



GOLDSMITH ENGINEERING

PROJECT: MARY'S STREET AND HALSTON ST DEVELOPMENTS,
SMITHFIELD

REPORT TITLE: FIRE AND ACCESS DESIGN STRATEGY - PLANNING
STAGE

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INTRODUCTION

It is proposed to construct a new co-living residential led development at Mary's Street and Halston Street at the Smithfield Markets. The development will comprise of 4 blocks as outlined below:

Block A: Construction of 186 no. bedroom units (in 40 no. "cluster" apartment units), with living/kitchen space provided in each of the 40 no. apartments; shared communal space, reception, laundry and café at ground floor level, gym, games area/general amenity areas, co-working space at first floor level and bicycle parking provided at basement level (224 no. spaces provided), in a 9 to 14 storey block (c.8,025m² gross floor area) above basement (c.551m²) on a site measuring c.905m² at 6 and 8 Mary's Lane bounded by Mary's Lane to the south and Halston Street to the west.

Block B: Construction of 35 no. bedroom units (in 7 no. "cluster" apartment units), with living/kitchen space provided in each of the 7 no. apartment units, shared communal space, communal amenity space at ground floor level, rooftop garden and bicycle parking provided at ground level (35 no. spaces provided), in a nine storey block (c.1,887m² gross floor area) on a site measuring c.345m² at 2 Little Green Street bounded by Little Green Street to the east.

Block C: Construction of 42 no. bedroom units (7 no. "cluster" apartment units), with living/kitchen space provided in each of the 7 no. apartment units, shared communal space, communal amenity space at ground floor level, rooftop garden and bicycle parking provided at basement level (39 no. spaces provided), in a nine storey block (c.2,091m² gross floor area) above basement (c.306m²) on a site measuring c.427m² at 4/5 Little Green Street bounded by Little Green Street to the east.

Block D: The construction of 97 no. bedroom units (7 no. cluster units), with living/kitchen space provided in each of the 7 no. cluster units, shared communal space, reception/lobby, support office, co-work space, amenity areas and coffee dock at ground floor level, meeting rooms, management office, rooftop gardens/terraces provided on a number of floors, and bicycle parking provided at ground level (100 no. spaces provided), in a 4 to 8 storey block (c.4,149m² gross floor area) on a site measuring c.789m² at 16/17 Halston Street.

OBJECTIVE OF THIS REPORT

The objective of this report is to outline the key design parameters for the fire safety and access strategies at planning stage for the development.



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FIRE SAFETY DESIGN STRATEGY

BASIS OF DESIGN

The principle guidance document for designing for Fire Safety under Building Regulations is Technical Guidance Document B (TGD B). This document provides design guidance for some of the more common building situations.

TGD B also makes reference to other guidance documents, standards and codes of practice for different building uses and purpose groups. Accordingly, the following documents form the basis of the design of the Works and have been referenced in this report: -

- Technical Guidance Document B (TGD B) - Fire Safety
- BS 9991: (2015) - Fire safety in the design, management and use of residential buildings – Code of practice

FIRE SAFETY ENGINEERING

Alternative approaches based on Fire Safety Engineering may be employed to satisfy the requirements of the Building Regulations. These may be based on fundamental analysis of the fire safety problem or involve a comparative analysis between a provision of an appropriate guidance document and an alternative solution. Where a Fire Safety Engineering solution is employed, it will be demonstrated that the standard of fire safety achieved is adequate to satisfy the requirements of the Building Regulations and will be specifically agreed with the Fire Brigade as part of the Fire Safety Certificate application process.

FIRE SAFETY CERTIFICATE APPLICATION

The proposed new development will require a Fire Safety Certificate application to be lodged with Dublin City Council for their review and approval.



MEANS OF ESCAPE

Residential areas

Block D of the development is designed as a standard residential apartment model. Blocks A, B and C are residential apartments are designed as co-living type private apartments in a cluster arrangement. All apartments and their ancillary accommodation will be provided with residential sprinkler protection in accordance with BS 9251:2014, and as such the relevant increases in travel distances etc. permitted in BS 9991 (2015) have been taken into account as noted below.

Common Residential Areas

The common areas will be in accordance with Section 7 of BS 9991 (2015), in particular:

- Each cluster will be served by a single stair.
- Travel distances in common corridors/lobbies measured between doors to escape stairs and doors to individual cluster corridors/halls will be limited to 15m maximum.
- The common corridors/lobbies will be provided with 1.5m² natural smoke ventilation shafts.
- The escape stairs will be provided with a 1m² AOV at the head of the stair

Cluster Apartments

The individual clusters will be designed in accordance with section 9.8 of BS 9991 (2015), in particular:

- Each cluster will be separated from the remainder of the building in construction achieving a minimum of 60 minutes fire resistance with an FD30s fire door.
- The internal corridor/hall within the clusters will be constructed as a 30 minute fire resisting protected corridor.
- Travel distances within the internal cluster corridor/halls will be limited to 15m maximum measured from the furthest room door to the cluster front door.

Block D Amenity Spaces

In Block D the main communal amenity spaces at ground and first floors will be designed in accordance with TGD B, in particular multiple escape routes are provided to ensure that travel distances will be limited to 18m in a single direction and 45m where two directions of escape are available.



STRUCTURE AND COMPARTMENTATION

The top floor of Block A is greater than 30m in height above ground level and therefore the elements of structure and compartmentation will achieve a minimum of 120 minutes fire resistance.

The top floor of Blocks B, C & D are between 20m and 30m in height above ground floor level and therefore the elements of structure and compartmentation will achieve a minimum of 90 minutes fire resistance.

Each floor will be constructed as a compartment floor.

Any penetrations made for services through fire resisting barriers will be fire stopped appropriately.

EXTERNAL FIRE SPREAD

At upper levels elevations are sufficiently spaced from the relevant boundaries so that all the elevations can be 100% unprotected. At lower retail levels, a degree of fire resistance will be needed to a number of elevations where there is up to 50% unprotected areas permitted in a number of instances. This will be reviewed in further detail as the design develops.

FIRE FIGHTING ACCESS AND FACILITIES

As each of the buildings has a top storey height greater than 11m, dry risers will be provided to each stair. Fire fighting vehicle access for a pump appliance will be provided to within 18m and within sight of dry riser inlets located at the entrance to each core. This can be achieved using the existing roads around the blocks in such a way that routes are at least 3.7m wide and there is no dead end greater than 20m.

Hydrants will be provided to each block on the basis of at least one hydrant for every 1000m² of ground floor area. It will be ensured that hydrants are located between 6m and 46m of the building and that they are within 30m of a vehicle parking position for each block. Existing street hydrants can be used where they meet the above criteria.

ACTIVE FIRE SAFETY SYSTEMS

Each building will be provided with a Category 2 Sprinkler system conforming with BS 9251:2014 (using the density in Table 2, Footnote B).

The individual cluster units will be provided to an equivalent to a LD1 Fire Detection and Alarm System and the common areas of the building will be provided with a L2/L3MX Fire Detection and Alarm System in accordance with IS 3218:2013+A1:2019 to facilitate simultaneous evacuation of each block.

Each building will be provided with an Emergency Lighting system in accordance with IS 3217:2013+A1:2017.



ACCESS STRATEGY

BASIS OF DESIGN

The principle guidance document for designing for Access and Use under Building Regulations is Technical Guidance Document M (TGD M). This document provides design guidance for some of the more common building situations.

TGD M also makes reference to other guidance documents, standards and codes of practice for different building uses. Accordingly, the following documents form the basis of the design of the Works and have been referenced in this report: -

- Technical Guidance Document M (TGD M) - Access and Use);
- BS 8300: (2018) - Design of buildings and their approaches to meet the needs of disabled people – Code of practice.



APPROACH TO BUILDINGS OTHER THAN DWELLINGS

The approach to each block will be from the surrounding existing public streets. To reduce the risks to people with disabilities, particularly those with impaired sight, building features which may present hazards on circulation routes immediately adjacent to them will be avoided.

From the existing public road/sidewalk, the surface is level up to the front of the buildings. Therefore, there are no external ramps.

The new stairs and lifts can be accessed from the adjacent public streets. Each block has an ambulant disabled stair and a passenger lift. The stairs and lifts will be used for vertical circulation the buildings.

Due to the nature and location of the site, no pedestrian crossings, car parking or set down areas will be provided. However, these facilities are available publicly in close proximity to the development.

ACCESS TO BUILDINGS OTHER THAN DWELLINGS

The entrance to the buildings at ground floor will be via new accessible doors.

The accessible entrances will facilitate the widest possible range of abilities. Approaches to accessible entrances will comply with Section 1.2.3 of TGD M.

The new accessible entrances provided will:-

- They will be easily identified among the other elements of the building under all lighting conditions, showdown or strong sunlight e.g. by lighting and/or visual contrast. Glare and reflection from lighting or materials will be avoided as it is confusing for those with vision impairment;
- A level landing at least 1800mm x 1800mm clear of any door swing will be provided immediately in front of the entrances;
- The surface of the landing will not impede the movement of wheelchairs or other mobility aids;
- The threshold will be level, i.e. with a maximum threshold height of 15mm with exposed edges chamfered or pencil rounded.

CIRCULATION WITHIN BUILDINGS OTHER THAN DWELLINGS

Internal Lobbies

Internal lobbies to wheelchair accessible areas will be in accordance with entrance lobbies in Clause 1.2.5 of TGD M and;

- The length will be in accordance with Diagram 11 of TGD M;
- The width will be no less than 1100mm (800mm + 300mm wheelchair space);
- Floor surface materials within the lobby will not impede the movement of wheelchairs or other mobility aids;
- Changes in floor materials will not create potential trip hazard;
- The floor surface will help remove rainwater from shoes and wheelchairs.



Reception Area - Block D

There is a reception area in Block D. This reception area will be in compliance with Section 1.3.3 of TGD M 1.3.3.1 Reception area in entrance halls.

Internal Doors to Wheelchair Accessible Areas

Doors can create barriers for people, particularly for those with limited upper body strength, and therefore should only be provided where necessary. Where internal doors are provided to wheelchair accessible areas they will be in accordance with Section 1.3.3.2. and Table 2 of TGD M in that no internal door will have a clear width less than 800mm.

Lifts

Each Block will have at least one lift. The passenger lifts will be provided to serve all storeys above and below entry level. The passenger lifts to the residential accommodation will have minimum internal dimensions of 1100mm x 1400mm.

There should be a clear unobstructed space for manoeuvring at least 1800mm wide and at least 1800mm deep in front of every entrance door to the lifts.

Stairs

The stairs in each Block will be ambulant disabled stairs. The ambulant stair located in each block will provide access to all floors. The ambulant stairs will be in accordance with Section 1.3.4.3. of TGD M and provide:-

- The minimum clear width will be 1200mm;
- A landing will be provided at the top and bottom of each flight;
- The landings will be level and have an unobstructed length of at least 1200mm;
- There will be no single steps;
- The rise of a flight between landings will not exceed 1800mm.

SANITARY FACILITIES FOR BUILDINGS OTHER THAN DWELLINGS

As part of the proposed design it is intended to provide 1 unisex fully wheelchair accessible WC within each Block. These are located at ground floor area in Blocks B, C and D and on the first floor of Block A. The wheelchair accessible unisex WC's will be designed and constructed to conform to the guidance in Diagram 15a and Section 1.4.5 of TGD M 2010. For example:

All accessible WC's will provide a 1800mm x 1800mm turning space and will be fitted with an emergency assistance alarm that will be linked to the Fire Detection and Alarm System.

SANITARY FACILITIES IN DWELLINGS

Visitable WC

As noted above, part of the proposed design is to provide 1 unisex fully wheelchair accessible WC within each Block. These are located at ground floor area in Blocks B, C and D and on the first floor of Block A. The wheelchair accessible unisex WC's will be designed and constructed to conform to the guidance in Diagram 15a and Section 1.4.5 of TGD M 2010. This negates the need for individual Visitor WC's in the bedrooms of the clusters. This will make it more comfortable for a visitor in a



wheelchair to use the fully accessible WC instead of having to negotiate the WC's in the individual bedrooms of the clusters.

OTHER FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Switches and sockets will be provided in accordance with Sections 1.5.6. and 3.5.2. of TGD M.

AIDS TO COMMUNICATION

Signage, visual contrast, lighting and audible aids assist people, especially those people with vision or hearing impairment or people with intellectual disabilities, in accessing a building and fully utilising the relevant facilities in and around a building.

Therefore, signage will be provided in accordance with Section 1.6.3. of TGD M, artificial lighting will be provided in accordance with Section 1.6.5 of TGD M and visual contrast will be provided in accordance with 1.6.4. of TGD M.