Project title and address

NO. 01 TO 12 BLOCK 01,
NO. 13 TO 24 BLOCK 02,
NO. 25 TO 36 BLOCK 03,
NO. 37 TO 48 BLOCK 04
DUPLEX APARMENTS
PROPOSED RESIDENTIAL DEVELOPMENT
BALLINCROKIG, DUBLIN PIKE,
CO. CORK

Report title

FIRE SAFETY CERTIFICATE APPLICATION: COMPLIANCE REPORT

Client
O LEARY & O SULLIVAN

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12-01-2022

Revision A

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Description of the Development:

This application is for the construction of a three-storey duplex apartment building comprising 2no. ground floor apartments and 2no. maisonettes overhead.

- The ground floor of the development will be constructed of blockwork inner and outer leaf to first floor level. The first floor will be constructed of concrete floor slabs and screed.

- The overhead maisonette will be constructed of blockwork inner and outer leaf. The second floor will be constructed of Timber joists with T&G Floorboards/OSB Sheeting.

This document and drawings indicate how the proposed works if constructed in accordance with same will comply with the requirements of TGD B 2006 & BS5588: Part 1: 1990.

The units have their own external entrance doors, with no common escape stairs, lobbies etc and are therefore more comparable to 3-storey terrace houses. The walls between the maisonettes will comprise of solid concrete blockwork construction from the first floor to the underside of the roof, the ground floor compartment wall elements will be blockwork to the underside of a concrete floor. This will make the compartment wall between the maisonettes comparable to a two-storey terrace situation. The building shall be purpose group 1c flats and maisonettes, therefore the walls between apartments/maisonettes are considered separating walls. TGD B 2006 Section 3.2.5.2 & 3.2.5.4 states that only buildings with a top storey more than 10m require to be made from materials of limited combustibility.

Fire Performance of Materials and Structures:
The fire performance of materials and structures will be in accordance with Appendix A of Technical Guidance Document Part B 2006. Where a fire resistance rating is indicated for an element of construction, it means that the element will satisfy the specific requirements set out in Table A1 of Appendix A in terms of the three performance criteria for the method of exposure specified in that table.

Surface linings and thermoplastic materials are designated by particular reference to paragraphs A8, and A16 of Appendix A. Class 0 materials will be in accordance with paragraph A12.

Reference will be made to Part 2 & Part 3 of this report for requirements of different elements.

Fire Doors, frames, and closers:
Fire doors will be in accordance with Appendix B of Technical Guidance Document Part B 2006. All fire doors will be fitted with automatic self-closing devices that will be capable of closing the door open to any angle against any latch fitted to the door. Self-closing devices will not be provided where doors to cupboards or service ducts are normally kept locked shut.

As set out in TGD B 2006 any reference to a fire door is intended to mean a complete door assembly that includes the door, the door frame, ironmongery, and any seals where required between the frame and door or between the leaves in a twin leaf door.
The main entrance doors to dwellings to be fitted with simple manual operation handles/locks as per clause 18.8.2 section 4 BS 5588 part 1 1990.

FD30S, refers to a door and frame set, certified to 30 minutes fire resistance, including equivalent intumescent strips rebated into the frame, fitted with a door closer.
FD60S, refers to a door and frame set, certified to 60 minutes fire resistance, including equivalent intumescent strips rebated into the frame, fitted with a door closer.
The clear opes indicated will be achieved in accordance with the attached dwgs.

30-minute fire resisting construction:
All areas of construction indicated on the plans requiring 30 minutes fire construction will be constructed as follows,

Note:
All stud partitions will have the relevant number and type of plasterboard fixed, taped, and jointed in accordance with plasterboard manufacturer's specifications/recommendations.

All plasterboard ceilings will have the relevant number and type of plasterboard fixed, taped, and jointed in accordance with plasterboard manufacturer's specifications/recommendations.

All fire-resistant walls will be carried to the underside of the floor / fire resisting ceiling above and fire stopped to provide 30mins fire resistance.

Wall construction,
215mm./100mm/blockwork or

Standard Stud partition with plasterboard to both sides in accordance with plasterboard manufacturer's specifications/recommendations to provide 30mins fire resistance.

Switches and sockets that are recessed into the fire resisting stud partitions will be fitted with intumescent gaskets to maintain the integrity and fire resistance of the walls.

Ceiling construction.
Ceilings over the ground will be constructed of plasterboard ceiling fixed to the underside of a concrete floor slab.

Ceilings of the first and second floors floor will be constructed of plaster board screw fixed to the underside of ceiling joists. Number of layers, fixings etc will be in accordance with plasterboard manufacturer's specifications/recommendations to provide 30mins fire resistance.

Any fittings that are recessed into the plasterboard ceilings will be fitted with intumescent hoods and fire stopped to maintain the integrity and fire resistance of the floor/ceiling.

60-minute fire resisting construction / compartment walls / floors:
All areas of construction indicated on the plans that require 60 minutes fire construction will be constructed as follows.

Note:
All stud partitions will have the relevant number and type plasterboard fixed, taped, and jointed in accordance with plasterboard manufacturer's specifications/recommendations.

All plasterboard ceilings will have the relevant number and type of plasterboard fixed, taped, and jointed in accordance with plasterboard manufacturer's specifications/recommendations.

All fire-resistant walls will be carried to the underside of the compartment floor / roof decking above and fire stopped to provide 60mins fire resistance.

Please note cavity barriers will not be used above compartment walls.

60mins Walls / Compartment Walls.

- Blockwork on the ground floor

- Blockwork separating wall construction on the first and second floors

All penetrations will be fire stopped using intumescent mastics and collars where applicable.

No recessed fitting permitted in compartment walls.

60mins Floors / Compartment Floors.
Compartment floors will be constructed using precast concrete slabs or cast-in-situ concrete.

No recessed fitting permitted in compartment floors.

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Preliminary & General

This report is to indicate to what extent BS 5588: Part 1: 1990 and Part B of the Building Regulations 2006 have been adopted in the development. Clauses and items in that document have been referred to in the order that they appear in the current Building Regulations Part B 2006 and BS 5588: Part 1: 1990. It is on this basis that certification is requested. All calculations are carried out on the relevant areas as indicated on the submitted plan.

Documents Include:

Application for Fire Safety Certificate-document		A4	Scale	2No.
Site Location	(dwg No. 21082-FSC-101-A)	A3	1:1000	2No.
Site Layout	(dwg No. 21082-FSC-102-A)	A3	1:500	2No.
Ground & First Floor Plan	(dwg No. 21082-FSC-F-103-A)	A1	1:50	2No.
Second Floor & Fees Calcs	(dwg No. 21082-FSC-F-104-A)	A1	1:50	2No
Front, Side & Rear Elevations	(dwg No. 21082-FSC-F-105-A)	A1	1:100	2No.
Section A-A	(dwg No. 21082-FSC-F-105-A)	A1	1:50	2No.

Classification of building by purpose group
Basis of compliance: Technical Guidance Document B, Table 0.1, and Appendix E.

Residential (dwellings) – Purpose Group 1(c) - Flat or maisonette.

Calculation of areas
Basis of compliance: FSC €2.90 per sq.m of applicable area.

Floor area of the building – 901.6.m²

Fee calculated as 901.6.m² x €2.90 = €2614.64

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1.2 Design Approach

The design of building has been carried out with reference to the provisions of Technical Guidance Document B 2006 of the Building Regulations.

Apartments- The means of escape provisions (Section 1.2 and 1.3) will be compiled with using BS 5588 Part 1: 1990 Section 2

The risk of external spread through unprotected areas in the sides of the building has been assessed by reference to TDG B 2006 and BRE Report (BR 187) "External Fire Spread: Building Separation and Boundary Distances.

Section 2: Means of Escape: BS5588:PART 1: 1990 -

4.2 Recommendation for houses not exceeding 4.5 m in height

A habitable room shall not be an inner room unless it is provided with a door or window complying with 4.7 for escape or rescue purposes.

4.3 Recommendations for houses exceeding 4.5 m in height by one floor level

The following recommendations are applicable.

a) A habitable room shall not be an inner room unless

1) it has a floor level not more than 4.5 m above ground or access level and

2) it is provided with a door or window complying with **4.7** for escape or rescue purposes.

b) Unless the top story or level is separated from the lower storeys by fire-resisting construction and is provided with an alternative escape route leading to its own final exit, the internal stairway will:

1) Be constructed as a protected stairway.
2) Connect the ground and all upper storeys and
3) either

i) deliver directly to a final exit [see Figure 1(a)]; or

ii) afford access to not less than two independent escape routes delivering to alternative final exits [see Figure 1(b)].

The maisonettes will contain their own independent stairs and entrance door at ground floor level. The arrangement is such that it is no worse than a 3-storey house. The stairs within the maisonette will be a protected stairway from second to first floor. The stairs will be enclosed in a protected shaft where it penetrates the compartment floor.

The external balconies will be treated as being inner rooms. The fire alarm system will be designed so that it is audible to occupants using the balcony. Guarding to the balconies will be either glazing or blockwork and will be in accordance with BS 6180.

4.7 Escape by way of doors and windows

Doors and windows that are to be used for means of escape or rescue will meet the following recommendations.

a) A window shall provide an unobstructed opening not less than 850 mm by 500mm.
b) The bottom of any openable area will be not more than 1100 mm above the floor of the room in which it is situated.
c) Doors and windows that are provided for escape or rescue purposes from a room above ground level will meet the following recommendations.

1) If a window is a dormer window or a roof light, the distance from the eaves of the roof to the sill or vertical plane of the window or sill of the roof light shall not exceed 1.5 m when measured along the roof.
2) Any doors (including a French window or a patio window) will be guarded with a protective barrier in accordance with BS 6180.
3) The ground beneath the window or balcony shall be clear of any obstructions (such as iron railings or horizontally hung windows) and will be of a size and material that is suitable and safe for supporting a ladder. The sloped roof under the windows for escape or rescue will be structurally suitable for use and will support persons escaping via this route.

d) The bottom of the window opening will not be less than 800 mm (600 mm in the case of a rooflight) above the floor, immediately inside or beneath the window or rooflight. As an exception to the general guidance in TGD K (Stairways, Ladders, Ramps and Guards) that guarding be provided for any window, the cill of which is less than 800 mm in height above floor level, guarding will not be provided to a rooflight opening provided in compliance with this paragraph.

   Where guarding contains glazing, it will be in accordance with the recommendations of BS 6262 - 4: 2005 Glazing for Buildings – Part 4: Code of practice for safety related to human impact.

e) Windows will be fitted with safety restrictors. Restrictors will be either an integral part of the window operating gear or separate items of hardware which can be fitted to a window at the time of manufacture or at installation. Restrictors will operate so that they limit the initial movement of an opening section to not more than 100 mm.
   Note: Lockable handles or restrictors, which can only be released by removable keys or other tools, will not be fitted to window opening sections required for escape purposes.

9.2 Recommendation for flats provided with an independent external entrance at ground or access level

The dwelling will comply with the appropriate recommendations in section 2.

The flats are so planned that no habitable room is an inner room. Also, a fire-resisting partition will separate the living and sleeping accommodation [see Figure 3(b)].

An alternative exit is provided from one of the bedrooms via a sliding door.

10.4 Recommendation for maisonettes with one or more storeys situated more than 4.5 m above ground or access level and entered from above or below

The following recommendations are applicable.

a) No maisonette shall be so planned that any habitable room is an inner room.

b) The maisonettes contain their own independent stairs and access at ground floor level. They are therefore similar to a 3-storey dwelling. The stair will be a protected stair and habitable room will contain doors/windows for escape or rescue purposes.

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1.4 GENERAL PROVISION FOR MEANS OF ESCAPE

1.4.2 Protection of Escape Routes

1.4.2.1 Fire resistance of enclosure

All walls, partitions and enclosures that need to be fire resisting shall have the appropriate performance given in Tables A1 and A2 of Appendix A.

Flat & maisonettes - not sprinklered - top storey not more than 20m - minimum period of fire resistance = 60mins

1.4.2.2 Fire resistance of doors

All doors that are required to be fire resisting will have the appropriate performance given in Appendix B and Table B1 of Appendix B.

Doors in a protected corridor:	FD30S
Doors within fire resistant construction:	FD30S

1.4.2.3 Fire Resistance of Glazed Elements

Where uninsulated glazed elements in fire resisting enclosures and doors are used, they will conform to the limitations set out in Appendix A Table A4.

1.4.3 Doors on escape routes

1.4.3.2 Door fastenings

Doors within the apartments/maisonettes, including entrance doors & sliding doors, will be fitted with simple fastening that can be operated from the escape side without the use of a key e.g., with thumb turn devices.

1.4.3.3 Direction of opening

Doors with less than 50 occupants may open inwards.

1.4.3.4 Amount of opening and effect on associated escape routes

All doors on escape routes will be hung to open a minimum of 90^0, and with a swing that will be clear of any change of floor level, other than a threshold on the line of the doorway and will not reduce the required width of any escape route across a landing.

1.4.3.5 Vision panels

N/A as part of this application. (Further assessment may be required to ensure compliance with Part M of the Building Regulations)

1.4.4 Construction of escape stairways

The stair within the maisonette going from ground to first floor will be constructed of concrete and designed in accordance with TGD Part M & K.

The stair within the maisonette going from first to second floor will be constructed of timber and designed in accordance with Part K 2014 – Private Stairs.

1.4.5 Height of escape routes

The escape routes will have a minimum of 2.0m headroom.

1.4.6 Floors of escape routes

The floors of all escape routes (including steps, ramps, and landings) will have non-slippery even surfaces.

Where a ramp forms part of an escape route, it will not be steeper than 1 in 12 if it is shorter than 9 m as per TDG Part M section 3.1.2.4 (d), otherwise it shall not be steeper than 1 in 20.

Any sloping floor or tier will be constructed with a pitch of not more than 35° to the horizontal.

Design of ramps and associated landings, from the aspect of safety in use, will be in accordance with Technical Guidance Documents K and M.

1.4.7 Final exits

Final exits are sited to ensure the rapid dispersal of persons from the vicinity of the building so that they are no longer in danger of fire and smoke.
Direct access to a street, passageway, walkway, or open space will be available.
These routes clear of the building will be well defined and guarded where required.
Final exits will be apparent to persons who will need to use them.

1.4.8 Lighting of escape routes

If emergency lighting is required, it will be provided in accordance with the provisions indicated in Table 1.8.

Flats 1(c): defined escape routes other than within dwellings

The front of the building will be provided with illumination from public street lighting.

Where necessary, following an assessment, emergency escape lighting will be designed and installed and commissioned in accordance with the relevant Recommendations in IS3217: 2013 + A1 2017 Code of Practice for Emergency Lighting.

1.4.9 Lifts

N/A to this application.

1.4.10 Electrical Installations and Protected Circuits

Electrical installations will be installed in accordance with the National Rules for Electrical Installations (IS-10101:2020) published by the Electro-Technical Council of Ireland.

1.4.11 Ventilation systems

Natural Ventilation will be designed in accordance with BS 5925: 1991, Code of Practice for Ventilation principles and designed for natural ventilation.

The design of the mechanical and air conditioning ductwork will be in accordance with BS 9999:2017 Code of Practice for Ventilation and Air Conditioning Ductwork.

Ventilation duct runs.
Extracts from the kitchen and WC 's on the ground, first and second floor will be directly out through the external walls. (Fire dampers will be provided where/if ducts penetrate fire resisting construction)

No boilers within these apartments as the rads will be heated by Heat pump.

1.4.12 Refuse chutes and storage

Refuse will be separated into recyclable and non-recyclable goods and presented for municipal collection. Wheely bins will be stored externally.

1.4.13 Fire safety signs..

Signs will be provided on fire doors to indicate that they should be kept shut.
Signs will be in accordance with BS 5499: Part 5: 2002 "Specification for Fire Safety Signs" and S.I 299 of 2007.

1.4.14 Fire detection and alarm systems

Ground floor Apartments-
Grade D LD1 fire detection and fire alarm system in accordance with IS 3218:2013 +A1:2019.

Maisonettes-
Grade D LD1 fire detection and fire alarm system in accordance with IS 3218:2013 +A1:2019.

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All alarms will be permanently wired to a separately fused circuit at the distribution board.

Note: the alarm system is indicative only and will be designed, installed, and commissioned by the installing contractor upon completion of the works in accordance with IS 3218:2013+A1:2019

1.4.15 Provisions for disabled persons

The means of escape will be in accordance with BS 9999:2017 & BS 5588: Part 8 Compliance with Part M of the Building regulations will be assessed separately via a DAC application.

1.4.16 First-aid fire-fighting equipment

Where portable fire extinguishers are required, they will be installed in accordance with I.S. 291: *2015* "The Use, Siting, Inspection and Maintenance of Portable Fire Extinguishers". Fire-Blankets will be provided in the Kitchens.

1.4.17 Heat producing appliances

The electrical appliances will be installed in accordance with the national rules for electrical installations (IS-10101:2020) published by The Electro-Technical Council of Ireland.

Heat producing appliances will be in accordance with T.G.D Part J 2014.

Heating will be provided by Heat Pump. No solar panels or PV panels will be used.

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REGULATION PART B2 (INTERNAL FIRE SPREAD- LININGS)

Basis of compliance: Technical Guidance Document B, Part B2.

2.2.1 Walls

Internal wall linings shall meet the following classifications for surface spread of flame.

Area;	Classification;	Surface Linings to be used.
Bathroom & toilets ceramic tile	Class 3	None, paint finish to plaster walls with to areas.
Protected corridors	Class 0	None, paint finish to block/plaster walls,
Kitchen with ceramic	Class 0	None, paint finish to plaster/block walls, tile to areas.
Room exceeding 30m^2	Class 0	Paint finish to block/plastered walls.
Circulation routes	Class 0	Paint finish to block/ plastered walls.
Everywhere else	Class 1	Paint finish to block/ plastered walls

2.2.3 Ceilings

Internal ceilings will meet the following classifications for surface spread of flame.

Apartment

The ground ceilings within the apartments will be constructed using plasterboard on battens fixed to the underside concrete floor. This will have a Class 0 rating.

The floor & second floor ceilings within the maisonette will be constructed using plasterboard fixed to the underside of the timber floor/roof joists. This will have a Class 0 rating.

2.3 Thermoplastic material

There will be no thermoplastic materials used.

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REGULATION PART B3 (INTERNAL FIRE SPREAD-STRUCTURE)

Basis of compliance: Technical Guidance Document Part B3.

3.1 Load-bearing elements of structure

3.1.2 Fire resistance standard

All walls, partitions and enclosures that need to be fire resisting shall have the appropriate performance given in Tables A1 and A2 of Appendix A.

Flat & maisonettes - not sprinklered - top storey not more than 20m - minimum period of fire resistance = 60mins

Protected Corridors	:	30mins
Structural walls	:	60mins
Structural Floors	:	60mins
Structural steel	:	60mins
Compartment walls	:	60mins
Compartment floors	:	60mins

Protected Corridors/30mins fire resistant construction:
will be constructed of blockwork or stud with Plasterboard Board to both sides carried to the underside of the concrete floor/fire resistant ceiling. All junctions will be fire stopped. The stud and no. of plasterboards will be provided, fixed, taped, and jointed in accordance with the plasterboard manufacturer's specifications/recommendations to provide 30mins fire resistance.

Structural Walls:
Structural walls will consist of 100/215mm blockwork.

Structural Floors:
Concrete floor at first floor level.
Certified timber joists at second floor level.

Compartment Floor:
Concrete floor at first floor level. The first floor (i.e., floor between flat and overhead maisonette) will be constructed of concrete. The first-floor slab will be imperforate and there will be no penetrations in the compartment floor between the ground floor unit and the first-floor unit.

Compartment Wall
Ground Floor - Constructed of blockwork to the underside of the concrete floor slab.

First & second floors - Constructed of blockwork to the underside of the roof covering and fire stopped.

Wall of the stairs enclosure at ground floor level will be constructed as blockwork compartment walls to the underside of the floor above and soffit of the stairs. The stairs will be constructed of concrete provide 60mins fire resistance.

Structural Steel:
Structural steel will be encased in blockwork or in Plaster Board in accordance with the plasterboard manufacturer's specifications/recommendations to provide 60mins fire resistance.

Forms of Compartmentation
The building will consist of a number of compartments separated from each other by 60mins fire resistant walls and floors.

Each apartment and maisonette will all form their own compartment.

3.2.4 Provision of compartment walls and compartment floors

The following walls will be constructed as compartment walls:

- The walls indicated on the drawings (red broken line) will be constructed as compartment walls.
  - Ground floor - constructed of blockwork to the underside of the concrete floor above and fire stopped to provide 60mins fire resistance.
  - First & second floor - constructed of blockwork to the underside of the roof coverings and fire stopped to provide 60mins fire resistance.

The following floors will be constructed as compartment floors:

- The floors indicated on the drawings (red broken line) will be compartment floors constructed of precast concrete slabs or cast-in-situ concrete.

3.2.4.3 Flats and maisonettes

In buildings containing flats (purpose group 1(c)) the following will be constructed as compartment walls or compartment floors:

(a) any floor (unless it is within a maisonette, i.e., between one storey and another within one dwelling), and

(b) any wall separating a flat from any other part of the building, and

(c) any wall enclosing a refuse storage chamber.

3.2.5 Construction of compartment floors and compartment walls

Every compartment wall and floor will:

a) form a complete barrier to fire between the compartments they separate

b) have the appropriate fire resistance as indicated in Appendix A, Tables A1 and A2; and

c) be constructed in accordance with the relevant guidance in paragraphs 3.2.5.1 to 3.2.5.11 of TDB B 2006.

3.2.5.5 Separating Walls

The separating walls to be constructed using 215mm solid blockwork with sand and cement plaster to both sides to provide a min 60minutes Fire Resistance.

3.2.5.7 Accommodation of services in compartment walls/Floors and separating walls

If compartment walls / floors are constructed with fire resistant linings to provide the required fire resistance, the integrity of the linings will not be breached to allow for the installation of services, except where necessary to allow services to pass through these compartment walls or floors.

In these situations, the services will be either surface mounted or accommodated in surface cavities created external to the un-breached lining of the fire-resistant compartment wall or floor.

If services pass through these walls or floors, they will be contained in fire resistant ducts and the opening of such ducts will be protected and fire-stopped in accordance with Section 3.4 of TGD B 2006.

The compartment wall will be constructed of blockwork on the ground floor to the underside of the concrete floor slab. The wall between the maisonettes on the first and second floor will be constructed of 215mm blockwork party wall.

It is not proposed to provide a service void at the party walls. There will not be any services, sockets, switches etc recessed or penetrating the fire resisting linings of the party walls. No cables/pipes etc will be located within the party walls.

3.2.5.9 Junction of compartment wall or floor with other walls

Where a compartment wall or compartment floor meets another compartment wall or an external wall the junction will maintain the fire resistance of the compartment by fire stopping the junction with sand/cement mortar.

3.2.5.11 Junction of compartment wall and roof

All compartment walls will be taken to the underside of the floor / roof covering above and fire-stopped where necessary at the floor/roof junction in accordance with diagram 13 T.G.D.B 2006.

3.2.6 Openings between compartments

3.2.6.2 Openings in other compartment walls or in compartment floors

Any door openings in compartment walls are protected with fire doors in accordance with the provisions outlined in Appendix B and Table B1.

Openings for the passage of pipes and other services are protected in accordance with the provisions set out in section 3.4.

3.2.7 Protected shafts

The internal stair enclosures around the stairwell ST-01 to ST-06 on the ground floor will be constructed as protected shafts to the underside of the concrete first floor.

3.2.7.1 Construction of protected shafts

The construction enclosing a protected shaft (see Diagram 14) will:

(a) form a complete barrier to fire between the different compartments which the shaft connects.

(b) have the appropriate fire resistance given in Appendix A, Table A1, except for glazed screens which meet the provisions of section 3.2.7.3.

(c) meet the requirements of section 3.2.5 for the construction of compartment walls; and

(d) satisfy the provisions about their use, ventilation, and the treatment of openings in the paragraphs below.

3.2.7.2 Use for protected shafts

The uses of protected shafts will be restricted to stairways, lifts, escalators, chutes, ducts, pipes, and/or as sanitary accommodation and washrooms.

3.2.7.3 Glazed screens to protected shafts.

N/A to this application

3.2.7.4 Pipes for oil or gas in protected shafts

N/A to this application

3.2.7.5 Ventilation of protected shafts conveying gas.

N/A to this application

3.3 Concealed spaces

3.3.2 Provisions of cavity barriers

The external walls constructed as part of this application will be constructed of,

- ground floor - blockwork cavity wall with insulation constructed in accordance with Diagram 17.

- first and second floor – blockwork cavity wall with insulation constructed in accordance with Diagram 17.

Cavity barriers will be provided in accordance with Table 3.2 of TGD Part B 2006 and the recommendations of Section 3.6.2 of TGD B 2006 - Volume 2

All fire resisting construction will be carried uninterrupted to the underside of the floor/fire resistant ceiling/roof covering above and fire stopped.

3.3.3 Maximum dimensions of concealed spaces

The dimensions of cavities will not exceed those specified in Table 3.3.

3.3.4 Construction of Cavity Barriers

Every cavity barrier will be constructed to provide at least 30 minutes fire resistance (see Appendix A, Table A1, item 16).

Any cavity barrier required in a stud wall or partition may, however, be formed of –

(i) steel at least 0.5 mm thick, or
(ii) timber at least 38 mm thick, or
(iii) polythene sleeved mineral wool, or mineral wool slab, in either case under compression when installed in the cavity.

A cavity barrier may be formed by any construction provided for another purpose if it meets the provisions for cavity barriers.

Cavity barriers will be tightly fitted to rigid construction and mechanically fixed in position wherever possible. Where this is not possible (for example, in the case of a junction with slates, tiles, corrugated sheeting or similar materials) the junction shall be fire-stopped.

Cavity barriers will also be fixed so that their performance is unlikely to be made ineffective by:

(a) movement of the building due to subsidence, shrinkage, or thermal change.
(b) collapse in a fire of any services penetrating them.
(c) failure in a fire of their fixings; or
(d) failure in a fire of any material or construction which they abut.

3.3.5 Openings in cavity barriers

Any openings in the cavity barriers will be limited to –
a) fire doors
b) the passage of pipes which meets the provisions in sub-section 3.4
c) the passage of cables or conduits containing one or more cables.
d) openings fitted with a suitable mounted automatic fire shutter.
e) ducts which (unless they are fire-resisting) are fitted with a suitably mounted automatic fire shutter where they pass through the cavity barrier.

3.4 Protection of openings and fire-stopping

All services that pass-through fire-resistant construction will meet the provisions in Alternative A. Proprietary sealing systems shall be used to maintain the fire resistance of the wall/floor.

Soil, drainage pipes penetrating fire resistant construction will be fitted with certified intumescent collars. All other pipes of diameter 40mm or less penetrating fire-resistant construction will be sealed with certified intumescent mastic.

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Regulation Part B4 (EXTERNAL FIRE SPREAD)

Basis of compliance: Technical Guidance Document Part B4.

4.1 Construction of external walls

The external walls will be constructed of a combination of

- proposed blockwork constructed in accordance with Diagram 17 – ground floor

- proposed blockwork constructed in accordance with Diagram 17 – first and second floors

4.1.4 External surfaces

The external surface of walls will comply with the following classifications.

Area;	Classification required;	Surface finish / construction to be used.
1m from boundary	Class 0	Sand and cement render with paint finish.
Over 1m from boundary	No provision	Sand and cement render with paint finish.

The external walls will provide fire resistance except the areas that are permitted to be unprotected. The windows, doors, and ventilation openings provide the unprotected areas.

4.2 Space separation

Space separation – in accordance with Method 1 TGD B 2006, the building will not exceed 3 Storeys in height and will not be more than 24 m in length. Also, in accordance with Diagram 27, the unprotected area of the enclosure to a protected stairway may be disregarded for the purposes of space separation.

Therefore, the following is applicable to the elevations and is based on the unprotected area of the ground floor apartment.

<u>Front Elevation</u>
Unprotected Area 3.64m^2
Boundary Provided 3.4m to edge of path.
This complies with the limits set out in Table 4.2.

<u>Rear Elevation</u>
Unprotected Area 5.34m^2
Boundary Provided 5.4m to edge of grass verge/footpath
This complies with the limits set out in Table 4.2.

<u>Side Elevation – (facing adjoining green area)</u>
Unprotected Area 7.875m^2
Boundary Provided 5.9m to outer edge of green area
This complies with the limits set out in Table 4.2.

4.3 Roof Coverings

The roof will consist of natural/fibre cement slate or tile finish.

Zinc roof finish to selected areas.

Flat roof single ply membrane to roof to first floor balcony/amenity.

These have a Designation AA.

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Regulation Part B5 (facilities for fire service)

Basis of compliance: Technical Guidance Document Part B5.

5.1 Fire Mains

Internal fire mains are not required as the building is less than 20m in height and has no basement more than 10m below ground level (TGD Part B, Paragraph 5.1.2).

5.1.6 Sources of Water for Fire Fighting

New hydrants/watermain will be installed as part of the development in accordance with Diagram 30 of TGD Part B 2006.

The water for firefighting will be provided throughout the site at a rate of 20l/s min for 2hrs at the hydrants. Location of hydrants will be in accordance with Section 5.1.7 and Diagram 30 of TGD B 2006.

5.2 Vehicular Access

5.2.2 Provision of Vehicle Access

Vehicle Access shall be provided in accordance with Table 5.1.
The height of the building will be under 10m.
The volume of the building will be up to 7,000$m^{3.}$

From Table 5.1 access is required at a rate of 2.4m in length for every 90sq.m of ground floor area

Type of Appliance - Pump

(361.1 / 90) x 2.4 = 9.63m

This is available along the rear of the building.

5.2.4 Design of Access Routes and Hardstanding

Vehicle access routes will be in accordance with the specifications set out in Table 5.2.

Minimum roadway width between kerbs	:	3.7m
Minimum gateway width between kerbs	:	3.1m
Minimum turning circle between kerbs	:	16.8m
Minimum turning circle between walls	:	19.2m
Minimum clearance height	:	3.7m
Minimum carrying capacity	:	12.5 tonnes.

5.3 Personnel access

This is met by a combination of normal means of escape and the measures for vehicular access (Technical Guidance Document Part B, Paragraph 5.3.1).

5.4.2 High voltage discharge lighting

None will be provided.

5.4.3.2 Escape stairways

The protected stairway enclosure in the maisonette will be provided be provided with openable windows at each upper storey or landing.

Where the stairs are internal (with no external wall) will be fitted with an Automatic Openable Vent with an opening not less than 1.0sq.m. Vent will open automatically when smoke is detected by the smoke detector within the stair enclosure.