



MCLOUGHLIN ARCHITECTURE

FIRE SAFETY CERTIFICATE APPLICATION

Compliance Report

Client: The Board of Management – Kildangan National School

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Our Ref: 21 30

Date: December 2024

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GENERAL INFORMATION

The following Drawings and Documents Form Part of the Application for the Fire Safety Certificate for the extension of a building.

Fire Safety Certificate Compliance Report

Completed Fire Safety Certificate Application Form and the following drawings;

<u>Drawing Number</u>	<u>Title</u>
FSC001	Proposed Site Plan & Site Location Map
FSC002	Proposed Ground Floor Plan
FSC003	Proposed Fee Calculation Plan
FSC004	Proposed Elevations & Section

NOTE:

PLANNING PERMISSION FOR THE PROPOSED DEVELOPMENT HAS BEEN APPROVED BY KILDARE COUNTY COUNCIL ON 05.04.2024 UNDER PLANNING REGISTER REFERENCE 24/60104

A DISABILITY ACCESS CERTIFICATE APPLICATION FOR THE PROPOSED DEVELOPMENT IS BEING SUBMITTED TO KILDARE COUNTY COUNCIL IN TANDEM WITH THIS FIRE SAFETY CERTIFICATE APPLICATION

Applicant Details

Site Name: Kildangan National School
Site Location: Kildangan National School, Kildangan, Co. Kildare
Classification: Primary School
Date: December 2024

The Board of Management – Kildangan National School

Architect	McLoughlin Architecture Unit 4B Elm House Millennium Park Naas Co. Kildare
Proposed Use	Special Education Unit as Part of Existing Primary School

Description of Proposed Development

This Fire Safety Certificate Application forms part of the following Proposed Development for which Planning Permission has been granted by Kildare County Council under Planning Register Reference Number 24/60104, and for which a Disability Access Certificate is being submitted to Kildare County Council concurrently with this Fire Safety Certificate Application.

Description

Permission for the provision of a single storey extension to the front and a separate single storey extension to the side of existing School Building (existing floor area = 1,048sqm) consisting of an extension to the existing Entrance Lobby, a 1no. Classroom Special Education Unit including ancillary spaces, 1no. Mainstream Classroom and an extension to existing Mainstream Classroom (floor area of proposed extension = 264sqm), wall construction alteration/upgrades at first floor level, together with a secure external soft play area, minor internal alterations and elevational amendments, realignment / setting back of part of the existing roadside boundary wall to provide a bus set down area, and all ancillary site development works at Kildangan National School, Derry, Co. Kildare, W34 DR40

The entire scheme can be seen from the plans, elevations, site location and site layout plans which accompany this application.

Scope of Report

This report is submitted with drawings and other documentation in support of an application for a Fire Safety Certificate under Part III B of the Building Control Regulations 1997 to 2021 at Kildangan National School, Kildangan, Co. Kildare

In this report it is demonstrated that the proposed works, if constructed in accordance with the drawings and design details submitted with the application together with performance requirements described in this report, will comply with the requirements of Part B of the Building Regulations 2006 (reprinted in 2020).

The application will be based on Technical Guidance Document B of the Building Regulations 2006 (reprinted in 2020) and will demonstrate compliance with the following Sections as appropriate;

- | | | |
|-----------|---|--|
| Section 1 | - | Means of Escape in Case of Fire |
| Section 2 | - | Internal Fire Spread (Linings) |
| Section 3 | - | Internal Fire Spread (Structure) |
| Section 4 | - | External Fire Spread |
| Section 5 | - | Access and Facilities for the Fire Service |

Project Introduction

Project Description

This Document is intended to demonstrate that, if constructed in accordance with the drawings and design details as submitted, together with the performance requirements prescribed in this report, the building will comply with the functional requirements of Part B (Fire Safety) of the Second Schedule of Building Regulations. This compliance only deals with the extension.

Means of Escape

Building Bulletin 100 has been used for the basis of providing provisions for horizontal escape with section 1.4 of TGD B 2006 (reprinted in 2020).being used for general provisions for means of escape as recommended within (iii) of 1.1.6 of TGD B.

The building with the proposed extension will adopt a simultaneous evacuation strategy, on activation of the buildings fire detection and alarm system the building occupants will begin to make their escape.

The travel distances within the proposed extension do not exceed the maximum permitted as per the recommendations of Table 1 of the Building Bulletin 100.

The proposed building is provided with 3 final exits which is permissible owing to the two direction travel distance limits not being exceeded nor does the proposed extension contain more than 60 occupants.

Structure & Compartmentation

The period of fire resistance for the new elements of structure of the extension will be 60 minutes for load bearing capacity.

The extension shall form a single compartment as the floor area and cubic capacity are within the permitted limits as detailed in table 3.1 of TGD B 2006 (reprinted in 2020).. The extensions shall be compartmented from the existing building by 60 minute fire resisting walls.

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

External Fire Spread

All elevations of the extension are sufficiently spaced from the relevant boundaries.

As the building is classified as an Assembly and Recreation Purpose Group, any wall 10m or less above the ground or above a roof or any other part of the building to which people have access, will be class C-s3-d2 (European) or have an index of performance (I) not more than 20 (National). Timber cladding at least 9mm thick is also acceptable.

Fire Fighting Access & Facilities

The existing school building has a floor area of 1048m² and the extension is adding an additional 264m². There is 0 existing hydrants located on site due to the floor area being over 1,000 m² an additional fire hydrant is required.

The volume of the building is between 7,000m³ and 28,000m³. Vehicle access for a pump appliance will there be provided to 547m of the perimeter based on a rate of 15% of perimeter for a pump appliance for a building with a volume between 7,000m³ -28,000m³.

Active Fire Safety Systems

The existing part of the building is provided with an automatic fire detection and alarm system which achieves an L3 classification in accordance with **I.S. 3218:2024**. As part of the works, the existing fire alarm system in the school will be extended to cover the proposed extension.

The extension will be provided with an emergency lighting system in accordance with IS 3217:2023.

Section B1- Means of Escape in case of Fire

The Requirement - Means of escape in case of fire B1

A building shall be so designed and constructed that there are adequate means of escape in case of fire from the building to a place of safety outside the building, capable of being safely and effectively used.

1.1 Means of Escape Provisions for Different Purpose Groups and Building Types

1.1.6 - Purpose Group 5 Assembly and Recreation

[TGDB 2006 States]

Assembly and Recreation use includes a wide range of building types. Accordingly, the relevant guidance will vary according to the sub-division, by building type, outlined below:

(i) Assembly and recreation buildings other than those used as a public house, restaurant, or similar premises, sports pavilion, stadium, grandstand or other spectator accommodation or school:

Appropriate guidance is contained in the following:

- BS 9999:2017 Fire safety in the design, management and use of buildings - code of practice (Incorporating corrigendum No. 1)
- Sub-section 1.4 (general provisions for means of escape) of this Technical Guidance Document.

(ii) Sports pavilion, stadium, grandstand or other spectator accommodation:

Appropriate guidance is contained in the following:

- Code of Practice for Safety at Sports Grounds, published by the Department of Education.

In this type of building, where assembly and recreation areas, other than spectator accommodation, are also provided (such as a bar or restaurant), the relevant guidance outlined at (iv) below should be used.

(iii) Guidance on the provision of means of escape in schools is provided in the following:

- Department of Education and Science (UK) Building Bulletin 7, Fire and the design of educational buildings; and
- Sub-section 1.4 (general provisions for means of escape) of this Technical Guidance Document.

Recommendations in relation to means of escape are contained in paragraphs 34 to 91 inclusive of Building Bulletin 7.

Buildings or parts of buildings which form part of a school or other educational facility may be used for purposes which are outside the scope of Building Bulletin 7. Where these occur, they should comply with the relevant code of practice or other document outlined in this sub-section (1.1).

(iv) Buildings used as a public house, restaurant or similar premises and buildings other than indicated in (i), (ii) and (iii) above. Appropriate guidance is contained in subsections 1.2 to 1.4 of this Technical Guidance Document.

Where another use forms part (other than where ancillary) of an assembly and recreation building, the appropriate guidance in this section should be used. Where a place of assembly forms part of a shopping centre, additional recommendations for these situations are contained in BS 9999:2017 Fire safety in the design, management and use of buildings - code of practice (Incorporating corrigendum No. 1)

[MCL Comment/ Reply]: The Building falls under purpose group 5. Assembly and Recreation

1.2 Design for Horizontal Escape

1.2.1 – Introduction

[TGD B 2006 States]

The general principle to be followed when designing facilities for means of escape is that any person confronted by an outbreak of fire within a building can turn away from it and make a safe escape. This sub-section deals with the provision of means of escape from any point to the storey exit of the floor in question, for all types of building other than those covered by codes of practice or other documents which are referred to in sub-section 1.1.

This sub-section should be read in conjunction with the general provisions for means of escape in sub-section 1.4.

1.2.2 - Number of Escape Routes and Exits

[TGD B 2006 States]

The number of escape routes and exits to be provided from a room or storey depends on the following factors:

- The number of occupants (see 1.2.2.1);
- The limitations on travel distance (see 1.2.2.2 and Table 1.2); and
- The minimum number of escape routes required (see 1.2.2.4 and Table 1.3);

MCL Comment/ Reply]: In accordance with table 3 of building bulletin 100, the minimum number of escape routes from each part of the building are detailed below.

Kildangan National School Extension			
Storey	Number of Occupants	Number of Exits	Location of Exits
Ground Floor	10	4	Classrooms & Lobbies

1.2.2.1 - Number of occupants

[TGD B 2006 States]

The figure used for the number of occupants will normally be the design figure. When the number of occupants likely to use a room or storey is not known, the appropriate capacity should be calculated on the basis of the occupant capacity. Guidance is set out in paragraph 1.0.10 of this Document and Table 1.1. There may be cases where it may be reasonable to depart from the stated occupancy load factors.

The number of occupants in a room or storey will determine the width of escape routes and exits to be provided (see 1.2.4).

[MCL Comment/ Reply]: Based on the provisions of 4.3.2.4 and table 2 of BB100

Kildangan National School Extension				
Floor	Room	Area(m ²)	(m ² / person)	Estimated Occupancy (persons)
Ground	SEN Classroom	73	N/A	9
Ground	Office	20	N/A	1
Total =				10

The two new mainstream classrooms indicated on the proposed floor plans are displaced mainstream

classrooms and no additional occupants will be in these classrooms. Refer to attached existing floor plan and proposed floor plan.

1.2.2.2 - Travel distance

[TGD B 2006 Sates]

The travel distance (see 1.0.9 for definition) from any point in a room or storey should not exceed the appropriate values indicated in Table 1.2 (illustrated in Diagram 1). The permitted travel distance will depend on whether escape is available in one direction only or in more than one direction. Escape is available in more than one direction where alternative escape routes exist (see 1.2.2.3).

Note: Travel distance limitations for Purpose Groups other than those indicated in Table 1.2 are contained in the appropriate code of practice or other document referred to in sub-section 1.1.

[MCL Comment/ Reply]: Refer to table below

Kildangan National School Extension				
	Recommended Travel Distance		Actually Travel Distances	
Floor	One Direction	Alternative	One Direction	Alternative
Ground	18m	45m	18m	32m

1.2.2.3 - Alternative escape routes

[TGD B 2006 States}

A choice of escape routes is of little value if they are all likely to be disabled simultaneously. Every escape route from a storey should be independent of any other escape route to which access may be obtained directly from that storey.

Alternative escape routes should satisfy the following criteria:

- (a) they are in directions 45° or more apart (Diagram 2 (a)); or
- (b) they are in directions less than 45° apart, but are separated from each other by fire-resisting construction (Diagram 2 (b)); or
- (c) (from any point from which there is initially a single direction of escape) they are in directions apart equal to 45° plus 2.5° for every metre travelled in one direction (Diagram 2 (c)).

[MCL Comment/ Reply]: All storeys and rooms are provided with the minimum number of escape routes in accordance with Table 3 of 88100.

1.2.2.4 - Minimum number of escape route

[TGD B 2006 States]

The number of escape routes from any room or storey should be not less than that indicated in Table 1.3, except where permitted by par. 1.2.2.5 to be served by a single escape route.

[MCL Comment/ Reply]: Refer to table below

Table 1.3 Minimum number of escape routes	
Number of persons accommodated	Minimum number of escape routes
1 to 500	2
More than 500	3

Kildangan National School Extension			
Storey	Number of Occupants	Number of Exits	Location of Exits
Ground Floor	10	4	Classroom & Lobbies

1.2.3 - Planning of Escape Routes and Exits

[TGD B 2006 States]

The basic principle of escape route planning is that unless a route is very short, there should be an alternative which will not be affected if fire or smoke makes the first route impassable.

Every escape route should lead to a place of safety, and should give direct access to that place of safety, or give access thereto only by means of a circulation area.

[MCL Comment/ Reply]: Every escape route in the building complies with the above requirement.

1.2.3.1 - Inner rooms

[TGD B 2006 States]

A room whose only escape route is through another room is at risk if a fire starts in that other room. It is termed an inner room and is at risk from a fire in the outer room (access room).

Such an arrangement is only acceptable if the following conditions are satisfied:

- (a) the inner room should not be likely to have more than 20 occupants;
- (b) the inner room should not be a bedroom;
- (c) the escape route from the inner room should not pass through more than one outer (access) room;
- (d) the travel distance from any point in the inner room to the exit(s) from the access room should not exceed the appropriate limit given in Table 1.2;
- (e) the access room should not be a place of special fire risk and it should be in the control of the same occupier; and
- (f) one of the following arrangements are made –
 - (i) the enclosures (walls or partitions) of the inner room are stopped at least 500 mm below the ceiling, or
 - (ii) a vision panel is located in the enclosure of the inner room, of sufficient size, to enable occupants of the inner room to see if a fire has started in the outer room, or

(iii) the access room is fitted with a suitable fire detection and alarm system to warn the occupants of the inner room should an outbreak of fire occur in the access room.

[MCL Comment/ Reply]: All Inner rooms shall comply with the requirements above and will not have an occupancy more than 20 people

1.2.3.2 - Open connections between floors

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate.

1.2.3.3 - Planning of exits in a central core

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate.

1.2.3.4 - Access to storey exits

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate.

1.2.3.5 - Separation of circulation routes from Stairways

An escape stairway should not form part of the primary circulation route between different parts of the building at the same level. An exception to this requirement may be made in the case of a building, having not more than three storeys (see Appendix C, Diagram 36), which is served by a single escape stairway (see 1.3.3) where rooms open directly into the enclosure to the stairway and where self-closing fire doors are unlikely to be rendered ineffective as a result of constant use.

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate.

1.2.3.6 - Storeys divided into different Occupancies

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate.

1.2.4 - Width of Escape Routes and Exits

[TGD B 2006 States]

The width of escape routes and exits depends on the number of persons needing to use them, and should not be less than the dimensions given in Table 1.4.

Table 1.4 Width of escape routes and exits	
Maximum number of persons	Minimum width (mm) (1)(2)(3)
50	750 ⁽⁴⁾
100	850
150	950
220	1050
More than 220,	5mm per person ⁽⁵⁾

Notes:

(1) Refer to Para B1.0.10 (c) Methods of Measurement - Width.

(2) The minimum widths given in the table may need to be increased in accordance with the guidance in TGD M: Access for People with Disabilities.

(3) Widths less than 1050 mm should not be interpolated.

(4) May be reduced to 530 mm for gangways between fixed storage racking other than in public areas of buildings of purpose group 6 or 7.

(5) 5 mm/person does not apply to an opening serving less than 220 persons.

There is a possibility that one escape route may become unavailable due to a fire in a building. Except where permitted to be served by a single escape route (see 1.2.2.5), or where all the exits from an area open directly to the open air at ground floor level, it will be necessary to take account of this when calculating the total capacity of available escape routes. It is therefore necessary to consider the effect of discounting each escape route in turn.

The total capacity of the escape routes and exits from any room or storey should be adequate for the number of occupants, taking account of discounting, where required. The total capacity should be based on the sum of the capacities of each individual escape route or exit, based on the values indicated in Table 1.4, with an allowance for discounting where applicable.

In assembly and recreation buildings (purpose Group 5), the escape route provided by the main entrance to the building should be capable of discharging at least one third of the occupant capacity in accordance with the provisions of Table 1.4.

In Residential (Institutional) buildings (Purpose Group 2(a)) an escape route should generally be not less than 1150 mm in width and where appropriate, be suitably designed to allow the movement of beds along the escape route. The width of an exit from any room should be adequate for the appropriate evacuation procedures, taking into account the physical capacity and dependency of the occupants and should not be less than 900 mm.

Special provisions, which include the width of seat ways and gangways, apply to areas with closely seated audiences (see 1.2.8).

MCL Comment/ Reply]: The existing occupancy of the school is 220 people and the proposed extension is Adding 10 more people.

Kildangan National School Extension Exit Widths			
Storey	Number of Occupants	Minimum width required per exit (mm)	Total Capacity Available
Ground Floor	230	Exit 1 : 2000mm	400
		Exit 2: 1200mm	240
		Exit 3: 1200mm	240
		Exit 4: 1200mm	240
		Exit 5: 930mm	100
		Exit 6: 930mm	100
		Exit 7: 930mm	100
		Exit 8: 1310mm	262

1.2.5 - Corridors

1.2.5.1 - Protected corridors

[TGD B 2006 States]

A corridor which serves as part of the means of escape in any of the following circumstances should be a protected corridor (see Table A1, Appendix A):

(a) every corridor serving sleeping accommodation within Residential (Institutional) or other Residential buildings (Purpose Groups 2(a) or 2(b));

(b) every dead-end corridor;

(c) any corridor common to two or more different occupancies (see also par. 1.2.3.6).

MCL Comment/ Reply]: The Corridor indicated on drawing FSC100 is to be protected in accordance with the requirements of sub- section 1.2.5 of TGD-B / Clause 4.3.2.14 to 4.3.2.16 of BB100 as set out on the accompanying fire safety plan drawings

1.2.5.2 - Enclosure of corridors that are not protected corridors

[TGD B 2006 States]

The enclosures to all corridors used as means of escape (which are not protected corridors) should be carried up to the underside of the structural floor above (or to a suspended ceiling) and all openings in the corridor enclosures should be fitted with doors.

[MCL Comment/ Reply]: The enclosure to all corridors that are not required to be protected corridors but are used for means of escape shall be carried up to the underside of the structural floor (or ceiling level) and all openings in the corridor shall be fitted with doors. Furthermore it is noted that appropriate management procedures shall be put in place to ensure that the corridors shall be maintained free from storage (including school bags etc) at all material times

1.2.5.3 - Sub-division of corridors

[TGD B 2006 States]

If a corridor provides access to alternative escape routes, there is a risk that smoke will spread along it and make both routes impassable before all occupants have escaped. To avoid this, every corridor connecting two or more storey exits where the distance between storey exits exceeds 12 m should be sub-divided by self-closing fire doors (and any necessary associated screens) so that:

(a) no length of undivided corridor is common to two storey exits; and

(b) the fire door(s) are positioned to effectively safeguard the route from smoke, having regard to the layout of the corridor and to any adjacent fire risks.

[MCL Comment/ Reply]: The Corridors associated with the extension are sub divided in accordance with the above requirements.

1.2.5.4 - Separation of dead-ends

[MCL Comment/ Reply]: There are no dead end corridor conditions

1.2.6 - External Escape Routes

1.2.6.1 - External escape stairway

[TGD B 2006 States]

If more than one escape route is required from a storey, or part of a building, one of those routes may be by way of an external escape stairway provided that:

(a) in the case of an assembly and recreation building, the route is not intended for use by members of the public; or

(b) in the case of a Residential (Institutional) building, the route serves only office or residential staff

accommodation.

In the case of an existing building, the use of an external escape stairway as an alternative means of escape may be acceptable, where there is no practicable alternative solution. Where the building is used for assembly and recreation, the number of persons likely to use the stairway should not exceed 150.

External escape stairways should comply with the requirements set out in par. 1.3.9.

[MCL Comment/ Reply]: There is to be no changes to the existing external escape stairs.

1.2.6.2 - Escape over flat roofs

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate.

1.2.7 - Evacuation Considerations

1.2.7.1 - General

[TGD B 2006 States]

In premises of Purpose Group 2(a), Residential (Institutional), occupants may be totally dependent on other people for evacuation. Normal "self-help" evacuation procedures are therefore inappropriate and consideration must be given to designing escape routes to facilitate the planned mode of evacuation. The following provisions should be made to allow progressive horizontal escape to be made into adjoining compartments in those parts of buildings used to accommodate occupants of this type. The object is to provide a place of relative safety within a short distance, from which further evacuation can be made if necessary but under less pressure of time.

[MCL Comment/ Reply]: The building with the proposed extension will adopt a simultaneous evacuation strategy, on activation of the buildings fire detection and alarm system the building occupants will begin to make their escape.

1.3 Design for Vertical Escape

1.3.1 - Introduction

[TGD B 2006 States]

An important aspect of means of escape in multistorey buildings is the availability of a sufficient number of adequately-sized and protected escape stairways. This Section deals with these matters, including measures necessary to protect escape stairways, for all types of building other than those covered by codes of practice or other documents which are referred to in sub-section 1.1.

It should be read in conjunction with the general provisions for means of escape in sub-section 1.4.

[MCL Comment/ Reply]: The Building Extension is single storey but the existing building is two storey so vertical escape provisions are to be place.

1.4 General Provisions for Means of Escape

1.4.1 - Introduction

[TGD B 2006 States]

This sub-section deals with a number of provisions about the construction and protection of escape routes generally, and about some services installations and other matters associated with the design of escape routes. It applies to all buildings other than Purpose Groups 1(a) and 1(b) – dwelling houses.

It should therefore be read in conjunction with sub-sections 1.1, 1.2 and 1.3 of this Document.

1.4.2 Protection of Escape Routes

1.4.2.1 Fire resistance of enclosures -

[TGD B 2006 States]

Details of fire resistance test criteria, and standards of performance, are set out in Appendix A to this Document.

All walls, partitions and other enclosures that need to be fire-resisting to meet the provisions in this Document should have the appropriate performance given in Tables A1 and A2 of Appendix A. They should also meet any limitations on the use of glass (see par. 1.4.2.3).

[MCL Comment/ Reply]: All fire walls and partitions in the proposed extension are to meet the requirements set out in table A1 and A2 of appendix A in TGD B.

1.4.2.2 - Fire resistance of doors

[TGD B 2006 States]

Details of fire resistance test criteria, and standards of performance for fire doors, are set out in Appendix B to this Document.

Note: Any reference to a fire door in this Technical Guidance Document, or in any code of practice or other document referred to in this Technical Guidance Document, is intended to mean a complete door assembly which includes the door leaf or leaves, the door frame, ironmongery (hinges, latches, closers, etc.) and any seals where required between the frame and leaf or between leaves, and which is installed in a building and is capable of meeting the required performance. The performance of a fire door will critically depend on the correct installation of the complete door assembly.

All doors that need to be fire-resisting to meet the provisions in this Document should have the appropriate performance given in Table B1 of Appendix B. They should also meet any limitations on the use of glass (see par. 1.4.2.3).

[MCL Comment/ Reply]: All proposed fire doors as indicated on the accompanying drawings will be fitted with an automatic self-closing device, which is capable of closing the door from any angle and against any latch fitted to the door. Fire Door sets shall be tested in accordance with IS EN 1634-1 to achieve the minimum period of fire resistance indicated on the accompanying plans.

All fire doors will be permanently identified in accordance with the recommendations of BS 8214: 2016 to indicate the period of fire resistance, the manufacturer, year of manufacture, and other pertinent details i.e. whether the door is:

- To be kept closed when not in use;
- To be kept locked when not in use; or
- Held open by an electro-magnetic or electro-mechanical device.

Every fire doorset (i.e. the complete fire door assembly) will be supported by a fire test report and assessment from an accredited laboratory, which indicates that the complete assembly (including locks, latches, hinges etc) will meet the required fire resistance performance.

Door closing and hold open devices for fire doors will comply with Appendix B, TGD B and BS 8214: 2016. See the accompanying floor plans for locations of all fire doors.

1.4.2.3 - Fire resistance of glazed elements

[TGD B 2006 States]

Where glazed elements in fire-resisting enclosures and doors are only able to satisfy the relevant performance in terms of integrity, the use of glass is limited. These limitations are set out in Appendix A, Table A4.

Where the relevant performance can be met in terms of both integrity and insulation, there is no restriction in this Section on the use or amount of glass, but there may be some restriction under Section B5.

[MCL Comment/ Reply]: All glazed elements in proposed fire doors in the proposed extension are to meet the requirements set out in table A1 and A2 of appendix A in TGD B.

1.4.2.4 -Protection of escape stairways

[TGD B 2006 States]

The protection of escape stairways should be in accordance with the provisions outlined at 1.3.6, unless the stairway is an unprotected stairway forming part of an escape route in accordance with the provisions of any Code of Practice or other Document referred to in sub-section 1.1 appropriate to the particular use.

[MCL Comment/ Reply]: All stairways in the building will be protected in accordance with the above requirement.

1.4.3 Doors on Escape Routes

1.4.3.1 - Doors on escape routes

[TGD B 2006 States]

The time taken to negotiate a closed door can be critical in an escape situation. Doors on escape routes (both within and from the building) should therefore be readily openable if undue delay is to be avoided. Accordingly, the provisions in the paragraphs below should be met.

1.4.3.2 - Door fastenings

[TGD B 2006 States]

In general, doors on escape routes, whether or not the doors are fire doors, should either not be fitted with lock, latch or bolt fastenings, or they should only be fitted with simple fastenings that can be readily operated in the direction of escape without the use of a key.

Where security on final exit doors is an important consideration, such as some assembly or commercial uses, panic bolts should be used to secure doors. Where additional security is required when the premises is not in use, hardware which is fully removable should be used. The following recommendations apply to buildings, or parts of buildings which are used for assembly or recreation (Purpose Group 5):-

(a) Exit doors from areas holding more than 50 people should either be free from fastenings or be fitted with panic bolts complying with IS EN 1125:2008

(b) Doors, other than those covered by item (a), should be fitted only with simple fastenings that can be operated from the escape side of the door without the use of a key.

Attention is drawn to the provisions of the Fire Safety in Places of Assembly (Ease of Escape), Regulations, 1985 (S.I. No. 249 of 1985).

Information about door closing and hold open devices for fire doors is given in Appendix B.

[MCL Comment/ Reply]: Exits from rooms with less than 60 persons will only be fitted with a simple fastening which can be readily operated in the direction of escape without the use of a key, card or special knowledge. Exits from rooms with more than 50 occupants will be provided with panic exit devices complying with IS EN 1125 (Building Hardware- Panic Exit Devices operated by a horizontal bar, for use on escape routes-requirements and test methods) where there is a possibility of a panic situation arising.

1.4.3.3 - Direction of opening

[TGD B 2006 States]

Doors on escape routes should be hung so that they open in the direction of escape. In the case of small rooms or buildings, this may not be practical or indeed necessary, but in the following situations doors on escape routes must always be hung to open in the direction of escape:

- (a) from a place of special fire risk, or
- (b) in the case of premises comprising an industrial, storage or assembly and recreation use if more than 20 people are expected to use them, or
- (c) in the case of any other premises if more than 50 people are expected to use them.

An exception to the requirement for outward opening doors on escape routes may be made in the case of class-rooms and other small rooms in schools where the number of persons in such rooms does not exceed 60.

Manual sliding doors may be permitted, in certain limited circumstances only, such as doors from rooms in industrial or storage buildings which are occupied by not more than 10 persons and where swing doors would be impracticable.

As an alternative to outward opening doors, in certain limited situations, it may be appropriate to consider the provision of doors which are held in the open position. It should not be possible for such doors to be released and closed when the building is in use.

[MCL Comment/ Reply]: The direction of opening of all final exits on escape routes will be in the direction of escape. However, there are a number of instances where doors need not open in the direction of escape. These are fully detailed within 1.4.3.3 of TGD B. Those which pertain to this development are summarised below.

- Any storage or assembly and recreation room likely to contain less than 20 persons.
- Any other room likely to contain less than 50 persons e.g. offices, stores etc.
- Any classroom room likely to contain less than 60 persons.

The opening force of all doors along escape routes shall not exceed 30N from 0° (the door in the closed position) to 30° open, and not more than 22.5N from 30 degrees to 60 degrees of the opening cycle when measured from leading edge of the door.

1.4.3.4 - Amount of opening and effect on associated escape routes

[TGD B 2006 States]

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

Similarly, where it is necessary to recess a door that is opening towards a corridor, then the depth of recess should be sufficient that the door swing does not reduce the required width of the corridor.

[MCL Comment/ Reply]: All doors on escape routes will be hung to open not less than 90 degrees so that the door swing does not reduce the effective width of any corridor, in accordance with Paragraph 1.4.3.4 of TGD B

1.4.3.5 - Vision panels

[TGD B 2006 States]

These are needed where doors on escape routes subdivide corridors, or where the doors are hung to swing both ways.

[MCL Comment/ Reply]: Vision panels shall be provided on all cross corridor doorsets and on doorsets which are hung to swing in both directions. Additional vision panels may be required on doorsets to meet the requirements of Part M.

1.4.3.6 Revolving and automatic doors

[MCL Comment/ Reply]: Not applicable to this fire Safety Certificate.

1.4.4 - Construction of Escape Stairways

1.4.4.1 - General

Every escape stairway and its associated landings should be constructed of materials of limited combustibility in the following situations.

- (a) if it is the only stairway serving the building, or part of the building, and the period of fire resistance for the elements of structure (Tables A1, A2 to Appendix A) is 60 minutes or more,
- (b) if it is within a basement storey,
- (c) if it serves any storey having a floor level more than 18 m above ground or access level, or
- (d) if it is an external stairway (there are other provisions about external escape stairways in par. 1.3.9). In satisfying the above provision, combustible materials may be added to the upper surface of these stairways, except in the case of firefighting stairs. An exception to the requirement for escape stairways to be constructed of materials of limited combustibility may be made in the case of an existing internal stairway in any existing building where:

The width of the stairway and dimensions of steps are adequate for the purposes of means of escape, and The stairway is of sound construction and is capable of affording safe passage for the users of the building. There are other provisions dealing with the construction of firefighting stairways in Section B5.

Escape stairways should comply with the requirements of Section 1 of Technical Guidance Document K - Stairways, Ladders, Ramps and Guards, to the Building Regulations, 1997. An exception to this requirement may be made in the case of an existing stairway in an existing building which is capable of affording safe passage for the users of the building.

[MCL Comment/ Reply]: The existing escape stairs are concrete stairs and the walls surrounding them are blockwork walls giving a fire resistance of 60 minutes in accordance with the above requirements.

1.4.5 - Height of Escape Routes

[TGD B 2006 States]

All escape routes should have a minimum clear headroom of not less than 2 m and there should be no projection below this height, except for any door frame, which would impede the free flow of persons using them.

[MCL Comment/ Reply]: All new escape routes will be provided with clear headroom of not less than 2 m in Accordance with Paragraph 1.4.5 of TGD B. Escape routes will have no projections below this height, with the exception of door frames.

1.4.6 - Floors of Escape Routes

[TGD B 2006 States]

The floors of all escape routes (including steps, ramps and landings) should have non-slippery even surfaces. Where a ramp forms part of an escape route, it should not be steeper than 1 in 12 if it is shorter than 9 m, otherwise it should not be steeper than 1 in 20. Any sloping floor or tier should be constructed with a pitch of not more than 35° to the horizontal. Further guidance on the design of ramps and associated landings, from the aspect of safety in use, is given in Technical Guidance Documents K and M.

[MCL Comment/ Reply]: All new floors on escape routes (including steps, ramps and landings) will have slip resistant even surfaces in accordance with Paragraph 1.4.6 of TGD B.

1.4.7 - Final Exits

[TGD B 2006 States]

Final exits need to be dimensioned and sited so that they facilitate the evacuation of persons out of the building, and away from the building. Accordingly, they should be not less in width than the escape route(s) they serve and also meet the following provisions in the paragraphs below.

Final exits should be sited to ensure rapid dispersal of persons from the vicinity of the building so that they are no longer in danger from fire and smoke. Direct access to a street, passageway, walkway or open space should be available. The route clear of the building should be well defined, and suitably guarded, if necessary, in situations where the exit discharges other than to an open street or open space at street level. Final exits also need to be apparent to persons who may need to use them. This is particularly important where the exit opens off a stairway that continues down, or up, beyond the level of the final exit.

Final exits also need to be sited so that they are clear of any risk from fire or smoke in a basement, or from openings to transformer chambers, boiler rooms and similar risks.

[MCL Comment/ Reply]: Final exits have been sized to allow safe evacuation of persons out of the building and to a place of safety from where rapid dispersal is possible.

1.4.8 - Lighting of Escape Routes

1.4.8.1 – Normal Artificial Lighting

[TGD B 2006 States]

The safe movement of persons along escape routes, towards and through the exits to a place of safety, depends on the illumination of those routes and the ability to see hazards and changes of level and direction. Adequate artificial lighting should be provided to all internal and external escape routes, except in the case where there is adequate natural lighting and the building is used only during daylight hours.

In the event of failure of the normal lighting, emergency escape lighting is required. Emergency escape lighting is required to ensure that lighting is provided promptly, automatically and for a suitable duration when the normal lighting fails. Emergency escape lighting is required on complete failure of the power supplies to the normal lighting in the building and also on a localised failure of the normal lighting.

[MCL Comment/ Reply]: Normal artificial lighting will be provided throughout the building and lighting levels will be maintained to all internal and external escape routes.

1.4.8.3 - Emergency escape lighting

[TGD B 2006 States]

The Following should be provided:

- (a) to indicate clearly and unambiguously the escape routes so that the means of escape can be safely and effectively used;
- (b) to provide illumination along such routes to allow safe movement towards and through the exits provided;
- (c) to ensure that fire alarm call points and first-aid firefighting equipment, where provided, can be readily located.

Note: Emergency escape lighting may also be required for the purpose of the Safety, Health and Welfare at Work Act, 2005 to enable work activities to be safely terminated and allow other emergency actions to be effectively carried out. Additional emergency escape lighting may also be required under the Fire Services Act, 1981 when the building is in use. The provisions outlined in this Section may need to be supplemented accordingly.

[MCL Comment/ Reply]: All new emergency escape lighting shall be designed, installed and maintained in accordance with the appropriate recommendations of IS 3217:2023.Code of Practice for Emergency Lighting Systems.

The emergency escape lighting system will be extended to cover the extension along undefined and defined escape routes in accordance with Table 1.8 of TGD B and all areas as recommended by IS 3217:2023.

Section 1.4.8.4 of TGDB provides the following descriptions: Un-defined escape routes: open areas in a building where the escape routes are not fixed or defined by the elements of construction;

Defined escape routes: routes, such as exits, escape corridors and escape stairways, through which or along which, persons may be required to travel to reach a final exit from a building;

External escape routes: those parts of an escape route outside a building from a final exit, which may be required for persons to reach a place of safety.

Adequate emergency lighting provisions shall also be made for: External escape routes. Note that this can be provided by natural or artificial lighting fed from separate power source to the building. However, where this is not provided, external emergency escape lighting will be installed;

Points of emphasis as required by IS 3217:2023. Examples of which are as follows:

Outside each final exit;

At each fire alarm call point.

This list is not exhaustive, refer to Clause 8.5 of IS 3217:2023.for the full list. To facilitate a safe evacuation, the emergency lighting system shall provide the following lux levels:

Undefined escape routes (open plan areas) 0.5 lux at floor level;

Defined escape routes – 1 lux at floor level along centre line of escape route, illuminating half the width of the route.

1.4.8.4 – Exit Signage

[TGD B 2006 States]

Emergency escape lighting should be provided in accordance with the provisions indicated in Table 1.8. For the purpose of this table the emergency escape lighting may consist of the following parts:

- (i) un-defined escape routes: open areas in a building where the escape routes are not fixed or defined by the elements of construction;
- (ii) defined escape routes: routes, such as exits, escape corridors and escape stairways, through which or along which, persons may be required to travel to reach a final exit from a building;
- (iii) external escape routes: those parts of an escape route outside a building from a final exit, which may be required for persons to reach a place of safety.

Emergency escape lighting should be designed and installed in accordance with the relevant recommendations in I.S. 3217:2023 Code of practice for emergency lighting.

[MCL Comment/ Reply]: Where new exit signage will be provided, it will be provided in accordance with IS 3217:2023 and SI 299 Safety, Health, and Welfare at Work (General Applications) Regulations. 2013. All exit signage shall be of a consistent type throughout the building to avoid any confusion.

Exit signage shall be mounted between 2 m and 3 m above finished floor level in accordance with Section 8.6.5 of IS 3217:2023. The exit signage size and viewing distance shall be in accordance with Section 8.6.4 of IS 3217:2023 to ensure it is legible to all occupants at varying distances. The emergency exit signs will comply with either: Type 1 - IS EN 1838: 2013; or Type 2 - IS EN 1838: 2013 and ISO 7010:2020 +A3:2022

1.4.9 Lifts

1.4.9.1 - Evacuation lifts

[MCL Comment/ Reply]: No new lifts are being installed as part of the works. Not applicable to this Fire Safety Certificate application.

1.4.9.2 - Fire protection of lift installations generally

[MCL Comment/ Reply]: No new lifts are being installed as part of the works. Not applicable to this Fire Safety Certificate application.

1.4.9.3 - Wall climber or feature lifts

MCL Comment/ Reply]: No new lifts are being installed as part of the works. Not applicable to this Fire Safety Certificate application.

1.4.10 - Electrical Installations and Protected Circuits

[TGD B 2006 States]

The electrical installation, comprising wiring, sockets, switches, fuse boards, distribution boards, circuit breakers, etc., should be installed in accordance with the National Rules for Electrical Installations (I.S. 10101:2020) published by the Electro-Technical Council of Ireland.

Where an electrical transformer or substation room and any associated main switch room are to be provided in a building, they should be located on the perimeter of the building with an external access door. The location on the perimeter including external access to the relevant room to be discussed with the electricity distribution system operator.

There are situations, such as in the case of fire alarm systems, emergency lighting or evacuation lifts, where continued operation of certain electrical components during a fire may be required. In this regard, the specific

provisions of the appropriate design standards indicated in this Technical Guidance Document should be followed.

[MCL Comment/ Reply]: Electrical installations are to be designed and installed in accordance with relevant recommendations of Electro-Technical Council of Ireland's "National Rules for Electrical Installations" (**I.S. 10101:2020+A1:2024**). All cables used in Fire Detection and Alarm systems shall meet the minimum PH classification set out in **I.S. 3218:2024** when tested in accordance with I.S. EN 50200:2015 (including the modifications as set out in Annex E.2).

1.4.11 - Ventilation Systems

1.4.11.1 - Natural ventilation

[TGD B 2006 States]

Guidance on designing for natural ventilation is contained in BS 5925: 1991, Code of Practice for ventilation principles and designing for natural ventilation.

[MCL Comment/ Reply]: Natural ventilation shall comply with BS 5925: 1991, Code of Practice for ventilation principles and designing for natural ventilation.

1.4.11.2 - Mechanical ventilation and air conditioning systems

[TGD B 2006 States]

Any system of mechanical ventilation should be designed to ensure that in a fire the air movement is directed away from protected escape routes and exits. In the case of a system which recirculates air, the system should meet the relevant recommendation for recirculating distribution systems in BS 9999:2017 Fire safety in the design, management and use of buildings - code of practice (Incorporating corrigendum No. 1)

Any system of mechanical ventilation in an assembly and recreation building should also comply with the relevant provisions below:

(a) any such system serving the parts of the premises to which the public are admitted should be independent of the remainder of the premises;

(b) if the premises is used for stage presentations, any such system should be designed to ensure that the air movement during performances is directed from the auditorium towards the stage;

(c) any such system above a stage provided with a proscenium opening should be entirely independent of the auditorium system. Where a pressurization system is installed, any ventilation and air conditioning systems should be compatible with it.

Guidance and additional recommendations in relation to ventilation systems in Places of Assembly are contained in Section 20 of BS 9999:2017. Guidance on the design and installation of mechanical ventilation and air conditioning plant is given in and on ventilation and air conditioning ductwork in BS 9999:2017 Fire safety in the design, management and use of buildings - code of practice (Incorporating corrigendum No. 1)

[MCL Comment/ Reply]: Where any new mechanical ventilation systems are installed, they will be designed in accordance with Paragraph 1.4.11 of TGD B, BS 9999:2017 Fire safety in the design, management and use of buildings - code of practice (Incorporating corrigendum No. 1). Mechanical ventilation and air handling equipment plant will be arranged to automatically shut down upon detection of a fire.

1.4.12 - Refuse Chutes and Storage

[MCL Comment/ Reply]: No refuse shall be stored within the demise of the building.

1.4.13 - Fire Safety Signs

[TGD B 2006 States]

Signs to indicate escape routes, including any doorways or exits which provide access to the means of escape, are required in all buildings, except within dwellings. They should be illuminated by means of natural lighting, artificial lighting or by emergency escape lighting, as appropriate (see 1.4.8), so that they are clearly visible and distinguishable by the occupants of a building.

Signs should be provided to indicate the position of fire-fighting equipment (see 1.4.16) and fire alarm call points (see 1.4.14), where provided.

Signs, in accordance with BS EN ISO 7010:2020+A6:2023, should be provided on fire doors (see Appendix B), except those held open by electromagnetic devices connected to the fire alarm, to indicate that they should be kept shut.

Attention is drawn to possible additional requirements for fire safety signs under the Fire Services Act, 1981, when the building is in use.

Attention is also drawn to Statutory Instrument, S.I. No. 132 of 1995 Safety, Health and Welfare at Work (Signs) Regulations, 1995. These Regulations require the provision of emergency and other signs in a place of work, as defined in the Safety, Health and Welfare at Work Act, 2005. The shape, colours and pictogram (to convey the appropriate safety message) for the signs are prescribed in those Regulations. The relevant emergency escape and fire-fighting equipment signs may be used for the purposes of this Section (B1). Other signs, which may be required when the building is in use, are outside the scope of the Building Regulations.

[MCL Comment/ Reply]: Fire safety signs are to be provided in accordance with 1.4.13 of TGDB including signs to indicate manual call points, firefighting equipment, and escape routes. The signboards are to conform with SI 299 of 2007 augmented with BS5499 for signs which are not included in SI 299. Exit sign posting shall be provided as indicated in Section 1.4.8 above

1.4.14 - Fire Detection and Alarm Systems

1.4.14.1 - Introduction

[TGD B 2006 States]

The occurrence of fire in a building could lead to a situation where conditions become untenable and escape routes become unusable. It is likely that these conditions will not occur until some time after the initiation of the fire and the sooner the outbreak is detected, the more time will be available for evacuation, should this be necessary.

Buildings should be provided with a fire detection and alarm system to warn the occupants of the existence of fire where the building is of such a size, layout or occupancy that the fire itself may not provide adequate warning to the occupants so as to enable them to escape safely.

Where a fire detection and alarm system is provided, the system should comply with the recommendations relevant to design and installation contained in S.R. CEN/TS 54-14:2018, Fire detection and fire alarm systems - Guidelines for planning, design, installation, commissioning, use and maintenance (European) or I.S. 3218:2013+A1:2019, Code of practise for fire detection and alarm systems for buildings – system design, installation and servicing. The type of system provided should be appropriate to the uses of the building and for protection of life (types L and M systems). Guidance on the fire detection and alarm systems for certain building types is contained in the following paragraphs.

[MCL Comment/ Reply]: The existing buildings fire alarm is to be replaced with a L2/L3M automatic fire Detection alarm system to cover the existing building and the proposed extension in accordance with I.S. 3218:2024

1.4.15 - Provisions for People with Disabilities

[TGD B 2006 States]

Where access for people with disabilities is provided to a building or part of a building in accordance with Part M of the Second Schedule to the Building Regulations, provision should also be made, in the building or part of the building (as the case may be) for appropriate means of escape for such people.

This provision also applies to buildings containing flats.

The principles underlying the design of the means of escape from a building are based on the assumption that in the event of an outbreak of fire it may be necessary to evacuate all or part of a building. Normally the evacuation will be to a place of safety outside the building, but in some cases it may be necessary to initially evacuate to a place of relative safety within the building. The management of evacuation forms an important part of the fire safety strategy for a building. While there are no provisions in the Building Regulations in relation to fire safety management (see 0.1.7), the guidance in this Document assumes that an adequate level of fire safety management will be provided when the building is in use.

In any building there may be people with disabilities which impair their mobility or limit other faculties such as sight and hearing. The evacuation of such people requires special consideration. In addition, it may be necessary to consider any special requirements in the provision of fire detection and alarm systems (see 1.4.14).

Guidance on the provision of means of escape for people with disabilities is contained in BS 9999:2017 Fire safety in the design, management and use of buildings - code of practice (Incorporating corrigendum No. 1). The principles outlined in BS 9999:2017 are based on the provision of refuge areas and the management of evacuation. Refuge areas are areas within a building, separated by fire-resisting construction and provided with a safe route to a storey exit, where people with disabilities can await assistance for their evacuation.

Refuge areas may be within the enclosure of an escape stairway, within a protected lobby or corridor leading to an escape stairway or in a compartmented part of a storey (see 3.2) which contains an escape stairway. A lift may be used for evacuation where it meets the criteria outlined in section 10 of BS 9999:2017

Refuge areas in buildings containing flats should be provided in a place of relative safety, within the enclosure of a common protected stairway, or within any protected corridor / lobby, adjacent to the stairway. This protected corridor / lobby should not provide direct access to a flat or to ancillary accommodation and should provide direct access to the stairway

Part M of the Second Schedule to the Building Regulations provides for access to buildings for people with disabilities. Technical Guidance Document M provides guidance on compliance with the requirements of Part M.

[MCL Comment/ Reply]: To be read in conjunction with the DAC

1.4.16 - First-Aid Fire-Fighting Equipment

[TGD B 2006 States]

First-aid firefighting equipment is provided in buildings to be used by the occupants, with appropriate training and where it is safe to do so, in the early stages in the development of a fire. This equipment may be a fixed installation, such as a hose reel or may be portable fire extinguishers. Portable fire extinguishers are excluded from the provisions of the building regulations but may be required when the building is in use for the purpose of the Fire Services Acts, 1981 and 2003 and the Safety, Health and Welfare at Work Act, 2005.

A hose reel consists of a length of tubing fitted with a shut-off nozzle and attached to a reel, with a permanent connection to a pressurized water supply. Hose-reels conforming to I.S. EN 671-1:2012 should be provided in a building, where the floor area exceeds 500 m², which is used as a shop (purpose group 4(a)), a shopping centre (purpose group 4(b)), industrial (purpose group 6) or for storage (purpose group 7(a), 7(b)). The installation of hose reels should comply with the relevant recommendations in BS 9990:2015 Non-automatic fire-fighting systems in buildings

[MCL Comment/ Reply]: First aid fire-fighting consists of hand-held extinguishers

While not a requirement under the Building Regulations, it is recommended that portable fire extinguishers be installed and maintained in accordance with I.S. 291:2015+A1:2022. The equipment will be manufactured in accordance with IS EN 3-7: 2004 +A1:2007.

All equipment shall be located so as to be readily available in all areas and strategically located in areas not likely to be involved in the early stages of a fire {adjacent to storey exits or by fire alarm points}.

Extinguishers shall be mounted so that the carrying handle of larger heavier extinguishers is about 1 m from the floor but smaller extinguishers shall be mounted so that the handle is about 1.5 m from the floor.

1.4.17 - Heat Producing Appliances

[TGD B 2006 States]

Heating boilers, cookers, fires for heating and other appliances which burn liquid, gaseous or solid fuel can provide a source of ignition for fires in buildings.

- The location of appliances in relation to escape routes;
- The provision of suitable and adequate flues, chimneys and hearths as appropriate;
- The provision of suitable and adequate ventilation;
- The provision and storage of fuel supplies.

Part J of the Second Schedule to the Building Regulations contains requirements in relation to heat producing appliances. Technical Guidance Document J - Heat producing appliances, provides guidance on how to comply with Part J of the Regulations.

Some of the documents referred to in sub-section 1.1, contain guidance in relation to heat producing appliances and building services generally. The measures may also relate to provisions appropriate to Section B3, Internal Fire Spread (Structure).

[MCL Comment/ Reply]: All heat producing appliances shall comply with Paragraph 1.4.17 of TGD B and Part J of the Second Schedule to the Building Regulations

Section B2 - Internal Fire Spread (Linings)

The Requirement - Internal fire spread (linings) B2

[TGD B 2006 States]

For the purpose of inhibiting the spread of fire within a building, the internal linings -

(a) shall have either a rate of heat release or a rate of fire growth and resistance to ignition which is reasonable in the circumstances

(b) shall offer adequate resistance to the spread of flame over their surfaces

2.1 General Provisions

[TGD B 2006 States]

Subject to the variations and specific provisions described in the paragraphs below, the surface linings of walls and ceilings should meet the following classifications –

- (a) Class D - s3, d2 (European class) or Class 3 (National class) in bathrooms, toilets and shower rooms.
- (b) Class C - s3, d2 (European class) or Class 1 (National class) in other rooms (except those listed at (e) and (f) below),
- (c) Class C - s3, d2 (European class) or Class 1 (National class) in circulation spaces within dwellings,
- (d) Class B - s3, d2 (European class) or Class 0 (National class) in other circulation spaces (including the common areas of flats and maisonettes),
- (e) Class B - s3, d2 (European class) or Class 0 (National class) in rooms exceeding 30 m² in Residential (Institutional) and assembly and recreation buildings, and
- (f) Class B - s3, d2 (European class) or Class 0 (National class) in places of special fire risk (see 1.0.9).

[MCL Comment/ Reply]: Internal wall and ceiling linings and thermoplastic material to be used in windows, rooflights, and ceilings / lighting diffusers are to comprise materials which meet the appropriate classifications specified in Section 2 of Technical Guidance Document B 2006 (reprinted 2020) . In particular wall and ceiling linings are to achieve the following minimum classifications:

Location	Surface Spread of Flame Rating
Toilet Facilities	Class D –s3, d2 (European) or Class 3 National
In other rooms not described	Class C – s3, d2 (European) or Class 1 National
Circulation spaces and escape routes	Class B – s3, d2 (European) or Class 0 National
Rooms with a floor area greater than 30m ²	Class B – s3, d2 (European) or Class 0 National
Places of special fire risk	Class B – s3, d2 (European) or Class 0 National

2.2 Variations and Special Provisions Walls

2.2.1 – Walls

[TGD B 2006 States]

Part of the surface of a wall in a room may be of a class lower than specified in 2.1, (but not lower than Class D - s3, d2 (European) or Class 3 (National)) if the area of that part (or, if there are two or more such parts, the total area of those parts) does not exceed, the lesser of the following –

- (i) half the floor area of the room, or
- (ii) 20 m² (in the case of a building or compartment of Purpose Group 1, 2 or 5) or 60 m² (in any other case); and In the case of a wall surface in a building of Purpose Group 1, 2, or 5 the area of that part should not exceed 5 m² and should be separated from any other such part by a distance of not less than 2 m; or

In the case of a wall surface in a building of any other Purpose Group, the area of that part shall not exceed 15 m² and should be separated from any other such part by a distance of not less than 2 m.

[MCL Comment/ Reply]: All walls in the building shall be in compliance with the above requirements.

All Notice boards in classrooms and corridors shall be kept to be minimum size of 5m² and notice boards should be separated from each other by a distance of at least 2 metres.

2.2.2 - Fire-protecting Suspended Ceilings

[MCL Comment/ Reply]: Not applicable to this FSC Application

2.2.3 - Fire-resisting Ceilings

[MCL Comment/ Reply]: Not applicable to this FSC Application

2.2.4. - Special Applications

[MCL Comment/ Reply]: Do not arise in the proposed development.

2.3 Thermoplastic Materials

2.3.1 Thermoplastic materials

[TGD B 2006 Sates]

Thermoplastic materials (see Appendix A, paragraphs A15, A16) which cannot meet the performance specified in paragraph 2.1 can be used in windows, rooflights and lighting diffusers in ceilings if they comply with the provisions of the following paragraphs:

Note: No guidance is currently possible on the performance requirements in the European fire tests as there is no generally accepted test and classification procedure.

[MCL Comment/ Reply]: Thermoplastic windows, or lighting diffusers are to achieve TP(a) classification in the event that they do not achieve the above ratings and their usage shall be confined to those areas specified in 2.3 of TGD-B 2006 (reprint 2020) . *As far as possible products which bear the CEN mark are to be utilised.*

Note (1): A thermoplastic material means any polymeric material which has a softening point below 200°C if tested to BS EN ISO 306:2022

2.3.2 – Windows

[TGD B 2006 Sates]

External windows to rooms (though not to circulation spaces) may be glazed with thermoplastic materials, if the material can be classified as a TP(a) rigid product.

Internal glazing should meet the provisions in par. 2.1 above. Note that a wall does not include glazing in a door.

[MCL Comment/ Reply]: All internal glazing shall meet the provisions set out above.

2.3.3 – Rooflights

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate

2.3.4 - Lighting Diffusers

[TGD B 2006 States]

Lighting diffusers are translucent or open structured elements that allow light to pass through. They may be part of a luminaire or used below rooflights or other sources of light. The following provisions apply only to lighting diffusers which form part of a ceiling and are not concerned with diffusers of light fittings which are attached to the soffit of, or suspended beneath a ceiling

Thermoplastic lighting diffusers should not be used in fire protecting or fire resisting ceilings, unless they have been satisfactorily tested as part of the ceiling system that is to be used to provide the appropriate fire protection.

Ceilings to rooms and circulation spaces (but not protected stairways) may incorporate thermoplastic lighting diffusers if the following provisions are observed: -

(a) Wall and ceiling surfaces exposed within the space above the suspended ceiling (other than the upper surfaces of the thermoplastic panels) should comply with the general provisions of par. 2.1, according to the type of space below the suspended ceiling.

(b) If the diffusers are of classification TP(a) (rigid), there are no restrictions on their extent.

(c) If the diffusers are of classification TP(b), they should be limited in extent as indicated in Table 2.1 and Diagram 10. Thermoplastic materials which have a lesser performance than TP(b) should not be used for lighting diffusers which form part of a ceiling.

[MCL Comment/ Reply]: Ceilings may incorporate thermoplastic lighting diffusers if the following provisions are observed:

- Wall and ceiling surfaces exposed within the space above the suspended ceiling (other than the upper surfaces of the thermoplastic panels) will comply with the general provisions of Paragraph 2.1, TGD B, according to the space below the suspended ceiling;
- If the diffusers are of classification Tp(a) rigid, there are no restrictions on their extent;
- If the diffusers are of classification Tp(b), they will be limited in extent as indicated in Table 2.1 and Diagram 10 of TGD B.

Section B3- Internal Fire Spread (Structure)

The Requirement - Internal fire spread (structure) B3

[TGD B 2006 States]

(1) A building shall be so designed and constructed that, in the event of fire, its stability will be maintained for a reasonable period.

(2) (a) A wall common to two or more buildings shall be so designed and constructed that it offers adequate resistance to the spread of fire between those buildings.

(b) A building shall be sub-divided with fire resisting construction where this is necessary to inhibit the spread of fire within the building.

(3) A building shall be so designed and constructed that the unseen spread of fire and smoke within concealed spaces in its structure or fabric is inhibited where necessary.

(4) For the purposes of sub-paragraph 2(a), a house in a terrace and a semi-detached house are each to be treated as being a separate building.

[MCL Comment/ Reply]:

The building will be constructed in accordance to the above requirements. The main construction type of the single storey extension external walls shall consist of a masonry cavity wall construction.

3.1 Loadbearing Elements of Structure

3.1.1 - Introduction

[TGD B 2006 States]

Premature failure of the structure can be prevented by provision for loadbearing elements of structure to have a minimum standard of fire resistance, in terms of resistance to collapse or failure of loadbearing capacity

The purpose in providing the structure with fire resistance is threefold:

- To protect the occupants, some of whom may have to remain in the building for some time while evacuation proceeds, if the building is a large one,
- To protect fire fighters who may be engaged in search or rescue operations (though this is limited and is not intended to cover fire-fighting operations generally);
- To reduce the danger to people in the vicinity of the building who might be hurt by falling debris or by the impact of the collapsing structure on other buildings.

3.1.2 - Fire Resistance Standard

Structural frames, beams, columns, loadbearing walls (internal and external), floor structures and gallery structures, should have at least the fire resistance given in Appendix A, Table A1

[MCL Comment/ Reply]: The fire resistance of an element of construction is its ability to withstand the effects of fire in terms of load-bearing capacity, integrity and insulation. The fire resistance of any new element of structure has been designed in accordance with the recommendations of Tables A1 and A2 in Appendix A of TGD B and is summarised in the table below:

Element of Structure	Fire Resistance Period (minutes)			Method of Exposure
	Load Bearing	Integrity	Insulation	
Structural Frame, Beam or Column	60	-	-	Exposed Faces
Load-Bearing Wall	60	-	-	Each Side Separately
First Floor	60	60	60	From Underside
External Walls	60	60	15	From Inside to Out
Compartment floor separating stair enclosure and rest of building.	60	60	60	From Underside
Protected Stair Enclosure	60	60	60	Each Side Separately
Protected Service Shaft	60	60	60	Each Side Separately
Protected Corridor/ Lobby	30	30	30	Each Side Separately
Cavity		30	15	Each Side Separately

3.1.3 - Application of the Fire Resistance Standards for Loadbearing Elements

[TGD B 2006 States]

(see Appendix A, Tables A1 and A2)

The measures set out in Appendix A include provisions to ensure that where one element of structure supports or gives stability to another element of structure, the supporting element has no less fire resistance than the other element.

The measures also provide for elements of structure that are common to more than one building or compartment, to be constructed to the standard of the greater of the relevant provisions. Special provisions

about fire resistance of elements of structure in single storey buildings are also given, and there are concessions in respect of fire resistance of elements of structure in basements where at least one side of the basement is open at ground level. See "Application of the fire resistance standard in Table A2" in Appendix A.

[MCL Comment/ Reply]: Reinforced concrete elements (where proposed to be fire resisting) shall be designed and installed in accordance with IS EN 1992-1-2:2004 Eurocode 2: Design of concrete structures. General rules - structural fire design (+AC:2008) (+A1:2019)

Structural steel

Elements shall be in accordance with relevant Eurocode (BS EN 1993-1-2:2024 (Eurocode 3)) and also ASFP guidance 'Fire Protection of Structural Steel in Buildings (aka Yellow Book) and associated ASFP Technical Guidance Documents. Where intumescent paint is being used, it shall be ensured that there is a sufficient Clearance zone around the steel members to allow the intumescent paint to expand as necessary in accordance with manufacturers specifications. Any non-fire resisting secondary connections to steel members shall be adequately protected in line with ASFP guidance and manufacturers details to address heat transfer from non-fire resisting to fire resisting structural elements. Where structural member forms part of a fire resisting wall requiring fire resistance for integrity and insulation, then the fire protection method locally at this fire resisting wall shall be a boarding type solution to provide the insulation properties of the wall. Interfacing of different fire protection

3.1.4 - Exclusions from the Provisions for Elements of Structure

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate

3.1.5 - Additional Provisions

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate

3.1.7 - Raised Storage Areas

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

3.2 Compartmentation

3.2.1 - Introduction

[TGD B 2006 States]

The spread of fire within a building can be restricted by sub-dividing it into compartments separated from one another by walls and/or floors of fire-resisting construction. The object is twofold

- (a) to prevent rapid fire spread which could trap occupants of the building; and
- (b) to reduce the chance of fires becoming large, on the basis that large fires are more dangerous, not only to occupants but to people in the vicinity of the building.

Compartmentation is complementary to provisions made under Section B1 for the protection of escap routes, and to provisions made under Section B4 against the spread of fire between buildings. The degree of sub-division that is appropriate depends on:

- (a) the use of the building, which affects the potential for fires and the severity of fires, as well as the ease of evacuation;
- (b) the height of the top storey in the building, which is an indication of the ease of evacuation and the ability of the fire service to intervene effectively; and

(c) the availability of a fire suppression system which affects the growth rate of the fire, and may suppress it altogether.

3.2.2 - Forms of Compartmentation

[TGD B 2006 States]

Sub-division is achieved using compartment walls and compartment floors, and provisions for their construction are given in pars. 3.2.5 et seq. These construction provisions vary according to the function of the wall or floor.

Special forms of compartmentation to which particular construction provisions apply, are:

- (a) walls common to two or more buildings (separating wall);
- (b) walls dividing buildings into separated parts (in which the parts can be assessed independently for the purpose of determining the appropriate standard of fire resistance); and
- (c) walls protecting houses from attached or integral small garages.

[MCL Comment/ Reply]: Refer to Table below

Kildangan National School					
Compartment	Number of Storeys	Compartment Size		Recommended Compartment Size	
		Area (m2)	Volume (m3)	Area (m2)	Volume (m3)
Existing School left side	1	355.8	1,078	1,900	21,000
Existing School & Proposed Extension Ground Floor	1	745.4	2,285.8	1,900	21,000
Existing First Floor on West Side of School	1	151	477	1,900	21,000
Existing First Floor on East Side of School	1	55	192	1,900	21,000

3.2.3 - Junctions and Protected Shafts

[MCL Comment/ Reply]: Not applicable to the proposed works.

3.2.4 - Provision of Compartment Walls and Compartment Floors

[TGD B 2006 States]

Compartment walls and compartment floors should be provided in the circumstances described in pars. 3.2.4.1 to 3.2.4.7 below, with the provision that the lowest floor in a building does not need to be constructed as a compartment floor

Provisions for the construction of compartment walls and compartment floors in different circumstances are given in 3.2.5.

Provisions for the protection of openings in compartment walls and compartment floors are given in 3.2.6 and 3.2.7.

Diagram 11 illustrates schematically various forms of compartmentation and indicates the paragraph references for the relevant guidance.

[MCL Comment/ Reply]:

All compartment walls & Floors shall be in accordance with the above requirements

3.2.5 - Construction of Compartment Floors and Compartment Walls

[TGD B 2006 States]

Every compartment wall and compartment floor should:

- (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 the following pars. 3.2.5.1 to 3.2.5.11. The performance requirements for fire resisting elements of construction are indicated in Appendix A, paragraph A5.

[MCL Comment/ Reply]: All compartment walls and floors shall be constructed in full accordance with the requirements of Section 3.2.5 – 3.2.7 of TGD-B. In particular; All compartment enclosures are being constructed to 60 minutes fire resistance rating in accordance with Table A2 of TGD-B to form a complete fire barrier.

The building is not in Residential Institutional use and thus 3.2.5.1 of TGD-B does not apply

The building is of limited height (< 10.0m) and thus 3.2.5.2 of TGD-B does not apply,

The building is new construction and thus 3.2.5.3 of TGD-B does not apply.

The building is of limited height (< 10.0m) and thus 3.2.5.4 of TGD-B does not apply,

There are no separating walls as there are no walls common to two or more buildings specified under 3.2.5.5 and 3.2.5.6 of TGD-B.

No services shall be accommodated within the compartment wall construction in compliance with the requirement of 3.2.5.7 of TGD-B. The integrity of the linings of such constructions (where stud construction is used) shall not be breached to allow for the installation of services, e.g. pipes, wires, flues (including manufactured flues), except where necessary to allow services pass through these compartment walls.

Services will either be surface mounted or accommodated in service ducts or service cavities created external to the un-breached linings of the compartment wall. Where services pass through these compartment walls, they shall be contained in fire resistant ducts and the opening of such ducts shall be protected and fire stopped as per B3.4 of the Fire Safety Compliance Report.

The building does not incorporate separated parts and thus 3.2.5.8 of TGD-B does not apply Where compartment walls meet the external walls the junction is to be fire stopped to maintain the fire resistance of the compartmentation in accordance with 3.2.5.9 of TGD-B.

The risk of fire spread at opposing elevations of the same building / re-entrant angles as referred to in 3.2.5.10 of TGD-B has been assessed vis-à-vis B1 / B3 compliance. A section of fire rated wall has been provided such that fire spread at the re-entrant angle will not arise.

Where the compartment walls meet the underside of the roof / floor above, the compartment wall to roof junction is to be detailed in accordance with Diagram 13A of Technical Guidance Document B. The walls are to be

carried up to the underside of the roof construction and the gap fire stopped, through the full width of the wall, to maintain the one hour compartmentation. The junction between the top of the wall and the underside of the roof is to be kept as small as practicable prior to installation of the fire stopping. Where structural members are built into or carried across a compartment wall, openings shall be kept as small as.

3.2.5.9 - Junction of compartment wall or compartment floor with other walls

[TGD B 2006 States]

Where a compartment wall or compartment floor meets another compartment wall, or an external wall, the junction should maintain the fire resistance of the compartmentation.

There are provisions in Section B1 in relation to the junction of an external wall and the enclosure to a protected stairway (see 1.3.6.6).

Consideration may also be required in the case of junctions of compartment walls and re-entrant or opposing elevations of the same building (see 3.2.5.10).

[MCL Comment/ Reply]:

The junction between compartment walls with other walls shall be in accordance with the above requirements

3.2.5.11 - Junction of compartment wall and roof

[TGD B 2006 States]

The junction between a compartment wall and the roof of a building should be capable of restricting fire spread between compartments. A compartment wall should be taken up to meet the underside of the roof covering or deck and fire stopped where necessary at the wall/roof junction. A compartment wall should not be stopped at ceiling level while using a cavity barrier in the roof space to continue the line of compartment to the roof. The construction of the wall, particularly between any ceiling and the roof, should not contain imperfections that would provide a route for fire penetration or premature failure of the fire resistance performance of the wall. The gap between the wall and the underside of the roof should be as small as practicable (generally not greater than 50 mm) and be filled with suitable fire stopping material over the full width of the wall.

Where structural roof members such as beams, purlins and rafters are built into or carried across a masonry or concrete compartment wall, any openings for them should be as small as practicable and any gaps should be effectively fire stopped with non-combustible fire stopping material over the full width of the wall. Where a trussed rafter supporting a roof is carried across a compartment wall it should be designed so that failure due to fire in one compartment will not cause failure of any part of the truss in another compartment. No structural roof member should be carried across a compartment wall which is also a separating wall.

The design and detailing of the junction between a compartment wall and any roof valley, gutter or other roof configuration, should be carefully considered so as to ensure that a means is not provided at the junction for premature fire spread between compartments.

If a fire penetrates a roof near a compartment wall there is a risk that it will spread over the roof to the adjoining compartment. To reduce that risk, the junction between a compartment wall and a roof should be constructed in accordance with the following:

(a) a zone of the roof at 1.5 m wide on both sides of the wall should have a covering of class BROOF(t4) (European class) or AA, AB or AC (National class) (see table A5 to Appendix A) on a non-combustible (see table A8 to Appendix A) sub-strate or deck. The compartment wall, should be carried up to the underside of the roof deck and be fire stopped with resilient non-combustible fire stopping material over the full width of the wall (see Diagram 13(A)).

Note: where the roof deck comprises a double skin insulated sheet, the insulating material directly above the compartment wall should be of limited combustibility (see A18 and Table A7 of Appendix A) for a width of not less than 300 mm which forms a fire stopping seal to the cavity between the inner and outer skins. In the case of a non-insulated double skin roof deck, similar fire stopping should also be provided.

(b) in buildings not more than 15 m high (see Diagram 37, Appendix C) which are used as dwellings, residential (except institutional), offices, or assembly, timber tiling battens or combustible boarding not exceeding 25 mm in thickness used as a substrate to the roof covering may be carried over the compartment wall, provided that they are fully bedded in mortar or other suitable non-combustible fire stopping material for the full width of the wall, and any cavities within the thickness of the roof, above and below the sarking felt or similar membrane along the line of the wall and at the eaves are adequately fire stopped (see Diagram 13(B)).

(c) As an alternative to (a) or (b) above the compartment wall may be extended above the line of the external roof surface by a height of not less than 375 mm to form a parapet wall (see Diagram 13(C)).

(d) As an alternative to (a), (b) or (c) above for any building type, any other system which has been shown by test to be equally effective in restricting the spread of fire at a compartment wall/roof junction may be used.

[MCL Comment/ Reply]:

The junction between compartment wall and roof shall be in accordance with the above requirements

3.2.6 - Openings Between Compartments

[TGD B 2006 States]

Any door openings in compartment walls should be protected by means of fire doors, in accordance with the provisions outlined in Appendix B and Table B1. Openings for the passage of pipes, ducts and other services should be protected in accordance with the provisions outlined in sub-section 3.4.

[MCL Comment/ Reply]: All doors and services that go from one compartment to another will be 60 minute fire protected.

3.2.6.2 Openings in other compartment walls or in compartment floors

[TGD B 2006 States]

Openings in compartment walls (other than those described in par. 3.2.6.1) or compartment floors should be limited to those for:

- (a) doors which have the appropriate fire resistance given in Appendix B, Table B1, and are fitted in accordance with the provisions of Appendix B; and
- (b) the passage of pipes, ventilation ducts, chimneys, appliance ventilation ducts or ducts encasing one or more flue pipes, which meet the provisions in sub-section 3.4; and
- (c) refuse chutes of non-combustible construction; and
- (d) protected shafts which meet the relevant provisions below; and
- (e) Atria designed in accordance with BS 5588 Part 7.

[MCL Comment/ Reply]: The opening in the compartment walls shall be limited to the above requirements

3.2.7 - Protected Shafts

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

3.3 - Concealed Spaces (Cavities) Introduction

3.3.1 – Hidden voids

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

3.3.2 - Provision of Cavity Barriers

[TGD B 2006 States]

Cavity barriers should be provided in accordance with Table 3.2 in specified locations for different purpose groups.

The dimensions of concealed spaces should be in accordance with the provisions outlined in 3.3.3.

Diagram 16 illustrates the need for cavity barriers at the intersection of fire resisting construction and elements containing a concealed space.

[MCL Comment/ Reply]: Cavity barriers shall be provided in accordance with Paragraph 3.3.2 and Table 3.2 of TGD B and shall be provided in the following locations;

- To sub-divide any cavity (including any roof space) void so that the distance between cavity barriers does not exceed the dimensions given in Table 3.3 of TGD B;
- At the junction between a cavity wall which does not comply with diagram 17 of TGD B, and every compartment floor, compartment wall or other wall or door assembly which forms a fire-resisting barrier.
- All fire resisting walls shall be carried full storey height.

Cavity barriers shall be provided to ensure that the maximum dimension in the concealed space does not exceed those recommended in Table 3.3 of TGD B which range from 10 to 20 m depending on the location of the space and the flame spread classification of the surfaces exposed. Table below shows the relevant limitations.

3.3.3 - Maximum Dimensions of Concealed Spaces

[TGD B 2006 States]

The dimensions of cavities (i.e. the maximum un-divided concealed space) should not exceed those specified in Table 3.3.

The provisions of Table 3.3 do not apply to any cavity described at (1) to (8) below:

(1) Where any room under a ceiling cavity exceeds the dimensions given, cavity barriers need only be provided on the line of the enclosing walls/partitions of that room - subject to cavity barriers not being more than 40 m apart in any direction and the surface of the material/product exposed in the cavity being Class C – s3, d2 or better (European class) or Class 0 or Class 1 (National classes);

(2) Where the cavity is over an undivided area and is used as a plenum and exceeds 40 m (in both directions on plan), there is no limit to the size of the cavity if:

(a) the room and the cavity together are compartmented from the rest of the building;

(b) an automatic fire detection and alarm system is fitted in the building with smoke detectors in the cavity and in the return air ducting, and which stops circulation of the ventilation system and switches it to extract;

- (c) The surface of the material or product used in the construction of the ceiling and which is exposed in the cavity is Class B-s3, d2 or better (European) or Class O (National) and the supports and fixings of the suspended ceiling in the cavity are of non-combustible construction;
- (d) the flame spread rating of any pipe insulation system is Class C - s3, d2 (European) or Class 1 (National);
- (e) any electrical wiring in the void is laid in metal trays or in metal conduit; and
- (f) any other materials in the cavity are of limited combustibility.
- (3) in a wall which should be fire-resisting only because it is loadbearing;
- (4) in a masonry or concrete external cavity wall as shown in Diagram 17;
- (5) in a floor or a roof space where the cavity is enclosed on the lower side by a fire-resisting ceiling (as shown in Diagram 19) which extends throughout the building, compartment or separated part, subject to a limit of 30 m on the extent of any such cavity;
- (6) below a floor next to the ground or oversite concrete, if the cavity is less than 1 m in height or if the cavity is not normally accessible by persons, unless there are openings in the floor such that it is possible for litter to accumulate in the cavity (in which case cavity barriers should be provided, and access should be provided to the cavity for cleaning);
- (7) formed by over-cladding an existing masonry (or concrete) external wall, or an existing concrete roof, provided that the cavity does not contain combustible insulation; and
- (8) between double-skinned corrugated or profiled insulated roof and wall sheeting if the sheeting is a material of limited combustibility and both surfaces of the insulating layer have a surface spread of flame of at least Class C - s3, d2 European or at least Class 1 (National) (see Appendix A) and make contact with the inner and outer skins of cladding (see Diagram 21).

[MCL Comment/ Reply]: Refer to table below

Location of Cavity	Class of Surface	Maximum Dimension (m)
Between a roof and Ceiling	Any	20
Any other Cavity	Class 1 (National Class)	20
	Class C-s3, d2 (European)	20
	Any other class	20

Notes- The following exceptions apply:

- Where any room under a ceiling cavity exceeds the dimensions given, cavity barriers need only be provided on the line of the enclosing walls/partitions of that room - subject to cavity barriers not being more than 40m apart in any direction and the surface of the material/product exposed in the cavity being at least Class C-s3, d2 (European) or Class 1 (National).
- Cavity barriers are not required in a wall which shall be fire-resisting only because it is load-bearing.
- Cavity barriers are not required below a floor next to the ground or over site concrete, if the cavity is less Than 1m in height or if the cavity is not normally accessible by persons, unless there are openings in the floor such that it is possible for litter to accumulate in the cavity.
- Cavity barriers are not required in a cavity formed by over-cladding an existing masonry or concrete external wall, or an existing concrete roof, provided that the cavity does not contain combustible insulation.

5. Cavity barriers are not required between double-skinned corrugated or profiled insulated roof and wall sheeting if the sheeting is a material of limited combustibility and both surfaces of the insulating layer have a surface spread of flame rating of at least Class C-s3, d2 (European) of Class 1 (National), and make contact with the inner and outer skins of the cladding, as shown in Diagram 21 of TGD B.

3.3.4 - Construction and Fixings for Cavity Barriers

[TGD B 2006 States]

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

Notes:

(a) 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.

(b) a cavity barrier may be formed by any construction provided for another purpose if it meets the provisions for cavity barriers.

Cavity barriers should 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 should be fire-stopped.

Cavity barriers should 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.

For example, if a suspended ceiling is continued over the top of a fire-resisting wall or partition and direct connection is made between the ceiling and the cavity barrier above the line of the wall or partition, premature failure of the cavity barrier can occur when the ceiling collapses. However, this does not arise if the ceiling is designed to provide fire protection of 30 minutes or more.

[MCL Comment/ Reply]: In accordance with paragraph 3.3.4 of TGD B any cavity barriers provided will have a fire resistance of at least 30 minutes integrity and 15 minutes insulation and be mechanically fixed tightly of rigid construction, if this is not possible the junction is to be fire stopped.

Cavity barriers will be fixed so that their performance is unlikely to be affected by:

- Movement in the building due to subsidence, shrinkage and thermal change.
- Collapse in a fire of any services penetrating them.
- Failure in a fire of any material or construction which they abut.

3.3.5 - Openings in Cavity Barriers

[TGD B 2006 States]

Any openings in a cavity barrier should be limited to those for:

- (a) doors which have at least 20 minutes fire resistance (see Appendix B, Table B1, item 8(a)) and are fitted in accordance with the provisions of Appendix B; and
- (b) the passage of pipes which meet the provisions in sub-section 3.4; and
- (c) the passage of cables or conduits containing one or more cables; and
- (d) openings fitted with a suitably mounted automatic fire shutter; and
- (e) ducts which (unless they are fire-resisting) are fitted with a suitably mounted automatic fire shutter where they pass through the cavity barrier.

[MCL Comment/ Reply]: Openings in cavity barriers will be limited to:

- Doors which have at least 20 – minutes fire resistance,
- Pipes, cables, conduits and ducts provided they are adequately fire stopped.
- Openings fitted with a suitable mounted fire shutter.

It is noted that, in the case of a stud wall or partition, the stud members may be used as the cavity barrier, subject to the following minimum thickness of stud members:

- Steel studs not less than 0.5 mm thick
- Timber studs not less than 38mm thick.

3.4 - Protection of Openings and Fire-Stopping

3.4.1 - Introduction

[TGD B 2006 States]

Earlier sections of this Document describe the provision of barriers to fire, and the circumstances in which there may be openings in them. This Section deals with the protection of openings in such barriers.

If an element that is intended to provide fire separation (i.e. it has requirements for fire resistance in terms of integrity and insulation) is to be effective, then every joint, or imperfection of fit, or opening to allow services to pass through the element, should be adequately protected by sealing or fire-stopping so that the fire resistance of the element is not impaired. Building service installations should be designed in accordance with BS 8313:1997. The provisions of this Section also apply to openings in protected corridors which are provided for the protection of the means of escape (see B1).

Provisions for door openings and fire doors are given in Appendix B because they are relevant to B1 and B5, as well as B3.

The measures are intended to delay the passage of fire. They generally have the additional benefit of retarding smoke spread but the test specified in Appendix A for integrity does not stipulate criteria for the passage of smoke as such.

3.4.2 - Openings for Pipes

Pipes which pass through a compartment wall or compartment floor (unless the pipe is in a protected shaft), or cavity barrier, should meet the appropriate provisions in alternatives A, B or C below.

Alternative A: Proprietary Seals (any pipe diameter)

Provide a proprietary sealing system which has been shown by test to maintain the fire resistance of the wall, floor or cavity barrier.

Alternative B: Pipes with a restricted diameter

Where a proprietary sealing system is not used, firestopping may be used around the pipe, keeping the opening as small as possible. The nominal internal diameter of the pipe should not be more than the relevant dimension given in Table 3.4.

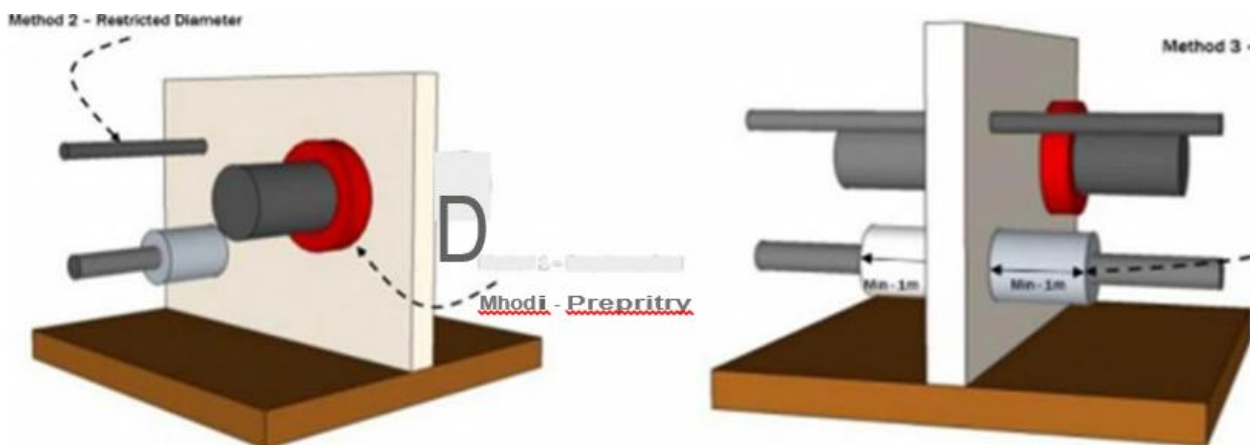
The diameters given in Table 3.4 for pipes of specification (b) used in situation (2) assume that the pipes are part of an above ground drainage system and are enclosed as shown in Diagram 22. If they are not, the smaller diameter given in situation (3) should be used instead.

Alternative C: Sleeving

A pipe of lead, aluminium, aluminium alloy, asbestos -cement or uPVC, with a maximum nominal internal diameter of 160 mm, may be used with a sleeving of non-combustible pipe as shown in Diagram 23. The specification for non-combustible and uPVC pipes is given in the notes to Table 3.4.

[MCL Comment/ Reply]:

Any service penetrations in fire resisting elements of construction as a result of the proposed works will be constructed as detailed in Figure 3 below. Further information on fire stopping is provided in Section 4.7.1 below.



Notes:

1. The above diagram does not take into account the specific requirements of various manufacturers installation requirements and is provided for guidance only. When using a particular product, manufacturer installation instructions shall be followed at all times.

3.4.3 - Ventilating Ducts

[TGD B 2006 States]

Ventilation and air conditioning ducts which pass from one compartment to another should be protected in accordance with the recommendations contained in BS 9999:2017 Fire safety in the design, management and use of buildings - code of practice (Incorporating corrigendum No. 1)

[MCL Comment/ Reply]: All ducts shall be in accordance with the above requirement.

3.4.4 - Flues, etc.

[TGD B 2006 States]

If a flue, or duct containing flues or appliance ventilation duct(s), passes through a compartment wall or compartment floor, or is built into a compartment wall, the walls of the flue or duct should have a fire resistance

of at least half that of the wall or floor in order to prevent the by-passing of the compartmentation (see Diagram 24). The walls enclosing the flue or duct should be of solid non-combustible construction.

[MCL Comment/ Reply]: All flues shall be in accordance with the above requirement.

3.4.5 - Fire-Stopping

[TGD B 2006 States]

In addition to any other provisions in this document for fire-stopping:

- (a) joints between elements which serve as a barrier to the passage of fire should be fire-stopped; and
- (b) all openings for pipes, ducts, conduits or cables to pass through any part of an element which serves as a barrier to the passage of fire should be -
 - (i) kept as few in number as possible, and
 - (ii) kept as small as practicable, and
 - (iii) fire-stopped (which in the case of a pipe or ducts, should allow thermal movement).

To prevent displacement, materials used for firestopping should be reinforced with (or supported by) materials of limited combustibility in the following circumstances:

- (a) in all cases where the unsupported span is greater than 100 mm, and
- (b) in any other case where non-rigid materials are used (unless they have been shown to be satisfactory by test).

Proprietary sealing systems (including those designed for service penetrations) which have been shown by test to maintain the fire resistance of the wall or other element are available.

Other suitable fire-stopping materials include:

- Cement or lime mortar,
- Gypsum based plaster,
- Cement or gypsum-based vermiculite/perlite mixes,
- Glass fibre, mineral wool, crushed rock, blast furnace slag or ceramic based products (with or without resin binders),
- Intumescent mastics.

These may be used only in situations which are suitable for the particular fire-stopping materials.

[MCL Comment/ Reply]: All openings, joints, imperfections of fit in or between the designated fire barriers (i.e. fire rated partitions/walls/floors and cavity barriers) will be fire-stopped in accordance with Paragraph 3.4 of TGD B so that the fire resistance rating of the barrier is not impaired, as follows:

Building services within ducts will be designed in accordance with Section 13, BS 8313:1997. Any pipes passing through walls or floors (where the pipe is not in a protected shaft) or cavity barriers will meet the provisions of Paragraph 3.4.2 and Table 3.4 of TGD B as follows:

- A proprietary sealing system which has been certified by test to maintain the fire resistance of the element.
- Where the pipe diameter is not greater than 160mm for a pipe constructed of non-combustible materials, or 40mm for any material, it can be fire-stopped using any other suitable fire stopping material;
- The opening around the pipes will be fire stopped. The opening will be kept as small as possible. A pipe of lead, aluminium, aluminium alloy, asbestos-cement or uPVC with a maximum nominal diameter of 160mm may

be used with a sleeving of non-combustible pipe as it passes through, and for 1m either side of the element, as shown in Diagram 23 of TGDB.

2. Services openings will be:

- Kept as few as possible;
- Kept as small as practicable;
- Fire-stopped (which will allow thermal movement in the case of pipes or ducts).

3. Fire stopping materials will be reinforced with or supported by materials of limited combustibility where the unsupported span is greater than 100mm and in any other case, not validated by test, where non-rigid material is used.

4. Fire-stopping materials will be:

- Test validated proprietary systems;
- Where suitable for the specific application any of the following:
 - i. Cement or lime mortar;
 - ii. Gypsum based plaster;
 - iii. Cement or gypsum based vermiculite/perlite mixes, glass, crushed rock, blast furnace slag or ceramic based products with or without resin binders; or
 - iv. Intumescent mastics.

Fire-stopping will be carried out to joints between elements, which serve as a barrier to the passage of fire and to all pipes, ducts, conduits, or cables, which pass through any part of an element that serves as a barrier to the passage of fire.

3.5 - Special Provisions

3.5.1 - Introduction

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate application.

Section B4 - External Fire Spread

The Requirement – External fire spread B4

[TGD B 2006 States]

The external walls and roof of a building shall be so designed and constructed that they afford adequate resistance to the spread of fire to and from neighbouring buildings.

4.0 Introduction to Provisions

4.0.1 – General

[TGD B 2006 States]

The construction of external walls and the separation between buildings to prevent external fire spread are closely related.

The chances of fire spreading across an open space between buildings, and the consequences if it does, depend on:

the size and intensity of the fire in the building concerned;

the risk it presents to people in the other building(s);

the distance between the buildings; and

the fire protection given by their facing sides. Provisions are made in sub-section 4.1 for the fire resistance of external walls, and to limit the susceptibility of the external surface of walls to ignition and to fire spread.

Provisions are made in sub-section 4.2 to limit the extent of openings and other unprotected areas in external walls in order to reduce the risk of fire spread by radiation.

Provisions are made in sub-section 4.3 for reducing the risk of fire spread between and over roofs.

4.1 Construction of External Walls

4.1.1 – Introduction

[TGD B 2006 States]

Under B3, provisions are made in sub-section 3.1 for internal and external loadbearing walls to maintain their loadbearing function in the event of fire.

Provisions are made in this Section for the external walls of the building to have sufficient fire resistance to prevent fire spread across the relevant boundary. The provisions are closely linked with those for space separation in sub-section 4.2 which sets out limits on the amount of wall area that need not be fire-resisting (termed unprotected area). As the limits depend on the distance of the wall from the relevant boundary, it is possible for some, or all, of the walls to be permitted to have no fire resistance except for any parts which are loadbearing.

External walls are elements of structure and the relevant period of fire resistance (which is specified in Appendix A) depends on the use, height and size of the building concerned, and whether the wall is within 1 m of the relevant boundary.

Provisions are also made to restrict the amount of combustible surfaces on buildings that are very close (less than 1 m) to the relevant boundary and/or on high buildings. This is in order to reduce the susceptibility of ignition of the surface from an external source, and to reduce the possibility of fire spread up the external face of the building.

[MCL Comment/ Reply]:

All external walls will be in accordance with the above requirements

4.1.2 - Fire Resistance Standard

[TGD B 2006 States]

The external walls of the building should have the appropriate fire resistance given in Appendix A, Table A1, unless they are permitted to form an unprotected area under sub-section 4.2.

[MCL Comment/ Reply]: The external wall of the buildings will have appropriate fire resistance standard detailed in section 3 of this Report. However a certain extent of unprotected area will be permitted on the external walls where the wall is not required for load bearing capacity and where there is no risk of external fire spread to site or notional Boundaries, or to opposing buildings.

4.1.3 - Portal Frames

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate application

4.1.4 - External Surfaces

[TGD B 2006 States]

The external surfaces of walls should meet the provisions in Table 4.1. However, the total amount of combustible material may be limited in practice by the provisions for space separation in sub-section 4.2 (see par. 4.2.6).

Where a mixed use building includes Assembly and Recreation Purpose Group accommodation, the external surfaces of walls should meet the provisions in Table 4.1 (Note 1)

Note: One alternative to meeting the provisions in Table 4.1 could be BRE Fire Note 9 Assessing the fire performance of external cladding systems: a test method (BRE, 1999).

[MCL Comment/ Reply]:

All external surfaces will be in accordance with the above requirements

4.1.5 - External Wall Construction

[TGD B 2006 States]

The external envelope of a building should not provide a medium for fire spread. The use of combustible materials for cladding framework, or of combustible thermal insulation as an over cladding in drained and/or ventilated cavities, may present such a risk in tall buildings, even though the provisions for external surfaces in Table 4.1 may have been **satisfied**.

In the case of the outer cladding of a wall with a drained and/or ventilated cavity, the surface of the outer cladding which faces the cavity should also meet the provisions of Table 4.1

In a building more than 18m high, (see Diagram 37, Appendix C) insulation material used in drained and/or ventilated cavities in the external wall construction should be of limited combustibility (see Appendix A). This restriction does not apply to masonry cavity wall construction which complies with Diagram 17.

Advice on the use of thermal insulation material is given in the BRE Report Fire performance of external thermal insulation for walls of multi-storey buildings (BR 135, 1988).

[MCL Comment/ Reply]: Refer to table below

Max height of Building	Distance from boundary	Recommendations for external wall.
8m	>1m	Class C-s3, d2 or Class 1

4.2. - Space Separation

4.2.1 - Introduction

[TGD B 2006 States]

The provisions in this Section limit the extent of openings and other unprotected areas in the sides of the building (including areas with a combustible surface) which will not give adequate protection against the spread of fire.

The provisions assume:

(a) that the size of the fire will depend on the compartmentation of the building, so that the fire will involve a complete compartment, but will not spread across lines of compartmentation;

(b) that the intensity of the fire is related to the use of the building (i.e. purpose group), but that it can be moderated by a sprinkler system;

- (c) that residential and assembly and recreation purpose groups represent a greater life risk than other uses;
- (d) that the building on the adjoining site has an identical elevation to the one in question, and is at the same distance from the common boundary; and
- (e) that no significant radiation will pass through any parts of the external wall that have fire resistance.

It may sometimes be advantageous to construct compartments of a smaller size than indicated by B3, or to provide compartments where none would otherwise be necessary, in order to reduce the separation distance (or to increase the amount of unprotected area in the wall without increasing the separation distance).

4.2.2 - Boundaries

[TGD B 2006 States]

The use of the distance to a boundary rather than to another building in measuring the separation distance makes it possible to calculate the allowable proportion of unprotected areas, even where another building does not exist but may do.

A wall should be treated as facing a boundary if it makes an angle with it of 80° or less (see Diagram 25).

Usually only the distance to the boundary of the site needs to be considered. The meaning of the term boundary is explained in Diagram 25.

[MCL Comment/ Reply]: Refer to table below

Kildangan National School Extension		
Elevation	Description	Distance from Boundary (m)
East	Red line Boundary	7.7
South 1	Red line Boundary	6.6
South 2	Red line Boundary	1.1
West	Notional Boundary between School	3
North	Red line Boundary	5.3

Note: refer to attached site plan for location of each boundary.

4.2.3 - Notional Boundaries

[TGD B 2006 States]

In some circumstances the distances to other buildings on the same site needs to be considered. This should be done by assuming a boundary called a notional boundary between those buildings.

The concept of a notional boundary between two buildings on the same site and the rules that apply are illustrated in Diagram 26.

In general, it is not necessary to consider the separation distance between buildings on the same site unless one of the buildings, whether new or existing, is of Residential (Purpose Groups 1(a), 1(b), 1(c), 2(a), 2(b)) or Assembly and Recreation (Purpose Group 5) use.

Where a number of buildings of any purpose group occupy the same site and where each building is under different ownership, tenancy or occupancy or where sub-division of the site is likely to occur, it would in these circumstances be appropriate to consider space separation between all buildings on the same site.

Where buildings of any purpose group occur on the same site and where space separation has not been considered, then it is necessary to take into account the compartmentation requirements under Section B3 (3.2) as if they were connected together as one building.

Space separation between opposing elevations of the same building (see 3.2.5.9) may also need to be considered. The principles contained in this Section are also relevant to these situations.

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate

4.2.7 - External Walls Within 1 m of the Relevant Boundary

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

4.2.8 - External Walls 1 m or more from the Relevant Boundary

[TGDB 2006]

A wall situated at least 1 m from any point on the relevant boundary will meet the provisions for space separation if:

(a) the extent of unprotected area does not exceed that given by one of the methods referred to in 4.2.8.1 below, and

(b) the rest of the wall (if any) is fire-resisting.

[MCL Comment/ Reply]: Refer to the table in the below section.

4.2.8.2 - Basis for calculating acceptable unprotected area

[TGD B 2006 States]

The basis of methods 1 and 2 is set out in Fire Research Technical Paper No. 5 (1963). This has been reprinted as part of the BRE Report referred to in 4.2.8.1 above. The aim is to ensure that the building is separated from the boundary by at least half the distance at which the total thermal radiation intensity emitted from all unprotected areas in the wall would be 12.6 kW/m² (in still air) assuming the radiation intensity at each unprotected area is:

(a) 84 kW/m², if the building is in the residential, office or assembly or Recreation purpose groups, and

(b) 168 kW/m², if the building is in the shop, commercial, industrial, storage or other non-residential purpose groups.

[MCL Comment/ Reply]: The permitted unprotected area of each elevation has been assessed in accordance with TGD Band the tables' method outlined in BR187. These are shown in Table below.

Kildangan National School Extension						
Elevation	Enclosing rectangle (m)	Appropriate enclosing rectangle (m)	Distance from Boundary (m)	Unprotected Area (% sqm)		Fire Resistance required
				Permitted	Actual	
West	3.4 x 5.4	3 x 3	3	100	44	No
East P	7.7 x 12.7	6 x 12	7.7	100	1.5	No
East E	3.7 x 6.7	3 x 6	3	100	22	No
South 1	4.4 x 40	3 x 40	6.6	100	53	No

South 2	7.5 x 11.5	6 x 9	1.1	20	11	No
North	6.6 x 52	6 x 50	5.3	50	15	No

Proposed West Elevation Separation calculation.

Enclosing rectangle = 3.4 x 5.4m
Appropriate enclosing rectangle = 3m x 3m
Boundary distance = 3 m
Permitted unprotected area = 100%
Actual unprotected area = 44 %
Method: Appendix 1 - BR 187 (2014)

Proposed East Elevation Separation calculation.

Enclosing rectangle = 7.7 x 12.7m
Appropriate enclosing rectangle = 6m x 12m
Boundary distance = 7.7m
Permitted unprotected area = 100%
Actual unprotected area = 1.5 %
Method: Appendix 1 - BR 187 (2014)

Existing East Elevation Separation calculation.

Enclosing rectangle = 3 x 6.7 m
Appropriate enclosing rectangle = 3m x 6m
Boundary distance = 3 m
Permitted unprotected area = 100%
Actual unprotected area = 22%
Method: Appendix 1 - BR 187 (2014)

Proposed South Elevation 1 Separation calculation.

Enclosing rectangle = 4.4 x 40m
Appropriate enclosing rectangle = 3m x 40m
Boundary distance = 6.6m
Permitted unprotected area = 100%
Actual unprotected area = 53%
Method: Appendix 1 - BR 187 (2014)

Proposed South Elevation 2 Separation calculation.

Enclosing rectangle = 7.5 x 11.5m
Appropriate enclosing rectangle = 6m x 9m
Boundary distance = 1.1m
Permitted unprotected area = 20%
Actual unprotected area = 11%
Method: Appendix 1 - BR 187 (2014)

Proposed North Elevation Separation calculation.

Enclosing rectangle = 6.8 x 52m
Appropriate enclosing rectangle = 6m x 50m
Boundary distance = 5.3 m
Permitted unprotected area = 50%
Actual unprotected area = 15%
Method: Appendix 1 - BR 187 (2014)

4.2.8.3 - Sprinkler systems

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

4.2.9 - Material Alteration of Existing Buildings

[TGD B 2006 States]

In the case of a material alteration of an existing building, the requirements in relation to space separation may be met where:

- There is no increase in the extent of unprotected areas to the existing external walls of the building; and
- the building is not altered or extended by the provision of additional floor area(s).

[MCL Comment/ Reply]: The Material alterations in the existing building will comply with the above requirements

4.2.10 - Material Change of Use of Existing Buildings

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate

4.3. - Roof Coverings

4.3.1 - Introduction

[TGD B 2006 States]

The provisions in this sub-section limit the proximity to the boundary of those types of roof covering which will not give adequate protection against the spread of fire.

4.3.2 - Other Controls on Roofs

[TGD B 2006 States]

There are provisions concerning the fire properties of roofs elsewhere. In B3, there are provisions in sub-section 3.2 for roofs that pass over the top of a compartment wall or separating wall. In B2, there are provisions for the internal surfaces of rooflights as part of the internal lining of a room or circulation space.

4.3.3 - Classification of Performance

[TGD B 2006 States]

The performance of roof coverings is determined in accordance with BS EN 13501-5:2016 - TC, Fire classification of construction products and building elements, Part 5 – Classification using test data from external fire exposure to roof tests or is designated by reference to the test methods specified in BS 476: part 3: 2004, as described in Appendix A. The notional performance of some common roof coverings is given in table A5 of Appendix A.

DD CEN/TS 1187:2012 Test methods for external fire exposure to roofs also refers.

Rooflights are controlled on a similar basis, although there is a different method of classification for plastic rooflights.

[MCL Comment/ Reply]: Refer to table below

Location	Separation distance	(National Class)	Minimum Designation required (European class)
All	<6	AA, AB or AC	Broof(t4)

4.3.5 - Plastic Rooflights

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate application

4.3.6 - Glass in Rooflights

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate application.

Section B5 - Access and Facilities for the Fire Service

The Requirement – Access and facilities for the fire service B5

[TGD B 2006 States]

A building shall be so designed and constructed that there is adequate provision for access for fire appliances and for such other facilities as may be reasonably required to assist the fire service in the protection of life and property.

5.1. Fire Mains

5.1.1 - Introduction

[TGD B 2006 States]

Fire mains are pipes installed in and around a building and equipped so that the fire service may connect hoses to receive a supply of water to fight fires. Fire mains are divided into two types as follows:

- Internal fire mains (see 5.1.2); and
- External fire mains and hydrants (see 5.1.7, 5.1.8).

5.1.2 - Provision of Internal Fire Mains

[MCL Comment/ Reply]: Not applicable to this Fire Safety Certificate application

5.1.3 - Number and Location of Internal Fire Mains

[TGD B 2006 States]

Where internal fire mains are installed, they should be positioned so that at each level other than ground level there is one main for every firefighting shaft provided to meet the provisions in paragraph 5.3.3.

If there are no firefighting shafts but internal fire mains are to be installed, the criteria in par. 5.3.3 for the number and location of firefighting shafts may be used to determine the provision of internal fire mains, even though the building may not have a storey at more than 20 m above ground level.

[MCL Comment/ Reply]: Height of top storey above ground level : <20m

Internal fire mains required ? : No

5.1.4 – Outlets

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

5.1.6 - Sources of Water for Firefighting

[TGD B 2006 States]

Water for firefighting is available by way of a number of possible sources as follows:

- (a) Water carried on fire appliances (water tenders, water tankers, etc.);
- (b) Hydrants on external fire mains;
- (c) Static storage tanks or reservoirs where provided;
- (d) Other sources such as rivers, canals, ponds, etc., where adequate access for pumping is available.

[MCL Comment/ Reply]: Hydrants on external fire mains

5.1.7 - Provision of Hydrants

[TGD B 2006 States]

The following buildings should be provided with one or more external fire hydrants, complying with the requirements of BS 750:2023 Underground fire hydrants - Surface box frames and covers – Specification and covers, and with any specific requirements of the relevant fire authority:

- every building provided with an internal fire main, wet or dry;
- every building having a floor area on any storey of more than 1000 m²;

For buildings, or groups of buildings, exceeding 1000 m² in ground floor area, at least one hydrant should be provided for every 1000 m² of the area covered at ground level.

Fire hydrants should be located as shown in Diagram 30 and such that:

- The distance from the building is not less than 6 m or more than 46 m;
- The distance from a hydrant to a vehicle access roadway or hard-standing area for fire appliances (see 5.2) is not more than 30 m;
- They are distributed around the perimeter of the building, having regard to the provision of access for fire appliances (see 5.2): and
- The hydrants are located on the same site as the building or are provided by a sanitary authority on a public roadway adjacent to the site.

A hydrant situated inside a building may also be acceptable where it is:

- In a separate fire compartment i.e. separated from the rest of the building by compartment walls;
- Not more than 4.5 m and visible from an entrance to the building; and
- Indicated by a suitable notice at the entrance.

All hydrants should be conspicuously marked in accordance with BS 3251: 1976 Specification of indicator plates for fire hydrants and emergency water supplies.

[MCL Comment/ Reply]: The entire Floor area of the building is 1312m² which means one hydrant is required for the building. The existing site already has 0 fire hydrants so 1 new hydrant is required.

5.2. Vehicle Access

5.2.1 – Introduction

[TGD B 2006 States]

Fire brigade vehicle access to the exterior of a building is required to enable high reach appliances, such as turntable ladders and hydraulic platforms, to be deployed, and to enable pumping appliances to supply water and equipment for firefighting

Access requirements increase with building size and height and also depend on whether the building is fitted with internal fire mains (see 5.1).

Access for fire appliances should be provided in accordance with the provisions outlined in 5.2.2 below.

Vehicle access routes and hard-standings should meet the criteria described in 5.2.4 if they are to be used by fire service vehicles.

5.2.2 - Provision of Vehicle Access

[TGD B 2006 States]

For effective firefighting operations, fire brigade appliances should be able to get within easy reach of a building. For small buildings it is generally only necessary to have access to one external elevation, but larger buildings will require access to all or a number of elevations.

Vehicle access should be provided in accordance with the criteria indicated in Table 5.1. Any elevation to which vehicle access is provided in accordance with Table 5.1 should contain a door giving access to the interior of the building.

In the case of a building fitted with a dry internal fire main, access for a pump appliance should be provided to within 18 m and within sight of the inlet connection point.

In the case of a building fitted with a wet internal fire main, access for a pump appliance should be provided to within 18 m and within sight of an entrance giving access to the main and within sight of the inlet connection to the suction tank for the main.

In the case of a building which has adjoining buildings on one or more sides, the perimeter (see 5.0.4 and Diagram 31 for the definition of 'perimeter') which is available to provide access is less than for a freestanding building. Where there are adjoining buildings on more than two sides, the access requirement derived from Table 5.1 may not therefore be adequate. In these situations it may be appropriate to consult with the relevant fire authority in relation to access and other facilities or compensating features as are considered necessary.

In the provision of access for fire appliances, consideration should also be given to the position of any hydrants required by reason of the criteria outlined in 5.1.

[MCL Comment/ Reply]:

Perimeter (Vehicle) Access

Building volume (in range) :10,102 m³

Height of top storey above ground = <10m

Extent of perimeter access required = 15% of available perimeter

Total Perimeter of building = 193 m

Available extent of perimeter access = 35m along north & east elevation equates to 28% of building perimeter

Type of appliance = Pump

The extent of access to the building is provided from the public road. There is no access onto the site for vehicles.

5.2.4 - Design of Access Routes and Hard standings

[TGD B 2006 States]

A vehicle access route may be a public or private road, or other route, which, including any manhole or other covers, meets the standards in Table 5.2, Diagram 32 and the following paragraphs.

Access routes to buildings with any storey at more than 10 m above ground level should meet the standards for high reach appliances. For lower buildings the access should be to the standards for pumping appliances.

Where access is provided to an elevation in accordance with Table 5.2, overhead obstructions such as overhead cables that would interfere with the setting of ladders etc., should be avoided in the area shown on Diagram 32.

Where access roadways are provided within the site of a building, turning facilities for appliances, in accordance with the requirements of Table 5.2 should be provided in any dead-end access route that is more than 20 m long.

[MCL Comment/ Reply]: All new hard standing routes in the project comply with the above requirements.

5.3. - Personnel Access to Buildings for Firefighting

5.3.1 - Introduction

[TGD B 2006 States]

In low rise buildings without deep basements fire service personnel access requirements may be met by a combination of the normal means of escape, and the measures for vehicle access in sub-section 5.2, which facilitate ladder access to upper storeys. In other buildings the problems of reaching the fire, and working inside near the fire, merit the provision of additional facilities to avoid delay and to provide a sufficiently secure operating base to allow effective action to be taken.

These additional facilities include firefighting lifts, firefighting stairways and firefighting lobbies, which are combined in a protected shaft known as the firefighting shaft (Diagram 33).

Provisions for protected shafts in general are given in Section B3.

[MCL Comment/ Reply]: Personnel access is provided by the normal means of escape from the building.

5.3.2 - Provision of Firefighting Shafts

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

5.3.3 - Number and Location of Firefighting Shafts

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

5.4 - Areas Requiring Special Consideration

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

5.4.1 - Boiler Rooms and Fuel Stores

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate

5.4.2 - High Voltage Discharge Lighting

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate.

5.4.2.1 - Provision of switches

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate

5.4.2.2 - Requirements for switches

[MCL Comment/ Reply]: Not Applicable to this Fire Safety Certificate

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