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Rosedale College
NTB2 Stage 4 Fire Strategy

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C04	24-12-12	Revised to Update Drawing References
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REV	Date	Revision Title

ALL REVISIONS

Rosedale College -NTB2

SRP1077-AEC-02-XX-T-K-0004
Stage 4 Fire Strategy

Bouygues UK

04 April 2025

Delivering a better world

Quality information

Prepared by	Checked by	Verified by	Approved by
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Revision History

Revision	Revision date	Details	Authorized	Name	Position
C01	09/11/2023	Issued for Design Team comments	Yes	Iain Heath	Technical Director (Fire Engineering)
C02	08/12/2023	Final Stage 4 issue	Yes	Iain Heath	Technical Director (Fire Engineering)
C03	02/09/2024	Updated to CP clarification comments	Yes	Iain Heath	Technical Director (Fire Engineering)
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Executive Summary

AECOM has been commissioned by Bouygues to provide fire engineering support during the RIBA Stage 4 design of the proposed development for Rosedale College. The development comprises of two new buildings, NTB1 and NTB2. This report focuses on the NTB2 building. The fire strategy for NTB1 is described in a separate fire strategy document.

The purpose of this report is to explain the key fire safety design elements within the building for formal issue to the Approving Authority, who will in turn consult with London Fire Brigade (LFB), in support of a Building Regulations submission with a view to gaining an approval with respect to compliance with the requirements of Schedule 1, Part B of Building Regulations 2010. This report has been written to address fundamental Regulatory Requirements associated with life safety issues. The basis of design adopted for this building is BS 9999.

The report has been written primarily to address life safety matters. However, the Department for Education Employer Requirements Part B: Generic design brief and its technical annexes stipulate additional or enhanced fire safety provisions, which will provide benefits in terms of insurance and property protection.

Generally, the building will include the following fire safety provisions:

- Means of escape features will include suitable fire exits and two protected stairs, in accordance with the recommendations of BS 9999 for the relevant risk profiles;
- A Category L2/P2 automatic detection and alarm system will be provided throughout;
- A simultaneous evacuation regime will be implemented;
- Due to the provision of a single evacuation lift, evacuation for mobility impaired persons will be provided by an evacuation lift where possible; alternative managed evacuation procedures will be in place for scenarios where level egress is not achievable;
- The spread of flame over internal linings and building fabric will make limited contribution to fire growth;
- Elements of structure will achieve 60 minutes (R) and fire resisting construction will be used where necessary to inhibit the spread of fire within the building;
- External fire spread assessments to relevant boundaries have been carried out using the enclosing rectangles method from BR 187 - fire resistance requirements of the external walls and relevant methods of exposure on all façades have been stated and will need to be achieved; and
- Access and facilities for the Fire Service will be achieved through perimeter access to the building and adequate provision of fire hydrants.

Typically, guidance from BS 9999 has been followed throughout the design to achieve the performance objectives of the Building Regulations. In some instances, alternative solutions have been proposed as listed below. Note that these descriptions are brief and further details on the same and are provided in Table 4 and the body of the report:

- Toilets on each floor are open to the corridors, thus producing dead-end corridors with lengths greater than 2 m;
- Storerooms within the kitchen are not enclosed in fire resisting construction; and
- Space separation between buildings on the same site, with respect to external fire spread, is being ignored, as the site is managed as a whole.

1. Introduction

AECOM has been commissioned by Bouygues to provide fire engineering support during the RIBA Stage 4 design of two new buildings to form part of Rosedale College campus. This report focuses on the New Teaching Block 2 (NTB2) building. The fire strategy for New Teaching Block 1 (NTB1) is described in a separate fire strategy document.

AECOM has:

- Developed a fire strategy for each building which achieves compliance with the design brief;
- Presented the fire safety features and systems required to meet the minimum life safety requirements for each building; and
- Presented justifications for the elements which deviate from the code recommendations.

The purpose of this RIBA Stage 4 report is to explain the key fire safety design elements within the NTB2 building, for formal issue to the Approving Authority and the London Fire Brigade in support of a Building Regulations submission with a view to gaining an approval with respect to compliance with the requirements of Schedule 1, Part B of Building Regulations 2010 with 2022 amendments. The report has been written to address the fundamental regulatory requirements associated with life safety issues.

It is noted that some of the fire safety measures proposed, which are primarily focused on life safety, may provide benefits in terms of property protection and insurance. The fire safety measures proposed will also adopt the Department for Education (DfE) Employer Requirements Part B: Generic design brief and its technical annexes which might offer benefits in terms of insurance and property protection.

1.1 Goals and Objectives

The fire engineering design process involves the development of fire safety solutions that meet appropriate fire safety goals within the project constraints.

The overall objective is to develop a fire safety solution which could comply with applicable legislation and planning policy in England, i.e.:

- The Building Regulations 2010, Schedule 1, Part B (Part B);
- The London Plan 2021;
- Construction Design and Management Regulation 2015 (CDM); and
- Regulatory Reform (Fire Safety) Order 2005 (RR(FS)O).

The minimum Fire Strategy goals for the project are taken to be:

- To comply with the functional requirements of Part B;
- To be designed, buildable and maintainable in accordance with CDM; and
- To be manageable in accordance with the RR(FS)O without relying on an unrealistic or unsustainable management regime.

1.2 Relevant Legislation, Policy and Guidance

The relevant legislation includes Part B of the Building Regulations 2010 and the Regulatory Reform (Fire Safety) Order 2005. The Fire Strategy must, ultimately, achieve the functional requirements of the Building Regulations, namely the functional requirements of B1- B5, as set out in Schedule 1 of the Building Regulations 2010. The guidance presented in this report is based upon the recommendations BS 9999: 2017. The Building Bulletin 100 – Design for fire safety in schools 2007 (BB 100) has been used to supplement BS 9999 for specific guidance for lockers in corridors, notice boards and places of special fire hazard. This approach has been presented to and agreed upon by all stakeholders.

In accordance with Section 2 of BS 9999, the latest revision of all referenced British Standards should be adopted except where dated references are explicitly referenced. Notably, the 2013 revisions of BS 5839-1 and BS 5839-8 will be adopted.

Where the design does not meet the recommendations of BS 9999, a fire engineered approach has been adopted which achieves the relevant functional requirements by alternative means, and the same has been supported with appropriate qualitative or quantified analysis. Any alternative approach ultimately adopted has been discussed with the wider design team and demonstrated as meeting the functional requirements of Schedule 1, Part B, to the Building Regulations, 2010.

This report has been produced with particular reference to the following legislation, regulation, and guidance:

- BS 9999: 2017 Code of practice for fire safety in the design, management and use of buildings, and the documents to which it refers;
- Building Bulletin 100 – Design for fire safety in schools 2007;
- Regulatory Reform (Fire Safety) Order 2005;
- Construction (Design and Management) Regulations 2015.
- The London Plan 2021; and
- Employer Requirements Part B: Generic design brief and its Technical Annexes.

1.2.1 DfE Evacuation Lift Lobby Definition

Following submission of Revision C02 of the Stage 4 Fire Strategy to the DfE, comments were raised regarding the number of rooms opening into the protected lobby containing the evacuation lift. The submitted lobby arrangement was in accordance with the recommendations of BS 9999 and consequently met the legislative requirements of Schedule 1, Part B of the Building Regulations 2010. Compliance was further supported by confirmation from Bureau Veritas, the Building Control body approving the project.

The DfE have since instructed a specific definition for protected lobbies to be applied to evacuation lifts. Bouygues UK have instructed the following drafting to cover the DfE requirement:

"*The Evacuation Lift lobbies are formed of a fire-resisting enclosure providing access to an escape stairway / final exit, into which no room opens other than toilets. Note that access to the stair or lift is via two sets of fire doors from circulation areas.*"

The above requirement has been adopted into the design; it should be noted that this DfE requirement is an employer requirement, over and above the minimum life safety recommendations. With this arrangement the protected lobbies will continue to meet the recommendations of BS 9999 to satisfy the legislative requirements of the Building Regulations 2010.

1.3 The London Plan

The London Plan 2021 is the Spatial Development Strategy for Greater London. It sets out a framework for how London will develop over the next 20-25 years and the Mayor's vision for Good Growth. The current London Plan was formally published in March 2021. There is significant emphasis on the design of buildings for fire safety, as detailed within London Plan Policy D12.

The London Plan states buildings should be designed and built to accommodate robust emergency evacuation procedures for all building users, including those who require level access. All building users should be able to evacuate from a building with dignity and by as independent means as possible. Policy D5 (Inclusive Design) B(5) of the London Plan specifies that each core shall have an associated evacuation lift to fulfil the above.

Policy D12 (Fire Safety) of the London Plan requires major developments to be submitted with a fire statement, which is an independent fire strategy, produced by a third party, suitably qualified assessor. A separate London Plan Fire Statement capturing the fire safety measures described in this report was submitted for this development for submission under planning.

The DfE School Generic Design Brief document requires all lifts to be evacuation lifts but does not require each core to include a lift. Naturally, the initial Control Option designs carried out directly for the DfE, follow their design brief and are used to confirm feasibility. Consequently, the DfE requirement in terms of lift numbers, is built into the project from the beginning.

As a result, the scheme does not comply with Policy D5 B(5) of the London Plan. It is understood, via communication with Bouygues that this approach, has been accepted in principle in pre-application planning meetings with Hillingdon.

It should be noted that the London Plan 2021 is a planning policy and is not a legislative requirement, such as Part B of the Building Regulations 2010. Conditional planning approval was granted on 14/02/24.

1.4 Regulatory Reform (Fire Safety) Order 2005

The Regulatory Reform (Fire Safety) Order 2005 came into force on 1st October 2006 and amends and consolidates a significant number of areas of fire safety law that previously were in place such as the Fire Precautions Act 1971 and the Fire Precautions (Workplace) Regulations 1997.

The Order places a general duty of fire safety care on employers, occupiers, and owners of almost all premises and requires them to provide and maintain adequate fire precautions.

Responsibility for complying with the Fire Safety Order rests with the responsible person. The responsible person has a duty to carry out a fire risk assessment which must focus on the safety in case of fire of all relevant persons. The risk assessment should pay particular attention to those at special risk, such as disabled people and those with special needs, and must include consideration of any dangerous substances likely to be on the premises.

1.5 Construction (Design Management) Regulations 2015

Construction projects undertaken in the UK are subject to the requirements of the Construction, Design, and Management Regulations (CDM).

Design work and other documentation produced by AECOM is intended to show how the particular project shall achieve relevant functional and performance requirements for the finished building, e.g., Schedule 1 to Part B of the Building Regulations when considering fire safety.

Where any conclusions or recommendations have been arrived at which specify particular materials, products or forms of construction, the Designer must eliminate, so far as is reasonably practicable, foreseeable risks to the health and safety of any person carrying out or liable to be affected by construction work, those maintaining or cleaning a structure or those using the structure as a workplace in accordance with CDM Regulation 9.

In the event that it is not possible to eliminate these risks, this information should be made available to the Principal Designer. In the event that combustible insulation has been adopted into the cladding or façade design, these should be considered to present a residual risk and so be specifically highlighted to the relevant stakeholders.

1.6 Fire Safety Bill

The Fire Safety Bill came into effect in August 2021 for relevant buildings, this development is not currently classed as a relevant building therefore this need not apply at this moment in time.

1.7 Building Safety Act

The Building Safety Act 2022 came into effect in April 2023. The Building Safety Act makes changes to the legislation regarding the construction and maintenance of buildings to improve their safety. It introduced three new bodies to oversee the regime: the Building Safety Regulator, the National Regulator of Construction Products and the New Homes Ombudsman. It also introduced requirements intended to ensure that an audit trail is maintained throughout the design, construction, and life of a building for fire safety measures. It applies to most projects but has additional requirements for some projects. These additional requirements are not applicable to this project.

2. Building Description

Rosedale College will see the development of two new buildings: NTB1 and NTB2. The proposed works include the demolition of some existing facilities including three artificial turf pitches, and the main school building, along with the construction of NTB1 and NTB2.

NTB2 will contain two storeys with the main use being for teaching spaces, with a dining hall, a kitchen and an assembly hall also being provided.

The location of NTB2 is detailed in Figure 1.

The height of the building, measured at the centre of the face of the building where firefighting access will be provided to the surface of the highest point of the floor of the highest storey is 3.6 m. The area of the largest floorplate (First Floor) is 1045 m^2.

The building does not have a basement and will not be provided with a sprinkler system.

Figure 1: Rosedale College Site Plan

2.1 Risk Profile

BS 9999 classifies building uses into Risk Profiles, made up of an occupancy characteristic that is based on how familiar occupants are with the building and a fire growth rate that indicates the speed that fire would likely spread in the subject building.

It is expected that Rosedale College is to be used by occupants out of the typical school hours, this means that not all occupants will be "familiar" with the building. The risk profile is detailed in Table 1

Table 1: Occupant Risk Profile

Building Area	Occupancy Characteristic	Fire Growth Rate	Sprinkler Protected	BS 9999 Risk Profile
Kitchen	Awake and familiar	Fast	No	A3
All other building areas	Awake and unfamiliar	Medium	No	B2

2.2 Occupancy

The design occupancy levels for each room within NTB2 have been confirmed by Stride Treglown. The maximum number of occupants within the building is summarised in Table 2.

Table 2: Building Occupancy

Floor	Occupancy
Ground Floor	602
First Floor	171
Total	773

2.3 Referenced Drawings and Documents

This report is based on the drawings made available at the time of writing this report, compiled by Stride Treglown. The drawings referenced are listed in Table 3.

Table 3: Rosedale College Referenced Drawings

Drawing Title	Revision	Drawing No.	Date
NTB2 Ground Floor General Arrangement	C04	SRP1077-STR-02-00-D-A-1000	30/08/2024
NTB2 First Floor General Arrangement	C04	SRP1077-STR-02-01-D-A-1001	30/08/2024
NTB2 Roof Level General Arrangement	C04	SRP1077-STR-02-RF-D-A-1002	05/07/2024
NTB2 Ground Floor Fire Strategy	C03	SRP1077-STR-02-00-D-A-8100	30/08/2024
NTB2 First Floor Fire Strategy	C03	SRP1077-STR-02-01-D-A-8101	30/08/2024
NTB2 Roof Level Fire Strategy	C04	SRP1077-STR-02-RF-D-A-8102	30/08/2024
NTB2 Fire Strategy Elevations	C02	SRP1077-STR-02-ZZ-D-A-8121	10/12/2024
Proposed Site Plan	C09	SRP1077-NVB-00-XX-D-L-1100	07/10/2024

3. Project Risks and Opportunities

The Fire Strategy has been developed based on the recommendations of BS 9999 (and the London Plan) with supplementation from BB 100. Some areas of the fire strategy deviate from these documents; it should be noted that BS 9999 and BB:100 provide recommendations only. The key deviations with respect to the aforementioned design guidance are listed below.

Table 4: Project Risks and Opportunities

Floor	Element	Code Recommendation	Code Departure	Proposed Justification	Implications should the fire engineered solution not be accepted	Approval Status
BS 9999						
Ground Floor	Storeroom enclosure	Table 29 of BS 9999 recommends that storage areas greater than 1 m^2 in area but not greater than 450 m^2 should be enclosed in fire resisting construction achieving a minimum standard of the 30 minutes.	It is proposed to combine these areas of risk with that of the kitchen into one protected space, ensuring that it is separated from the remainder of the building.	This is deemed acceptable due to the low occupancy in this space, the separation from other building users, and limited travel distances within this space.	The stores will need to be enclosed in fire resisting construction achieving 30 minutes (REI).	Agreed in principle on 10/04/2024 with Building Control.
All Floors	External fire spread of north façade	Clause 35.1.2 of BS 9999 states that separation between buildings on the same site that are operated/managed by the same organisation can usually be ignored. Buildings in occupancy characteristics B and C represent a greater life safety risk than other uses, and therefore, a notional boundary should be established.	A notional boundary has not been established between EFAA and NTB2; separation between buildings will be ignored.	The new buildings have been designed conservatively to an occupancy characteristic of B, due to the out of hours use by occupants that may be unfamiliar with the building. This is primarily to inform means of escape; for the majority of the building use (i.e. for pupils during school hours) occupants will be familiar, and a characteristic of A would be applicable. Under BS 9999 building separation between buildings on the same site that are operated/managed by the same organisation can usually be ignored for this occupancy characteristic. Additionally, Rosedale College will follow a simultaneous evacuation regime, whereby in the event of a fire in any one building, all of the buildings will evacuate at the same time. Therefore, mitigating the risk of fire spread to a building which is occupied and ensuring the life safety objectives of B4 of the Building Regulations are achieved.	The notional boundary between building will be considered and appropriate protected area provided to the north façade of NTB2.	Agreed in principle on 20/06/2024 with Building Control. It is yet to be confirmed that it has been discussed with the Client and their insurer.
All Floors	Dead-End Corridors	Dead-end corridors that exceed 2 m but are less than 4.5 m should be protected up to the point of choice by 30 minutes fire resisting construction (REI).	The main corridors on each floor contain toilets which are accessed directly as part of the corridors; thus they cannot be enclosed in construction.	These areas will not be considered as dead-end corridors, as they will be fire-sterile. Smoke retarding construction will encompass these areas to be treated as part of the corridor.	These areas should be enclosed in 30 minute fire-resisting construction.	Agreed in principle on 20/06/2024 with Building Control.

4. B1 – Means of Warning and Escape

4.1 Evacuation Regime

The building will adopt a simultaneous evacuation regime, whereby all occupants will evacuate the building immediately upon activation of the alarm system. Disabled occupants on the upper floors will travel to the closest available refuge and await rescue by trained staff as per the General/Personal Emergency Evacuation Plan (G/PEEP).

Rosedale College adopts a simultaneous evacuation regime throughout the site. Should a fire occur in one building, all buildings evacuate to the assembly points.

4.2 Fire Detection and Alarm

As per Table 7 of BS 9999, a building with a risk profile of B2 should be fitted with a minimum category of M (manual) fire detection and alarm system. Table A.1 of BS 5839-1 states that a Category L4 or L5 system is sometimes considered appropriate for schools and would be required to facilitate the simultaneous evacuation of the site. However, it is proposed that a Category L2/P2 detection and alarm system in accordance with BS 5839- 1 will be installed; this is in accordance with DfE Employer's Requirements. This will allow early detection of fire, providing early warning to occupants and facilitation of timely evacuation of occupants across the Rosedale site and supports the current conditions for external fire spread between buildings (see Section 7.2). An automatic detection and alarm system also supports the building's inner room conditions (see Section 4.5).

The Category L2 system will include coverage necessary to satisfy the recommendations for a Category L3 system under BS 5839-1, as well as affording early warning of fire in specified areas, these being the plant rooms to the south of the building.

In isolated areas, for example the roof and toilets, appropriate signals, such as sounders and beacons, to alert occupants of a fire will be provided. Visual alarms (e.g., strobes) will be provided in areas where there is a high level of ambient sound e.g., plantrooms.

To avoid unwanted alarms, it is proposed that the building will operate a double knock system with an investigation period. The sequence will be as follows:

- On activation of a single detector head, a staff alarm will operate so that fire wardens or security can investigate. A general alarm will not sound at this stage. If the staff alarm is not acknowledged within a given time (prior to the investigation period) the fire alarm will sound.
- Upon conformation of a fire by staff or the activation of a second detector head, activation evacuation of the building will commence. Additionally, the activation of a manual call point or the duration of the investigation period expiring will result in evacuation commencing immediately.

Multi-mode detectors will be adopted in rooms which only have a single detector to avoid necessitating smoke spread into a second room/corridor before the alarm sounds, and it is proposed that two different modes are adopted to implement the double knock approach.

The detection and alarm system will be radio linked to the site's master panel. The existing master panel is situated in the EFAA Building; however, a new master addressable fire alarm panel will be installed in NTB2. Activation of the fire alarm in one building, triggers the alarm systems in all buildings on the site.

4.3 Travel Distances

All travel distances listed in Table 5 are stated as maximum recommended travel distance limits for the relevant risk profile, as per Table 11 of BS 9999.

The building will be provided with a Category L2/P2 fire detection and alarm system, which is a betterment over the minimum of a Category L4 system for this building. This allows a 15% increase on the maximum travel distances; the enhancement is shown in Table 5.

Where fit-out of the building is not confirmed, direct travel distances will be applied. Direct travel distances are 2/3 of actual travel distances; these apply when internal layouts of a floor are unknown.

Table 5: Travel Distances

Risk Profile	Characteristics	Travel Distances (m)	
		Actual	Direct
B2	Single direction	23*	14*
	Alternate direction	57*	37*
A3	Single Direction	20*	13*
	Alternate Direction	51*	34*

* An enhancement of 15% has been applied to both direct an actual travel distances

All areas of the building achieve the required maximum travel distances. Figure 2 shows the extended travel distance highlighted at Stage 3 within the music room on the first floor, where the maximum direct travel distance is not achieved. As shown in Figure 3, the actual single direction travel distance can be achieved when the Furniture, Fixtures and Equipment (FFE) layout is assessed. Therefore, the project risk from Stage 3 has been resolved.

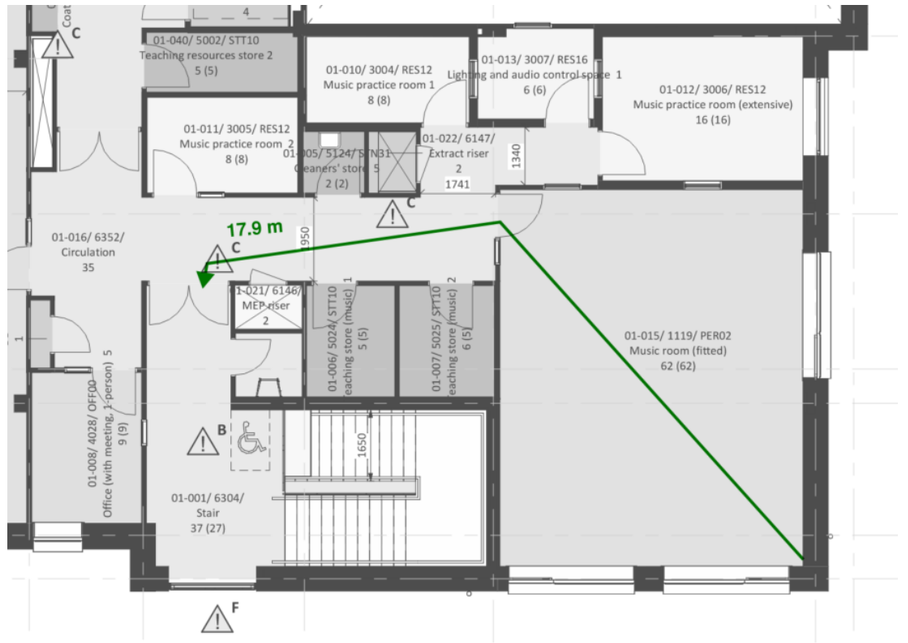


Figure 2: First Floor Extended Travel Distance (Direct)

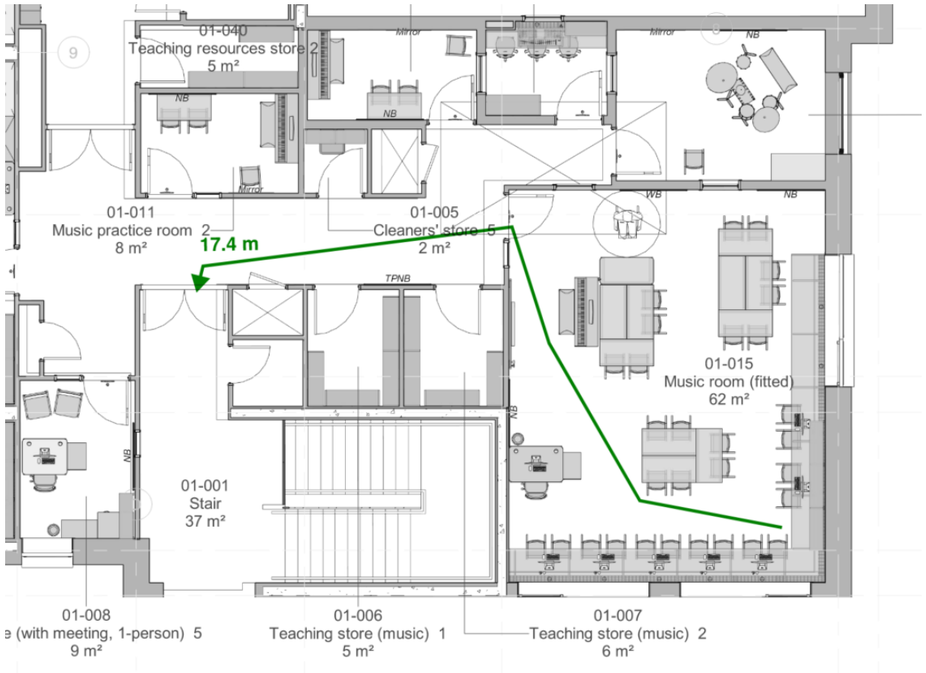


Figure 3: First Floor Travel Distance on FFE layout (Actual)

Figure 4: Ground Floor Storey Exits

4.4 Horizontal Egress

The Ground Floor will be provided with five final exits, as illustrated in Figure 4. The evacuation of the Ground Floor of NTB2 will be managed such that routes through stair cores will not be signed as an escape route.

The door widths will be not less than 850 mm, as unassisted wheelchair access is required throughout. This is achieved throughout the building.

The horizontal storey exits and the associated capacity for NTB2 is described in Table 6 and show sufficient capacity is provided for the design occupancy as stated in Table 2; the largest storey exit from each area has been discounted (shown with strikethrough text). The provision of a category L2/P2 fire detection and alarm system permits that a 15% reduction in door widths may be applied. For a building of B2 risk profile, the minimum exit width per person may be reduced from 4.1 mm to 3.5 mm in line with Table 12 of BS 9999.

The First Floor is provided with two storey exits, into the protected stairs. The horizontal capacity of the storey exits is sufficient for the expected above ground occupancy stated in Table 2.

Table 6: Horizontal Capacity

Floor	Number of exits	Width of exits (mm)*	Horizontal exit capacity	Horizontal occupancy per Floor
Ground Floor	5	~~1x 1900~~ 1x 1900 1x 1900 1x 1900 1x 1800	544 544 544 544 515	2147
First Floor	2	~~1x 1650~~ 1x 1650	471 471	458

4.5 Inner Rooms

An inner room is at risk if a fire starts in the room accessing it. An inner room arrangement may not be provided unless all of the following conditions are met:

- Occupancy of the inner room must not exceed 60 people;
- The inner room is directly entered from the access room; and
- Escape route from the inner room does not pass through more than one access room.

As per Clause 3.1.6 of BB: 100, a corridor is considered a room if it contains lockers, social spaces, etc. This means that any room of this space is considered an inner room and must comply with the above conditions. This is currently achieved throughout the building due to the implemented L2/P2 detection and alarm system.

The above conditions have been achieved in all areas of the building where there are inner rooms. The access room will also be fitted with an automatic fire detection and alarm system to warn occupants of the inner room if a fire starts in the access room.

4.6 Vertical Egress

NTB2 is provided with two protected stairs, one of which is provided with a protected lobby on both floors to accommodate the evacuation lift, as highlighted in red in Figure 5. As per Clause 17.3.2 of BS 9999, where two or more stairways are provided, it should be assumed that one of them might not be available due to fire or smoke. Therefore, to calculate vertical occupancy Stair 2 has been discounted because it is not accessed via a protected lobby.

Figure 5: First Floor Stairs

The provision of a Category L2/P2 fire detection and alarm system permits a 15% reduction in the width of stair per person. For a building of B2 risk profile with each stair serving a single floor, the minimum exit width per person recommended within Table 13 of BS 9999, may be reduced from 4.8 mm to 4.1 mm, in line with Table 12 of BS 9999.

As the maximum occupancy of the First Floor is 171, Stair 1 should achieve a calculated minimum clear width of at least 701 mm. However, as per Clause 17.4.1 of BS 9999, the absolute minimum width of a stair should not be less than 1000 mm for downward travel. Both stairs achieve a clear width of 1650 mm, which is sufficient for the expected occupancy.

In accordance with Clause 17.2.7, the width of the final exits from the stairs are both at least as wide as the stairs leading to it.

4.7 Doors on Escape Routes

The door of any doorway or exit should be hung to open in the direction of escape whenever reasonably practicable. It should always be hung to open in the direction of escape if either of the following conditions apply:

- More than 60 people might be expected to use it during a fire; or
- There is a very high risk of fire with potential for rapid fire growth, such as with some industrial activities.

Doors within the building to plant rooms and those serving more than 60 people open in the direction of escape.

4.8 Headroom on Escape Routes

Escape routes will have a minimum clear headroom of 2 m, in accordance with Clause 16.3.10 of BS 9999. The only projections allowed below this height are door frames.

4.9 Dead-end Corridors

As per Clause 16.3.11.3 of BS 9999, every dead-end corridor exceeding 4.5 m in length will be separated by self-closing fire doors (together with any necessary partitions) from any part of the corridor which provides two directions of escape. The dead-end corridor will be enclosed in 30 minutes fire resisting construction (REI) and any doors opening onto the dead-end corridor will be FD30S.

There is a dead-end corridor exceeding 4.5 m on the First Floor of NTB2 as highlighted in Figure 6.

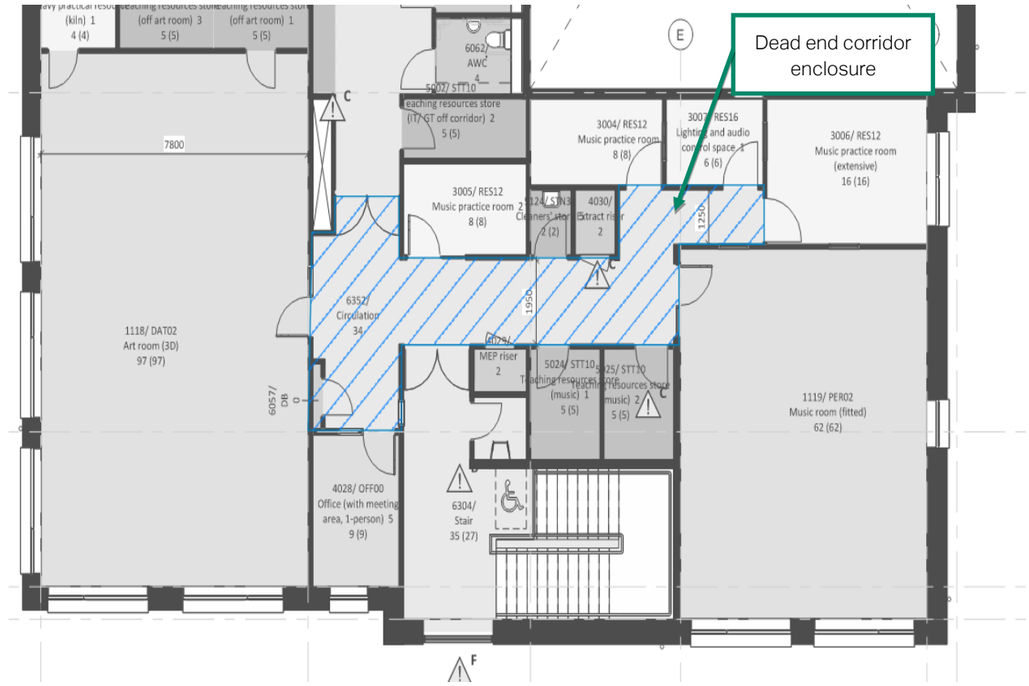


Figure 6: Dead-End Corridor at First Floor

Dead-end corridors that exceed 2 m but are less than 4.5 m will be protected up to the point of choice by 30 minutes fire resisting construction (REI). It should be noted that they are not required to be separated from the remainder of the corridor as above. There is one dead-end corridor on Ground Floor shown in Figure 7.

Each floor will contain toilets accessed directly from the corridor. These areas will not be considered as dead-end corridors as they will be fire sterile. Smoke retarding construction will still encompass these areas to be treated as part of the corridor. This is a project risk and will be discussed and agreed in principle with the Approving Authorities.

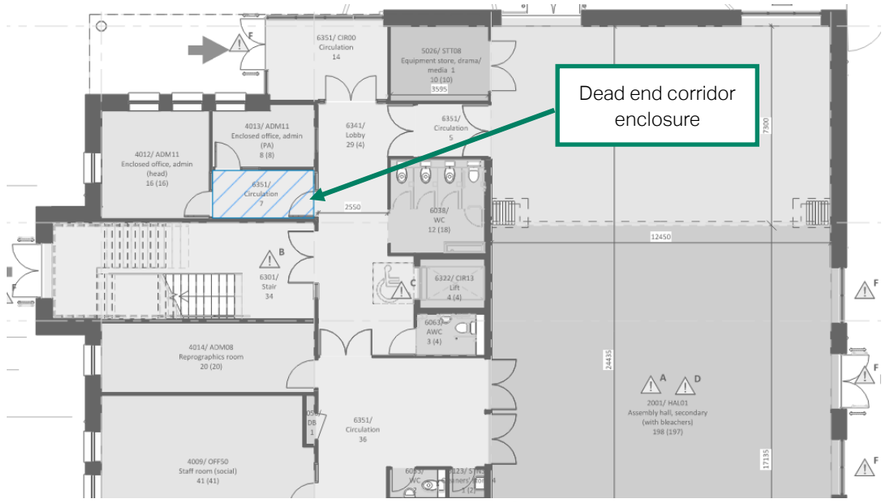


Figure 7: Dead-End Corridor at Ground Floor

4.10 Subdivision of Corridors

In accordance with Clause 16.3.11.3 of BS 9999, every corridor more than 12 m long which connects two or more storey exits will be subdivided by self-closing fire doors so that the fire doors are positioned approximately mid-way between the two storey exits. In the current design, there is a cross-corridor subdividing the main corridor on the First Floor, as can be seen below in Figure 8.

In accordance with Clause 16.3.11.2 of BS 9999, as the corridor is used as a means of escape, but is not a protected corridor, the partitions forming the corridor will be smoke retarding with close-fitting doors.

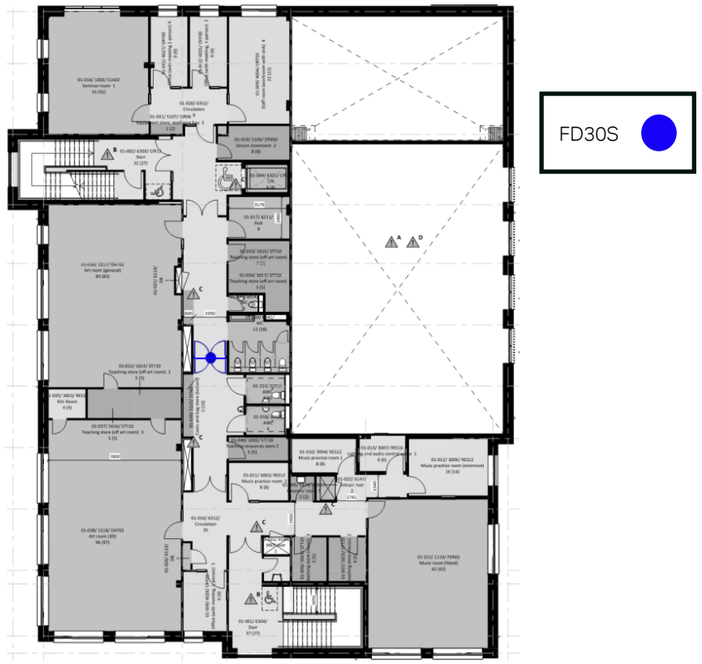


Figure 8: First Floor Corridor Subdivision

4.11 Disabled Provisions

In accordance with Annex G of BS 9999 a refuge area will be provided for every protected stairway. In order to comply with BS 9999, the refuge area will be:

- Provided with clear space of at least 900 mm x 1400 mm for the refuge space, which will not impede evacuation of other occupants;
- Provided with Emergency Voice Communication System as recommended by BS 5839-9, linked to reception; and
- Staff will be suitably trained to assist.

As only one evacuation lift is provided within the building and there is potential for a fire scenario to compromise access to it, disabled egress facilities, such as evacuation chairs, will be provided in both stairs.

A management strategy will be put in place by the building operator for the evacuation of disabled occupants, and this will be outlined in the building management plan. It is recognised that the current proposal for managed evacuation has a significant impact on management, requiring trained staff to be available for mobility impaired persons,

A General/Personal Emergency Evacuation Plan (G/PEEP) system will be implemented by the building operator for the evacuation of disabled occupants, and this will be outlined in the building management plan.

Refuge areas have been provided within the protected stair above Ground Floor. Protected stairs will discharge directly outside via level access.

4.11.1 Evacuation Lifts

Policy D5 of the London Plan states that in all developments where lifts are installed, as a minimum at least one lift per core (or more subject to capacity assessments) should be suitably sized fire evacuation lifts, suitable to be used to evacuate people who require level access from the building.

Under the current arrangement, only Stair 1 is provided with an evacuation lift. An evacuation lift is not provided to Stair 2, and therefore, this is a planning risk. The lack of compliance with Policy D5 was highlighted in the London Plan Fire Statement. Conditional planning approval was granted on 14/02/24.

The evacuation lift discharges into a protected exit passageway at Ground Floor where occupants will escape through the south stair. This route will be via the protected lobby at Ground Floor and enclosed with 60 minutes (REI) fire resisting construction. Evacuation lift use and staff response to drive the lift and facilitate evacuation will need to be developed as part of the management plan for the building.

4.12 Assembly Points

The current assembly point for this building is Assembly Point C, located to the north-east of Building EFAC close to the main gates to the car park. It is important to note that the assembly point is close to the firefighting vehicle access route throughout the site and should be managed by on-site staff to ensure that evacuees cause minimal interference with the fire and rescue service. Any update to the current assembly point will be identified and allocated by the Responsible Person under the RR(FS)O and BS 7273-4.

4.13 Emergency Escape Lighting

Emergency escape lighting will be designed in accordance with BS 5266-1 and provided to all escape routes (including external escape routes), plant rooms, windowless areas and areas directly outside final escapes and to the assembly point where adequate street lighting is not provided.

4.14 Emergency Signage

To facilitate the safe evacuation of occupants, escape routes must be clearly signed so occupants can readily identify and determine their most appropriate and direct route to a place of ultimate safety. Emergency signage will be designed in accordance with BS ISO 3864-1 and BS 5499-4.

At Ground Floor, where possible, emergency signage will be provided to diverge occupants through an exit which does not pass through a protected stair.

5. B2 – Internal Fire Spread (Linings)

Internal linings throughout the building should adequately resist the spread of flame over the surface and if ignited have a reasonable rate of heat release.

In order to achieve the above requirements, the internal linings would be required to comply with Table 33 of BS 9999 which is summarised in Table 7.

Table 7: Classification of Linings

Location	Minimum classification when tested to BS EN 13501-1
Small rooms not exceeding m^2 in area	D-s3, d2
Other rooms	C-s3, d2
Circulation spaces including protected staircases	B-s3, d2*

* Wallcoverings which conform to BS EN 15102, achieving at least class C-s3, d2 and bonded to a class A2-s3, d2 substrate, are also acceptable.

It is understood that corridors within NTB2 may contain notice boards for relaying information to students or used for display. In line with Clause 3.1.6 of BB 100, noticeboards will not be more than 3 m wide, and there will be a gap between notice boards on the same wall of at least 1 m. Notice boards within a dead-end corridor will be fitted with a cover and preferably top hung so that the cover may not be left “jutting-out” into the escape route.

If a corridor is lined with lockers these will be made from materials of limited combustibility, as defined in Table A7 of BB:100.

6. B3 – Internal Fire Spread (Structures)

Buildings will be constructed in such a way that if a fire occurs in a building, the building will remain standing for a reasonable period, and fire spread throughout the building should be limited. This is achieved by providing appropriate fire resistance to elements of structure based on the building size and use, and by providing internal fire resisting partitions to limit the spread of fire internally.

6.1 Fire Resistance of Elements of Structure

In accordance with Technical Annex 2C of the DfE Employer's Requirements, Clause 4.2.1, the elements of structure will achieve at least 60 minutes fire resistance (loadbearing, R). This is above the recommendations of Table 23 for BS 9999, which recommends a minimum of 30 minutes fire resistance (loadbearing R) for a building with this risk profile and height.

6.2 Compartmentation/Fire Resisting Construction

With reference to the structural fire resistance of NTB2 and in accordance with the recommendations of BS 9999, the locations of fire resisting construction are summarised in Table 8.

As the building is predominantly risk profile B2 and the top storey is less than 18 m in height, the maximum area of any floor should be limited to 8000 m^2, in accordance with Table 28 of BS 9999. This is achieved by the proposed design, and therefore, there is no requirement for compartment walls to divide the floorplate. To observe the maximum compartment area

Compartment floors are not recommended for this building under BS 9999, as the topmost occupied floor is below 30 m. All floors will be fire resisting to 60 minutes (REI) from the underside.

Protected stairs and lobbies will be enclosed in the minimum requirement of 30 minutes (REI). A protected lobby of 30 minutes fire resisting construction (REI) will be provided to Stair 1.

At Ground Floor, 30-minute fire resisting construction is used to separate the protected lobby serving the evacuation lift from accommodation, as per the DfE definition noted in Section 1.2.1. These areas are shown in Figure 9 and need not be considered protected escape routes.

In line with Clause 37.2.2, electrical risers will be enclosed with fire resisting construction of a standard equivalent to the elements of structure of the building (60 minutes REI). Risers providing day-to-day ventilation only have no requirement to be enclosed in fire resisting construction.

Evacuation lifts will be enclosed in 30 minutes fire resisting construction (REI).

Rooms of special fire hazard, such as storage rooms, the kitchen, the kiln room and services shall be enclosed with fire resisting construction from each side separately, in line with the recommendations of Table 29 of BS 9999 and Clause 3.1 of BB:100, as shown in Table 8.

Plant rooms are to be enclosed in 60 minutes (REI).

As shown in Figure 10, the kitchen will be enclosed in fire resistant construction achieving 30 minutes (REI). A fire shutter will form part of this enclosure, between the kitchen and servery. The fire shutter will achieve a fire resistance of 30 minutes (E), be side-guided, and designed in accordance with BS 476-22 or BS EN 1634. The fire shutter and surrounding construction shall be installed in accordance with its tested and certified details.

The kitchen contains a dry store and cold stores. In accordance with BS 9999 and BB:100, stores should be enclosed in fire resisting construction. It is proposed to combine these areas of risk with that of the kitchen into one protected space, ensuring that it is separated from the remainder of the building with fire resistant construction. Escape within the kitchen is considered acceptable based on the low occupancy and short travel distances within this space. This approach was agreed with Building Control on 10/04/2024.

6.2.1 Enclosure of Corridors that are not Protected Corridors

In accordance with Clause 16.3.11.2 of BS 9999, where a corridor is used as a means of escape but is not a protected corridor its enclosure will be smoke retarding and partitions will carry up to the soffit of the structural floor above, or to a suspended ceiling. Ventilation shafts that pass through the corridor will be enclosed with smoke retarding construction in the same way. All corridors in the building will meet this recommendation.

Openings into rooms from the corridor will be fitted with doors, which need not be fire-resisting but will be close-fitting.

Table 8: Locations of Fire Resisting Construction

Building Element	Fire Resistance			Method of Exposure	Fire Doors
	Load bearing (R)	Integrity (E)	Insulation (I)		
Structural frame, beam, or column	60	-	-	Exposed faces	
Load-bearing wall element	60	-	-	Each side separately	
Floors	60	60	60	From underside	N/A
Protected Stairs	30	30	30	Each side separately	FD30S
Protected Lobby	30	30	30	Each side separately	FD30S
Electrical Risers	60	60	60	Each side separately	FD30
Places of special fire hazard inc; – Storage rooms less than 450 m^2 – Kitchen – Dressing rooms or changing rooms – Transformer, switchgear, and battery rooms for low voltage	30	30	30	Each side separately	FD30
Life safety plant	120	120	120	Each side separately	FD120
Kitchen fire shutter	-	30	-	Each side separately	N/A
Dead-end/protected Corridor	30	30	30	Each side separately	FD30S
Subdivision of a Corridor	30	30	30	Each side separately	FD30S
Plant rooms (transformers, switchgear, battery room above low voltage, oil store)	60	60	60	Each side separately	FD60
Cavity Barriers	-	30	15	Each side separately	FD30

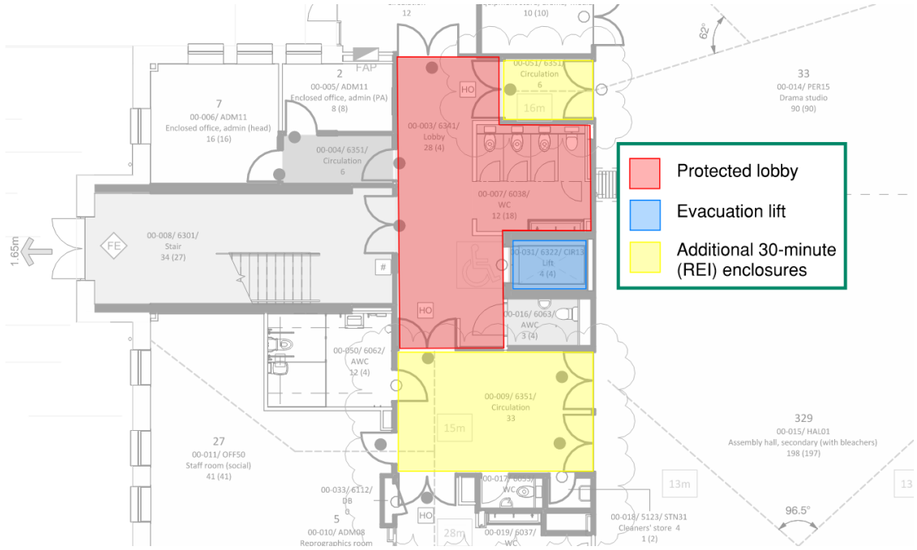


Figure 9: Ground Floor protected lobby to evacuation lift arrangement

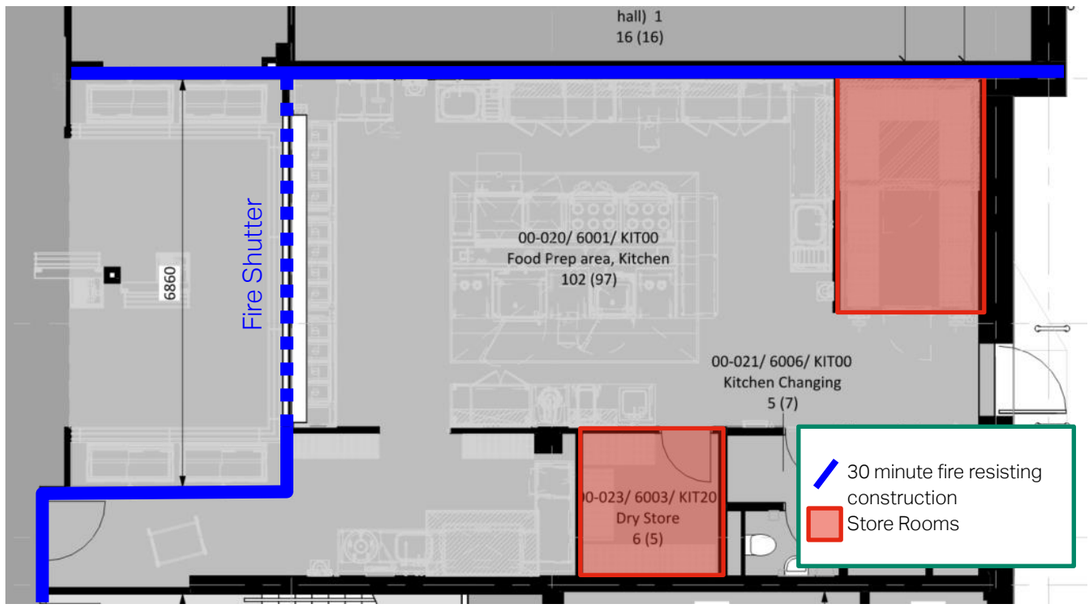


Figure 10: Kitchen layout showing fire resisting enclosure and store rooms

6.2.2 Fire Doors

Fire doors will be provided in openings in fire resisting construction to protect escape routes from the effects of fire and to protect occupants, firefighters, and the contents of the building by limiting the potential for spread of fire.

The fire resistance period required for each door is shown of Tables 29 and 30 of BS 9999 – where two different items apply, the most onerous combination will be followed.

Note that some doors, depending upon location, have an 'S' performance, these have been noted in Table 8.

Where doors use hold-open devices they should release on activation of the fire alarm. Any hold open device shall be tested and certified as a system with the fire alarm.

6.2.3 Junction of Compartment Wall with Other Walls

At a junction with another compartment wall or an external wall, the fire resistance of the compartmentation will be maintained. Fire stopping that meets the provisions described in Section 6.2.6 will be provided.

6.2.4 Junction of Compartment Wall with Roof

A compartment wall should be taken up to meet the underside of the roof covering or deck, with fire-stopping where necessary at the wall/roof junction to maintain the continuity of fire resistance.

A zone of roof 1.5 m wide on either side of the compartment wall will have a covering of designation $B_{ROOF}(t4)$ on a substrate or deck of a material of limited combustibility.

6.2.5 Concealed Spaces (Cavities)

To help prevent smoke and flame spread within the premises, fire resisting barriers will be placed at regular intervals and at joints within construction where there is potential for unseen fire spread:

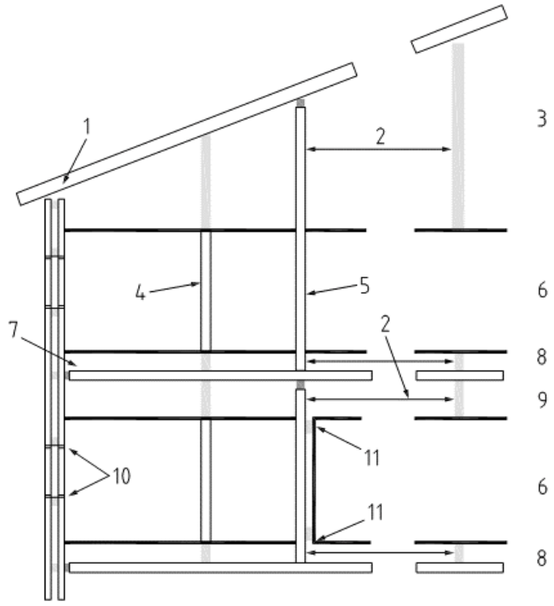
- Where cavities in construction exist such as cavity walls or floor/ceiling voids, the maximum dimensions of cavities will not exceed 20 m for cavities whose surfaces achieve Class C-s3,d2 or better, and 10 m for other cavities;
- To close the edges of cavities;
- At the junction between any cavity wall and every compartment wall and compartment floor; and
- To separate the staircase from any roof void.

The principles to be achieved are illustrated in Figure 11, Figure 35 from BS 9999.

Cavity barriers will achieve a minimum of 30 minutes fire resistance for integrity and 15 minutes fire resistance for insulation in accordance with Table 22 of BS 9999. Cavity barriers around openings or within an internal stud wall may also be formed of one of the following:

- Steel at least 0.5 mm thick; or
- Timber at least 38 mm thick; or
- Polythene-sleeved mineral wool or mineral wool slabs under compression within the cavity; or
- Calcium silicate, cement-based, or gypsum-based boards at least 12 mm thick.

Cavity barriers will be installed in accordance with Clause 33.3 of BS 9999 and in line with the manufacturers' details, tolerances, and limitations and will be certified.



Key

1 Close top of cavity
2 Subdivide extensive cavities
3 Roof space
4 Wall forming bedroom or protected escape routes
5 Compartment wall
6 Accommodation
7 Compartment floor
8 Floor space
9 Ceiling space
10 Close around openings
11 Close around edges

Cavity barrier (30 min integrity/ 15 min insulation as in Table 22)

Fire-stopping (same fire resistance as compartment – not cavity barrier)

Figure 11: Provisions for Cavity Barriers

6.2.6 Protection of Openings and Fire Stopping

To ensure that fire resistant walls are adequately sealed and are not compromised by elements such as building services passing through them, appropriate fire stopping will be provided, Section 32 of BS 9999 provides guidance on the protection of openings and fire-stopping.

In general, all junctions between, and any penetrations through, fire-resisting construction will be stopped with materials that provide the required fire resistance and are capable of accommodating movement without affecting their fire-resisting performance. Reliance on intumescent stopping alone is not satisfactory as this will not avoid the spread of smoke in the early stages of a fire.

Fire-stopping will be installed in line with the manufacturers' details, tolerances, and limitations and will be certified.

6.2.7 Fire Dampers

Any ventilation ducts passing through fire separating elements will be protected using one of the following options in accordance with Clause 32.5.2.1 of BS 9999:

- Fire dampers; or
- Fire-resisting enclosures; or
- Fire-resisting ductwork.

Fire dampers and fire and smoke dampers will be tested to the relevant parts of BS EN 1366.

Fire dampers will be installed in line with the manufacturers' details, tolerances, and limitations and will be certified.

Fire dampers and fire and smoke dampers will have an E (integrity) equal to, or greater than, 60 minutes, as per Clause 32.5.2.5 of BS 9999.

Motorised fire/smoke dampers linked to the fire alarm will be installed for ducts passing through any walls enclosing protected means of escape such as protected lobbies, protected stairs and dead-end corridors. Alternatively, other methods are outlined in Section 35.5.3 of BS 9999.

Fire dampers will be situated within the thickness of the fire-separating elements, be securely fixed, and will achieve the same fire resistance of the element through which it passes. It is also necessary to ensure that, in a fire, expansion of the ductwork would not push the fire damper through the structure. Adequate means of access will be provided to allow inspection, testing and maintenance of both the fire damper and its actuating mechanism.

6.2.8 Pipe Penetrations

Any pipes passing through fire resistant construction will be provided with one of the following options:

- A proprietary sealing system (any pipe diameter); or
- Have their diameter restricted in accordance with Table 31 of BS 9999 and be fire-stopped.

Any proprietary sealing system will be installed in line with their manufacturers' details, tolerances, and limitations.

6.2.9 Cable Routing

In accordance with BS 7671 stair enclosures in the building should not have cables passing through where they do not service the stair. Lobbies could have cables run through them if they are suitably fire stopped.

6.2.10 Sprinklers

With respect to the dimensions and use of the building, there is no requirement to provide a life safety sprinkler system. Therefore, the building will not be fitted with a sprinkler system.

7. B4 – External Fire Spread

It is an important consideration that if a fire occurs in a building, the potential for fire spread over its walls and roof and to its adjacent buildings is minimised. The degree of a fire risk depends on the use of the building, the standard of compartmentation, the façade construction, and the distance from any given boundary.

7.1 Construction of External Walls

The external walls will be constructed of materials which reduce the risk of ignition and limit external spread across the walls. The extent of openings and other unprotected areas must also be restricted to reduce the risk of fire spread by radiation.

Figure 47 of BS 9999 lists the provisions necessary for the external surfaces of walls, based on the distance of the building to the relevant boundary. The building is within 1 m of a relevant boundary and the top storey is less than 18 m; therefore, as per Figure 47 of BS 9999, the external surface of the façade should achieve a European classification of Class B-s2, d2 or better.

AECOM recommends that all external walls are constructed with materials achieving Class A1 or A2 tested to BS EN 15102 regardless of the building height and use.

7.2 Building Separation and Unprotected Areas

The term unprotected is defined in BS 9999 as any part of an external wall which has less fire resistance than the appropriate amount indicated in Table 22 and Table 23 of BS 9999. For the purposes of this building, unprotected areas are defined as follows:

- Any part of the external walls where the fire resistance is less than 60 minutes (RE) and 15 minutes for Insulation (I) from the inside of the building when 1 m or more from a relevant boundary; or
- Any part of the external walls where the fire resistance is less than 60 minutes (REI) from each side separately when less than 1 m from a relevant boundary.

Clause 35.1.2 of BS 9999 states that separation between buildings on the same site that are operated/managed by the same organisation can usually be ignored. Buildings in occupancy characteristics B and C represent a greater life safety risk than other uses, and therefore, a notional boundary should be established.

It is recognised that for the majority of the building use, occupants will be familiar, and an occupancy characteristic of A would be applicable. Given that the whole site follows a simultaneous evacuation regime, whereby in the event of a fire all of the buildings will evacuate at the same time, the risk to life safety due to external fire spread is mitigated. Therefore, it is deemed acceptable to not consider external fire spread between the buildings on the same site.

This approach was agreed with Building Control on 20/06/2024. It is yet to be confirmed that it has been discussed with the Client and their insurer.

Following the above, the external fire spread has only been assessed to the site boundary; this includes the boundary with the adjacent primary school.

The enclosing rectangles approach, outlined in the Building Research Establishment report BR 187, has been followed to determine the allowable amount of unprotected area based upon the dimensions of the façade and the distance from the façade to the relevant boundary. As the building use comes under office and assembly, the reduced fire load has been used.

Table 9 states the required boundary distance for a fully unprotected façade and the boundary distance available. There is no requirement for protected area on any of the façades of NTB2.

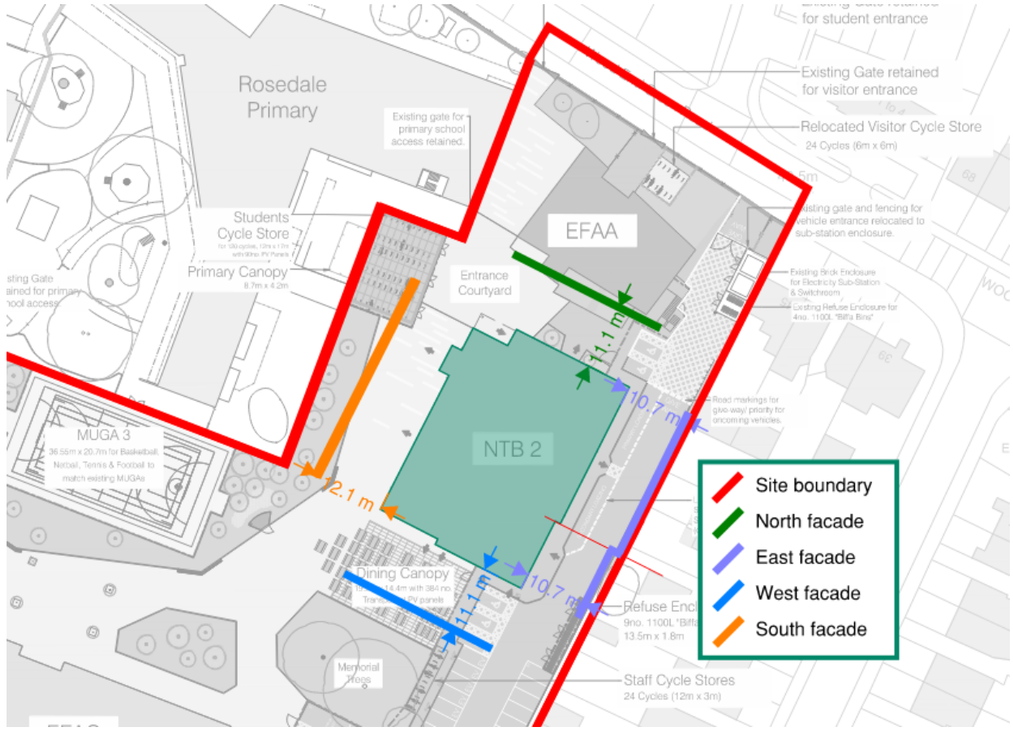


Figure 12: External Fire Spread

Table 9: NTB2 Building External Fire Spread

Elevation	Compartment Width (m)	Compartment Height (m)	Compartment area (m^2)*	Enclosing Rectangle Width (m)	Enclosing Rectangle Height (m)	Required Boundary Distance for a Fully Unprotected Façade (m)	Available Boundary Distance
North	29.8	11.5	307	30.0	12.0	11.1	43.0
East	38.4	11.5	342	40.0	12.0	10.7	11.2
South	29.8	11.5	307	30.0	12.0	11.1	168.8
West	38.4	11.5	384	40.0	12.0	12.1	17.8

* Due to the emitting area of the façade not being rectangular, the compartment area has been measured from elevations, rather than multiplying the width and height of the compartment.

7.3 Roof Coverings

The provisions given in BS 9999 limit the use near a boundary of roof coverings which will not give adequate fire protection against the spread of fire over them. Table 36 of BS 9999 places limitations on roof coverings with regards to distance from the boundary. As the building is within 6 m of the nearest boundary, the roof coverings will achieve Class B_{ROOF}(t4) as a minimum when tested in accordance with BS EN 13501-5.

8. B5 – Access and Facilities for the Fire Service

Buildings will be designed to provide reasonable access for the fire brigade to and within the building. This will include provisions for vehicle access and firefighter access.

Provisions expected to assist the fire service and meet the requirements of the Building Regulations include:

- Vehicle access;
- Hydrants; and
- Building plans and information.

8.1 Vehicle Access

As the total floor area of the building is greater than 2000 m^2 but less than 8000 m^2, and the building height measured to the floor of the top occupied storey is less than 11 m, fire vehicle access will be provided to at least 15% of the perimeter with a door into the building provided to any elevations that make up this percentage. This is achieved via access from the courtyard to the furthest north elevation and the north elevation of the activity studio.

The access road will meet the requirements as detailed in Table 10.

Consultation is being undertaken to determine whether any alternative access road requirements are necessary as a consequence of London Fire Brigade having different tender specifications to other parts of the United Kingdom.

Table 10: Example of measurements for a typical vehicle access route

Appliance Type	Min, Width of Road Between Kerbs (m)	Min. Width of Gateway (m)	Min. Turning Circle between Kerbs (m)	Min Turning Circle between Walls (m)	Min. Clearance Height (m)	Min. Carrying Capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	12.5
Special*	3.7	3.2	22.0	24.5	4.25	26.0

**Vehicle access route measurements taken from LFD GN29 2023 Rev 15*

8.2 Hydrants

As the site-wide conditions are not being made any worse by the refurbishment/building works, there is no requirement under the building regulations to upgrade the existing conditions to meet the recommendations of the relevant guidance. Current guidance recommends hydrants are provided within 90 m of an entry point to the building and not more than 90 m apart. An existing hydrant is provided on Wood End Green Road to the north of the school. Additionally, a new hydrant is being installed on the site which is located within 90 m of the building. The locations of both hydrants are shown in Figure 13.

8.3 Building Plans and Information

As part of the on-going fire safety management at the facility, an emergency pack, as defined in Section 44.7 of BS 9999, should be made available to the fire and rescue service on their arrival on site. It is recommended that these plans, along with contact details for relevant staff and information on fire safety systems/hazards on site, be located within a box at the main firefighter entrance to the building.

All drawings and plans should be to a scale agreed with the enforcing authorities, and as a minimum should include:

- A linear scale bar;
- The direction of North;
- A "You are here" indicator; and
- Any other relevant information such as geographic location.

Additional copies of these drawings should be supplied to the fire authority to enable pre-planning for an emergency.

Building plans clearly indicate external entrances to the building for use by emergency first-responders on foot.

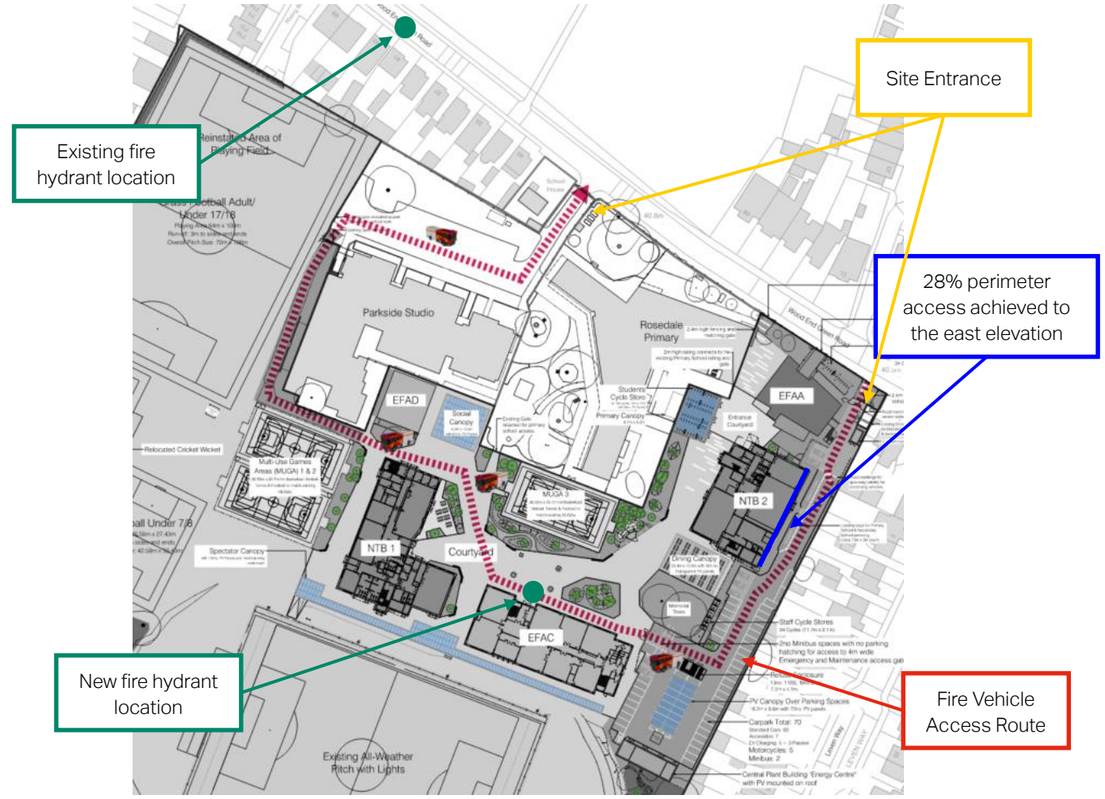


Figure 13: Fire Service Access

9. Fire Safety Management

Regulation 38(2) to the Building Regulations requires evidence of suitable provision to maintain the fire precautions, regimes, and systems in support of the fire strategy. The issues that will require maintenance in this context are outlined here.

In designing the fire precautions, recognition will be given to the need for maintenance, including suitable access to hardware. It is appropriate and prudent to consider the importance of fire safety management to the overall fire safety of a building. The guidance contained in BS 9999 has assumed that there will be an appropriate and adequate level of fire safety management when the building is in use. It is the responsibility of building management to compile a full management plan for the scheme as per section 4 of BS 9999.

The responsibility of upholding the fire safety strategy for the building rests with building management. The management regime will be maintained and any variation in the regime will be the subject of a suitable risk assessment. The responsible person appointed by building management will ensure that the fire strategy is implemented throughout the use of the building. The fire risk assessments will be reviewed periodically to address any issues that may arise throughout the life of the building.

Effective management of fire safety can contribute to the protection of the building occupants in many ways:

- By working to prevent fires occurring in the first place;
- By monitoring the risks on an ongoing basis and taking appropriate action to eliminate or reduce the risk;
- By being aware of the types of people in the building (such as disabled people, elderly people, children, pregnant women, etc.) and any special risks or needs;
- By ensuring that all of the safety measures in the building are kept in working order, and in particular that the means of escape are always available;
- By training staff and organising the evacuation plan, to ensure that occupants leave quickly if a fire occurs; and
- By taking command in the event of a fire until the Fire Brigade arrives.

AECOM recommend that a recovery plan in the event of a fire is put in place to minimise the disruption in the aftermath of such an event.

Management systems will be developed to include procedures for anticipating and taking into account, either on a permanent or a temporary basis, changes to the occupancy and/or fire growth characteristics of the building and its contents over the life cycle of the building. These procedures will form part of the overall audit and review process for the fire safety strategy and will be able to determine whether any such changes will necessitate alterations to the fire precautions provided, including the management systems, and to put any such alterations into effect.

The fire strategy assumes that the fire safety manager will be sufficiently empowered to ensure that the legislative requirements are met, initiate testing, maintenance, or repair, and where necessary have direct control over staff responsible for these tasks. If it is anticipated that there will be one or more persons with impaired hearing in relative isolation, a suitable method of warning (i.e., a visual and audible fire alarm signal) will be provided.

Building management will ensure escape routes are kept clear at all times.

9.1 Fire Safety Manual

A fire safety manual is to be developed and will contain design information and operational records for the building. The design information forms the basis of an on-going history document to which additional material is added when the premises is operational and at regular intervals (recommended annual review is undertaken) thereafter. The contractor who will be passing on information to the end user is responsible for those parts of the fire safety manual that contain design information. The fire safety manager is responsible for those parts of the fire safety manual that contain operational records, the fire safety policy statement, and the fire safety documentation.

The Fire Safety Manual will:

- Provide a full description of the assumptions and philosophies that led to the fire safety design, including explicit assumptions regarding the management of the building, housekeeping and other management functions;
- Explain the nature of the fire safety planning, construction and systems designed into the building, and their relationship to overall safety and evacuation management;
- Draw on the documentation produced at the as-built design stage to describe the use of the various protection systems in each type of potential incident;
- Set out the responsibilities of management staff with regard to fire safety; and
- Provide a continuously updated record of all aspects of the building users that affect its fire safety.

9.2 Maintenance and Testing

All maintenance will be in accordance with manufacturer's recommendations. The following fire safety systems will require maintenance (it is noted that this list is not exhaustive):

- Emergency lighting;
- Detection and alarm system;
- Evacuation lift;
- Fire shutters;
- Fire extinguishers;
- Refuge areas, EVCs and evacuation chairs; and
- Hold-open doors.

The fire safety manager for the building will have the responsibility for ensuring a maintenance regime is implemented.

Passive fire precautions, such as fire doors/curtains and their seals and signage will also require inspection and maintenance.

9.3 Fire Safety Training

All staff will be made aware of the fire safety features provided and the response expected from them in the event of an alarm of fire or upon discovering a fire.

Adequate numbers of trained staff should be available at all times to assist with evacuation where required. All operatives tasked with fire safety duties should be trained in the use of portable fire extinguishers and all other fire prevention measures adopted on the site.

9.4 Key Fire Strategy Management Items

The below items are the key fire safety management items for this development which relate to the proposed engineered approaches. These items need to be confirmed by the end user that they are manageable. If this cannot be achieved, then the fire engineered approaches detailed in this document will not apply and will need to be revisited.

- A disabled evacuation plan will be produced, including the development of Generic and Personal Emergency Evacuation Plans as required.
- Trained staff will be available whenever there are mobility impaired persons in the building, either to assist with evacuation using the evacuation lift, or via a disabled egress facility, such as an evacuation chair. It will be managed such that disabled occupants evacuating via the evacuation lift will evacuate on the Ground Floor through the stair core to outside.
- Rosedale College will ensure information regarding evacuation procedures and assembly points is appropriately communicated to staff, students and visitors; this may include regular fire drills.
- Assembly points should be located so that they do not impede access routes for the fire and rescue service or be a risk from falling debris from the burning building. It is assumed one of the existing assembly points will be used for this building.

9.4.1 Fire Shutters

Shutters are to be utilised within the building (separating the kitchen from the serving area). These items require maintenance and testing over the life of the building.

Testing and maintenance will be in accordance with the manufacturer's information and instructions. This will be defined at a later stage when the shutters are specified.

The end user shall review this Management Section to ensure that they are satisfied with the duties which are incumbent on them.