIRE SERVICE:**

Regulation B5 of the Building Regulations is concerned with ensuring that the development is provided with adequate access and facilities for the Fire Service in order to deal with a fire incident.

The following is being provided for in order to ensure compliance with Regulation B5 is being achieved;

### **9.1 External Fire Hydrants:**

Adequate numbers and locations of external fire hydrants will be provided throughout the site so as to ensure there is sufficient water for firefighting purposes to deal with any fire incident occurring on the site.

The fire main serving the hydrants will take the form of a ringmain and will be capable of supplying adequate flows and pressures of water for firefighting purposes.

### **9.2 Access for Fire Appliances:**

There is to be an adequate level of fire appliance access routes to each building on the site. The extent of appliance access will take into account the overall volume and the height of each particular building.

The relevant specifications set out in Section B5 of Technical Guidance Document B and BS 9991: 2015 will be used to demonstrate compliance in this regard.

The width, carrying capacity and turning facilities will be sufficient to cater for a pump type fire appliance or a high reach type appliance as appropriate having regard for the top floor height of the particular building.

### **9.3 Personnel Access for Firefighting Purposes:**

Personnel access to the various will be adequately provided for by a combination of the normal means of escape from the buildings and the provisions for fire appliance access.