



Leopold Court Fire Strategy Report

RIBA Stage 3

Issuing consultant: Sean Maguire Issue: 01 Date: 01/12/2025
Project No: 251172 Document No: MZ-251172-02-FSS-01-ISS01

Executive Summary

No.	Fire Safety Measure	Performance Standard
1	Evacuation Philosophy	As the building in question is a Residential (institutional) building, a simultaneous evacuation protocol will be operated, including within the ancillary areas.
2	Fire Detection system	A Grade D1, Category L2 detection and alarm system is usually appropriate, in line with the recommendations of BS 5839-1 for a change of use - Residential (institutional) development. This system will also be applied to the non-residential areas of the development.
3	Audible Alarm system	Audible warning will be provided to the development using sounders in accordance with BS 5839-6.
4	Back-up Power Supply	Where such systems are required, power and control cables should be installed in accordance with BS 8519:2020.
5	Internal Fire Spread (Linings)	All internal linings shall limit the surface spread of flame when tested under the European classifications in accordance with BS EN 13501.
6	Sprinkler System	No Sprinklers are proposed within the development.
7	Loadbearing Elements of Structure	As the building is classified as 'Residential (Institutional)' with a height no more than 5m, in accordance with Table B4 of ADB it will require 30 minutes fire resistance applied to the structure.
8	External Fire Spread	Unprotected areas on each façade shall not exceed the maximum calculated area permissible.
9	Fire Service Access	Fire mains are not required to be added to the development which means fire access should be provided to 15% of the perimeter or within 45m of every point of the footprint of the building (whichever is less onerous). With an accessible perimeter measurement of 211m, this equates to an accessible perimeter access requirement of 31.65m.
10	Private Fire Hydrants	The building is located more than 100m from an existing hydrant, therefore an additional fire hydrant is required.
11	Emergency Lighting and Exit Signage	Emergency lighting should be in accordance with BS 5266-1. Emergency lighting must be automatic and provide a minimum of 1-hour illumination. Exit signage should be located and operated in accordance with BS 5499-4. The signs designated as E001 and E002 in BS EN ISO 7010:2020+A6:2023 should be used with the appropriate directional arrow in accordance with BS 5499-4.



The development is considered to comply with the Codes and Standards as listed within this document, provided that the recommendations within this report are adopted and the deviations from the prescriptive code requirements as listed below are accepted by the Authority having Jurisdiction (AHJ).

Note: The deviations from the prescriptive code requirements have been discussed with the Design Team. However, should the prescriptive code deviations not be accepted by the AHJ, then the proposed design will need to be revised to ensure prescriptive code compliance can be achieved.

Risk No.	Project Component	Identified Risk	Proposed Design Solution	Status	Comments inc if AHJ have approved
1	Fire Service Access	Existing hydrants are not provided to within 100m of the Leopold Court building.	A private hydrant must be provided to the site, as per Section 7.3.	Open	



Quality Management

Issue	Date	Reason for Issue	Prepared by	Reviewed by
01	01/12/2025	First issue for client review	 Sean Maguire Consultant	 Alex Manning Associate

Validity

This report is formulated on the basis of the information and experience available at the time of preparation. It is applicable to the above-mentioned project only in accordance with the client’s instructions. It is only valid provided no other modifications are made other than those for which a formal opinion has been sought and given by Maze Fire Consulting Limited.

Project Office

UK ☒ E: info@mazefire.com Registered in England & Wales, Company No: 14141136	Ireland ☐ E: info@mazefire.com Registered in Ireland, Company No: 721698
United Arab Emirates ☐ E: info@mazefire.com Registered in United Arab Emirates, Company No: 2193139	Kingdom of Saudi Arabia ☐ E: info@mazefire.com Registered in Saudi Arabia, Company No: 1009155844



Contents

Executive Summary	2
Quality Management	4
Contents	5
1. Introduction	6
1.1 Client and Project	6
1.2 Project Address	6
1.3 Project Description	6
1.4 Description of Work	7
1.5 Authority Having Jurisdiction	7
1.6 Stage of Project	7
1.7 Limits of Report	7
1.8 Regulatory Framework	8
1.9 Information Considered	10
1.10 Record of Statutory Consultation	10
1.11 Reference Documents	11
1.12 Project Stakeholders	11
2. Building Characteristics	12
2.1 General Site Description	12
2.2 Building Particulars	12
2.3 Function or Use of the Building	12
2.4 Materials of Construction and Structural Characteristics	12
2.5 User Population	12
2.6 Fire Hazards	13
3. B1 – Means of Warning and Escape	14
3.1 Functional Requirement of the Building Regulations	14
3.2 General Philosophy	14
3.3 Evacuation Policy	14
3.4 Classification of Occupancy	14
3.5 Means of Warning	14
3.6 Audible Warning	14
3.7 Horizontal Means of Escape	14
3.8 Number of Escape Routes	15
3.9 Minimum Width of Escape Routes / Storey Exits	16
3.10 Travel Distance	16
3.11 Final Exits	17
3.12 Vertical Means of Escape	17
3.13 Protected Escape Routes and BS 7671:2008 + A2:2022	18
3.14 General Provisions	18
3.15 Primary and Secondary Power Supplies	19
4. B2 – Internal Fire Spread (Linings)	21
4.1 Functional Requirement of the Building Regulations	21
4.2 Surface Linings	21
4.3 Green Walls	21
4.4 Specific Products	21
4.5 Rooflights	21
4.6 Light Diffusers	22
5. B3 – Internal Fire Spread (Structure)	23
5.1 Functional Requirement of the Building Regulations	23
5.2 Loadbearing Elements of Structure	23
5.3 Compartmentation	23
6. B4 – External Fire Spread	27
6.1 Functional Requirement of the Building Regulations	27
6.2 General	27
6.3 Resisting Fire Spread Over External Walls	27
6.4 Summary of external wall build up for the scheme	28
6.5 Space Separation	28
6.6 Roof Construction	28
7. B5 – Access and Facilities for the Fire Service	30
7.1 Functional Requirement of the Building Regulations	30
7.2 Access for Vehicles	30
7.3 Hydrants	30
8. Management Responsibilities	31
8.1 Management Policies	31
Appendix A - Occupancy Tables	32

1. Introduction

1.1 Client and Project

Maze Fire Consulting Limited (referenced throughout This Report as 'Maze Fire') has been appointed by Rochdale Council as a specialist fire and life safety consultant for the design of the Leopold Court in Rochdale, United Kingdom.

The ultimate client is Rochdale Borough Council:

Floor 2, Number One Riverside, Smith Street, Rochdale, OL16 1XU.

1.2 Project Address

Leopold Street, Rochdale, OL11 5HA, Rochdale, United Kingdom.

1.3 Project Description

The Leopold Court features a 2 storey Residential (institutional) building (Ground plus 1 above) with no basement. The building currently operates as homeless accommodation containing 24 bedrooms across both floors (including 1 emergency bedroom). Ancillary areas within the existing building include office areas, kitchen areas, lounge areas for residents as well as plant and storage areas. Externally there are planting bed areas for use by residents and a staff only bike storage area.

The project is understood to entail building work constituting a 'change of use' development. The development works include the conversion of an existing resident's lounge and communal space into additional bedrooms, as well as the addition of two wheelchair accessible bedrooms, for a total of 32 bedrooms (22 on the ground floor, 10 on the first floor). The works also include the rearrangement of the ancillary office and plant areas at ground floor, and an external planting bed is being replaced with a smoking shelter. It is understood that upon the completion of these works, the building will continue to operate as homeless accommodation.

Vehicular access to the site is via Leopold Street, and there is pedestrian access from the car park. Proposed layout plans for the site and an indicative site layout of the scheme is shown in the Figures below:

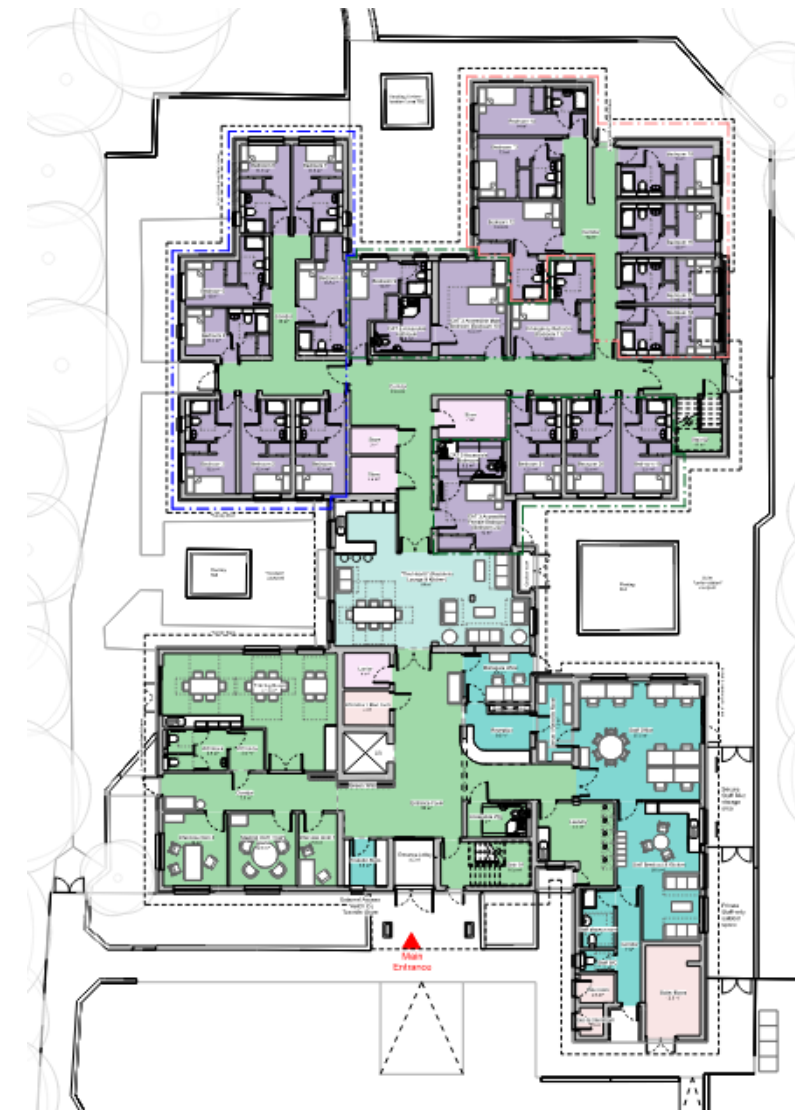


Figure 1: Ground floor proposed layout plan.

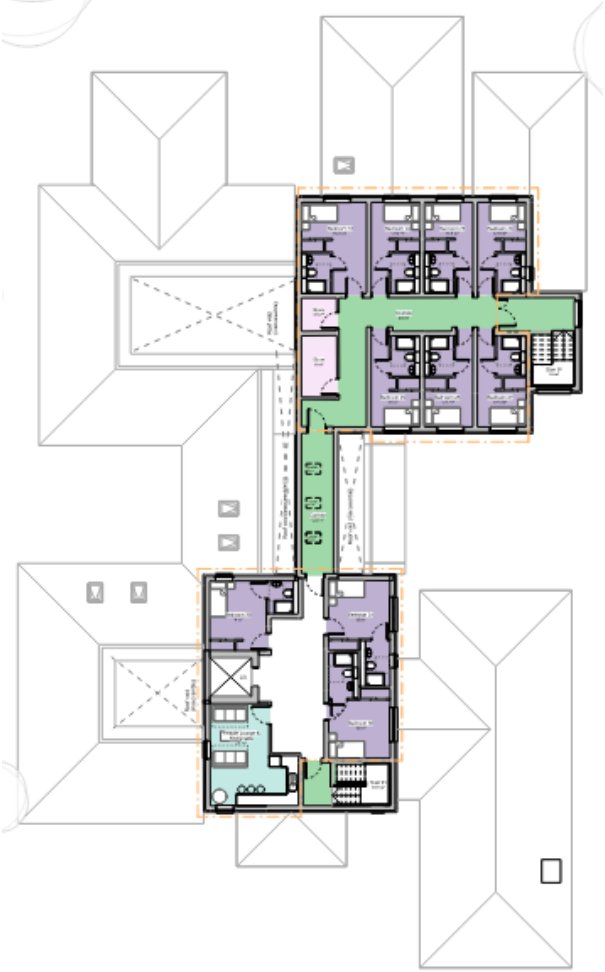


Figure 2: First floor proposed layout plan.



Figure 3: Site plan.

1.4 Description of Work

This fire safety strategy (hereby referenced as 'This Report') covers the fire safety design of the entirety of the scheme described herein. Services during RIBA Stage 3 will focus on preparing the design for fire safety, developing the fire safety measures in more detail and facilitating the fire safety design aspects of the planning process. We will undertake a fire safety legislation, guidance and minimum standard review in the context of its application to the achieved development stage of the Project with input from the building control and fire and rescue authorities as appropriate, provide advice and commentary in relation to life safety (in accordance with applicable Building Regulations) fire hazards, fire risk and recommended fire prevention and fire safety measures. Basic fire engineering analyses (hand and spreadsheet calculations) will be conducted at this stage, and the Scheme Design report will record the developing details of the fire safety strategy, the key risks, possible mitigation steps and key fire safety design decisions.

This Report presents a performance specification of the fire safety measures provided in the design in order to satisfy the fire regulations. For the purposes of This Report, the fire safety objectives are for the design to meet the regulatory requirements described in Section 1.8.

1.5 Authority Having Jurisdiction

The Authority Having Jurisdiction (AHJ) is an organisation, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

The authority having jurisdiction for the project will be Rochdale Council Building Control.

1.6 Stage of Project

The project follows the RIBA Plan of Work to coordinate the overall brief, design, construction and operation of the building.

This Report has been based on the design information provided by others, as described in Section 1.9. The project is currently at RIBA Stage 3 and This Report represents a fire safety strategy to a 'Spatial Coordination' stage of works.

1.7 Limits of Report

It is important to note that This Report does not represent a detailed design or specification of all aspects of a building; it is a series of recommendations that others may consider and relate to the design of the scheme. The information contained herein constitutes a performance specification and therefore does not address detailed aspects of design, such as system design (active or passive) nor construction details.

This Report has been developed with reference to statutory guidance documents and their impact on the strategic aims of the Fire Strategy. This Report will reference relevant design standards however it is not practical to reproduce all details contained within those documents.

Where a detailed design has to be developed by others, on the basis of this performance specification, it would be appropriate for the reader to refer to, and read in conjunction with, those documents referenced in This Report.

Any diagrams incorporated into This Report are illustrative and intended to further convey specific aspects of the fire safety strategy only. Diagrams are not a substitute for the architectural general arrangement, fire strategy drawings or the detailed systems drawings and specifications, which should be referred to in conjunction with This Report.

This Report is primarily concerned with life safety. Property protection is not specifically considered although the fire safety provisions described herein will offer some inherent degree of property protection by nature. Unless otherwise specified, the information herein does not specifically address:

- Insurance requirements
- Property protection or loss of operation
- Fire safety during construction

- Detailed management procedures or duties under the Regulatory Reform (Fire Safety) Order (FSO).

It is noted that This Report addresses so far as necessary, the evacuation of persons with restricted mobility. This Report however does not address the requirements of any specific accessibility issues (outside of those directly related to means of escape) and separate advice should be sought from others on this topic accordingly.

While arson as a single point of ignition will be incorporated in the analysis, simultaneously multiple ignition sources, use of accelerants, sabotage of fire protection systems or terrorism are not included as part of This Report scope.

It should however be noted, as is advised, that when requested to develop alternative fire safety design solutions for the project, fire and smoke damage may vary when compared to a building design that wholly complies with the prescriptive guidance.

It is recommended that the building owners or occupiers liaise with their relevant insurers as to the fire safety design contained herein.

This Report has been developed for RIBA Stage 3 and represents a fire safety strategy to a 'Spatial Coordination' stage of works. It is limited to the scope of works as defined for RIBA Stage 3 in our fee proposal dated 18 Nov 2025.

1.8 Regulatory Framework

1.8.1 General

The following legislation has been considered in the preparation of this fire safety strategy.

- The Building Regulations 2010 (including amendments issued prior to This Report)
- The Building Safety Act 2022
- The Regulatory Reform (Fire Safety) Order 2005
- The Construction (Design and Management) Regulations 2015

1.8.2 The Building Regulations

The building will be subject to the Building Regulations 2010 (hereafter stated as 'The Regulations') and will therefore need to comply with the requirements of Schedule 1 Part B of The Regulations relating to, the following areas.

- B1 – Means of Warning and Escape
- B2 – Internal Fire Spread (Linings)
- B3 – Internal Fire Spread (Structure)
- B4 – External Fire Spread
- B5 – Access and Facilities for the Fire Service.

The Ministry of Housing, Communities and Local Government (MHCLG) – formerly called the Department for Levelling Up, Housing and Communities (DLUHC) between September 2021 and 8th July 2024 reverting to MHCLG on that latter date – have produced a number of guidance documents to assist designers in meeting the relevant requirements of The Regulations; these 'Approved Documents' provide guidance on different aspects of The Regulations.

Approved Document B – Volumes 1 and 2 (referred to as ADB) provide design guidance on ways in which the fire safety functional requirements of The Regulations can be satisfied. However, these documents are intended to provide guidance on the more common building situations and there is no obligation to adopt any particular solution contained within an Approved Document if the relevant requirement can be met in some other way for example by using the following, as applicable:

- the guidance contained within British Standard 9999 Fire Safety in the design management and use of buildings – Code of practice (BS 9999) and / or

- British Standard 9991 Fire safety in the design, management and use of residential buildings. Code of practice (BS 9991).

Regulation 38

Regulation 38 of the Building Regulations states that, where building work involves the erection or extension of a relevant building or relevant change of use of a building which affects fire safety, it is necessary that the fire safety information for the building shall be given to the Responsible Person at the completion of the project or when the building or extension is first occupied. This is to be provided to the Responsible Person by the person carrying out the work.

This information will facilitate the production of the fire risk assessment which is a requirement of the Regulatory Reform (Fire Safety) Order, outlined below. The list of information considered in the preparation of this report should be provided with this report as detailed in Section 1.9.

The fire safety information in this fire safety strategy may be used to supplement the information required to be given to the responsible person. As a minimum it will be necessary for the occupier of the building to be given this fire safety strategy and all 'as built' fire strategy plans.

The level of detail provided in the fire safety information should also align with the 'Essential Information' outlined in Sections 19.3 and 19.4 of Approved Document B Volume 2 (2019, as amended 2020, 2022, 2024 and 2025) – as relevant to this building as follows:

- An as-built plan of the building should be provided showing all of the following.
 - Escape routes – this should include exit capacity (i.e. the maximum allowable number of people for each storey and for the building). (note – for this building the primary evacuation policy is simultaneous and the exit capacities are more than sufficient for the envisaged occupancy in all areas, as set out elsewhere in this strategy)
 - Location of fire-separating elements (including cavity barriers in walk-in spaces).
 - Fire doorsets, fire doorsets fitted with a self-closing device and other doors equipped with relevant hardware.
 - Locations of fire and/or smoke detector heads, alarm call points, detection/alarm control boxes, alarm sounders, fire safety signage, emergency lighting, fire extinguishers, dry fire mains and other firefighting equipment, and hydrants outside the building.
 - Any sprinkler systems, including isolating valves and control equipment.
 - Any smoke control systems, or ventilation systems with a smoke control function, including mode of operation and control systems.
 - Any high-risk areas
- Details should be provided of all of the following.
 - Specifications of fire safety equipment provided, including routine maintenance schedules.
 - Any assumptions regarding the management of the building in the design of the fire safety arrangements.
 - Any provision enabling the evacuation of disabled people (including the location and mode of operation of evacuation lifts)

Additional information for complex buildings should be provided as per 19.5 of ADB Volume 2 (2019, as amended 2020, 2022, 2024 and 2025)

See also Section 1.9. of this strategy.

1.8.3 Applied Guidance to the Building Regulations

This fire safety strategy adopts the following guidance as the basis of design for the project, noting the scope and limits of This Report outlined in this chapter.

Approved Document B

ADB Volume 1 gives guidance on each of the functional requirements stated within Part B, schedule 1 of The Regulations with respect to dwellings including blocks of flats.

ADB Volume 2 similarly gives guidance on each of the functional requirements stated within Part B, schedule 1 of The Regulations with respect to buildings other than dwellings.

The Approved Documents provide guidance for common building situations. In addition to guidance, some Approved Documents include or refer to provisions that must be followed exactly, as required by regulations or where methods of test or calculation have been prescribed by the Secretary of State. See notes on Regulation 38 above as an example. Each Approved Document relates only to the particular requirements of The Regulations that the document addresses. However, building work must also comply with all other applicable requirements of The Regulations and all other applicable legislation.

This fire safety strategy has adopted the guidance of Volume 2 of ADB as the basis of the design.

BS 9991: 2015

BS 9991:2015 'Fire safety in the design, management and use of residential buildings' provides recommendations and guidance for:

- Dwellings (single-family dwelling houses, self-contained flats or maisonettes).
- Residential accommodation blocks (e.g. for students or hospital staff), with individual bedrooms and the provision of kitchen/sanitary facilities constructed within a fire compartment, accommodating not more than six persons.
- Sheltered housing and extra care housing.

BS 9991 is not applicable to hotels, caravans/mobile homes, hospitals, residential care/nursing homes, places of lawful detention, hostels or houses of multiple occupancies.

Where ADB is silent on a particular aspect of fire safety design, BS 9991 will be referred to in this strategy if appropriate.

NFCC Opinion Paper

In 2024, the National Fire Chiefs Council (NFCC) published an opinion paper titled “Provision of Multiple Routes for Evacuation of Residential Buildings”. This document discusses the arrangements for the provision of multiple stairs, safe egress for all building users (including those who would find it difficult to descend stairs) and suitable resilience and redundancy for firefighting. This opinion paper is not applied guidance, however, the principles discussed within this document are considered within the fire strategy design.

Performance Based Design

Where aspects of the design deviate from the above design guidance, fire safety engineering analysis may be required to demonstrate compliance with the functional requirements of The Regulations or equivalence to the prescriptive guidance.

1.8.4 The Regulatory Reform (Fire Safety) Order 2005

The operation of the building will be subject to The Regulatory Reform (Fire Safety) Order 2005, (FSO).

Responsibility for complying with the FSO rests with the “responsible person” as defined by Article 3, reproduced as follows:

- (1)in relation to a workplace, the employer, if the workplace is to any extent under his control;
- (2)in relation to any premises not falling within paragraph (a)—

a.the person who has control of the premises (as occupier or otherwise) in connection with the carrying on by him of a trade, business or other undertaking (for profit or not); or

b.the owner, where the person in control of the premises does not have control in connection with the carrying on by that person of a trade, business or other undertaking.

If there is more than one responsible person in any type of premises, all must take reasonable steps to work with each other.

Under the FSO, the Responsible Person must carry out an assessment of the risks stemming from the possibility of fire within and around the premises and must implement fire precautions where necessary to the extent that is reasonable and practicable to control those risks.

On occupation of the building, or part thereof, the ‘responsible person’ as defined in the FSO is required by law to undertake a ‘suitable and sufficient’ fire risk assessment. This fire safety strategy will not satisfy this obligation; instead it should be used as a basis for understanding the fire safety provisions provided in the building in order to undertake the risk assessment. The fire risk assessment will help identify risks that can be removed or reduced and to decide the nature and extent of the general fire precautions that need to be taken to protect people against the fire risks that remain. It should pay particular attention to those especially at risk, such as disabled and impaired persons and those with special needs, and must include consideration of any dangerous substance likely to be on the premises.

1.8.5 Fire Safety (England) Regulations 2022

The Fire Safety (England) Regulations 2022 (made under article 24 of the Regulatory Reform (Fire Safety) Order 2005) came into effect on 19 January 2023 for the following buildings in England:

- High-rise residential buildings;
- Residential buildings with storeys over 11m in height;
- All multi-occupied residential buildings with two or more sets of domestic premises.

For high-rise residential buildings (a multi-occupied residential building at least 18 metres in height or 7 or more storeys), responsible persons must:

- share electronically with their local fire and rescue service (FRS) information about the building’s external wall system and provide the FRS with electronic copies of floor plans and building plans for the building;
- keep hard copies of the building’s floor plans, in addition to a single page orientation plan of the building, and the name and UK contact details of the responsible person in a secure information box which is accessible by firefighters;
- install wayfinding signage in all high-rise buildings which is visible in low light conditions;
- establish a minimum of monthly checks on lifts which are for the use of firefighters in high-rise residential buildings and on essential pieces of firefighting equipment;
- inform the FRS if a lift used by firefighters or one of the pieces of firefighting equipment is out of order for longer than 24 hours.

For multi-occupied residential buildings over 11 metres in height, responsible persons must:

- undertake quarterly checks on all communal fire doors and annual checks on flat entrance doors.

In all multi-occupied residential buildings, responsible persons must:

- provide residents with relevant fire safety instructions and information about the importance of fire doors.

1.8.6 Construction (Design and Management) Regulations 2015

The Construction (Design and Management) Regulations 2015 (CDM) are applicable for the design and construction stages of this project. The CDM aims to integrate health and safety into the management of the project and to encourage everyone involved to work together to

- Improve the planning and management of projects from the very start.
- Identify hazards early on, so they can be eliminated or reduced at the design or planning stage and the remaining risks can be properly managed.
- Target effort where it can provide the most benefit in terms of health and safety.



- Discourage unnecessary bureaucracy.

These CDM Regulations are intended to focus attention on planning and management throughout construction projects, from design stage and onwards. The aim is for health and safety considerations to be treated as an essential, but normal part of a project's development - not an afterthought or bolt-on extra.

Guidance on fire safety for construction sites is given in the HSE publication HSG 168 however does not form part of this fire safety strategy. Where our role on the project involves the preparation or modification of designs, this will be undertaken in conjunction with the project's principal designer and CDM Coordinator to ensure that any foreseeable risks during construction and the maintenance and use of the building are sufficiently controlled. These risks will typically be summarised in the principal designer's or principal contractor's risk register.

1.9 Information Considered

The following information has been considered in the preparation of this fire safety strategy.

- Architectural drawings prepared by Triangle Architects as listed in the table below
- Structural report completed by Bradshaw Gass and Hope LLP

Table 1: Referenced Architectural Drawings

No.	Title	Revision	Date
LPC-TRI-ZZ-00-DR-A-2110	Proposed Ground Floor Plan	P02	20/08/2025
LPC-TRI-ZZ-01-DR-A-2111	Proposed First Floor Plan	P02	20/08/2025
LPC-TRI-ZZ-02-DR-A-2112	Proposed Roof Level Plan	P02	22/09/2025
LPC-TRI-ZZ-ZZ-DR-A-2000	Site Location Plan	P02	28/10/2025
LPC-TRI-XX-ZZ-DR-A-2010	Site Layout & Context Plan	P01	30/012024
LPC-TRI-Z1-00-DR-A-2100	Existing Ground Floor Plan	P01	30/01/2024
LPC-TRI-Z1-01-DR-A-2101	Existing First Floor Plan	P01	30/01/2024
LPC-TRI-Z1-02-DR-A-2102	Existing Roof Level Plan	P01	30/01/2024
LPC-TRI-Z1-ZZ-DR-A-2202	GA Existing Building Sections	P01	30/01/2024
LPC-TRI-Z1-ZZ-DR-A-2201	GA Existing Building Elevations	P01	30/01/2024
LPC-TRI-XX-ZZ-DR-A-5001	3D Views - Sheet 1 - Existing Building	P01	30/01/2024

Any change in the information listed above to suit future re-organisation will require further assessment to confirm compliance with the intent of the design objectives, and a potential revision of This Report or a subsequent Fire Strategy may be required.

1.10 Record of Statutory Consultation

At the date of issue of this document, no informal consultation has taken place with Rochdale Council Building Control with respect to the building regulations application.

Historically it has been common practice for the building control body to consult with the relevant fire authority, being the Fire Service, noting formal consultation has not been advised to have taken place. A key part of the purpose of statutory consultation with the fire authority is to allow observations to be made in regard to the proposals for the scheme with respect to the functional requirements of the Building Regulations and provide

for an opportunity to make the applicant aware of actions that may have to be taken to meet the subsequent requirements of the FSO.

The consultation period should allow for agreement that the functional requirements of the Building Regulations are being met, and where possible via a collaborative process with all stakeholders involved.

1.11 Reference Documents

Figure 4 outlines the key codes and standards that will be used as a basis of design. This list is not exhaustive. Where referenced in This Report, codes and standards will follow the guidance of the editions outlined.



Figure 4: Design Basis

1.12 Project Stakeholders

This Report has been developed with the relevant project stakeholders as identified in the table below:

Table 2: Project Stakeholders

Organisation	Role
Rochdale Council Building Control	Authority Having Jurisdiction
Triangle Architects	Architecture and Planning
TBD	MEP Engineer
TBD	Structural Engineer
Maze Fire Consulting Ltd.	Fire and Life Safety Engineer
Rochdale Council	Client



2. Building Characteristics

2.1 General Site Description

The project site is an existing site located at Leopold Street, Rochdale, OL11 5HA, Rochdale, United Kingdom, which currently operates as homeless accommodation. The building is currently undergoing a ‘building extension’ development including the addition of bedrooms to the existing building.

There is a car park on the site, accessible off Leopold Street. Access is primarily provided via the main entrance adjacent to Leopold Street (east elevation); however, there are a number of exits on the south, west and north elevations, which lead to the front entrance via a gate on the south elevation of the building. Upon exiting the building, escapees can travel away from the building along Leopold Street to Bury Road.

Externally, planting bed and smoking shelter areas are provided for the use of residents.

There is a path away from the building on the west elevation of the building, leading to the nearby Lansdowne Street; however it is understood that overgrown vegetation on the site blocks the use of this path.

The east (front) elevation of the existing Leopold Court building can be seen below:



Figure 5: Leopold Court existing building (from Google Maps Street View).

2.2 Building Particulars

The following building particulars have been used in the development of this fire safety strategy:

- Number of storeys: 0 basement storeys and 2 above grade (ground + 1)
- Height of the building: 6.45m
- Height of floor of top storey above ground level: 2.55m
- Approximate floor area: 863.5m²

2.3 Function or Use of the Building

2.3.1 Approved Document B

Building uses are classified within different purpose groups, which represent different levels of hazard (as described in Table 0.1 of ADB). A purpose group can apply to a whole building or to a compartment within the building and should relate to the main use of the building or compartment.

The building is primarily considered to be of Group 2a - .

2.4 Materials of Construction and Structural Characteristics

A structural report written by Bradshaw Gass and Hope LPP outlines the materials of construction of the building as below:

Table 3: Primary Materials of Construction

Element	Materials
Floor	Level 0 - Ground-bearing Concrete Slab Level 1 – Timber floor joists
Internal Walls	Blockwork and assumed as load-bearing masonry
External Walls	External brick wall (façade configuration unknown)
Roof	Timber trussed rafter roof

2.5 User Population

The accommodation provided at Leopold Court is to support vulnerable persons who have previously been homeless. As a population requiring additional on-site support there are consequently additional risks to such residents from fire. The NFCC Guide on Fire Safety in Specialised Housing states that:

‘Most deaths from fire occur in dwellings; a disproportionate number of such deaths from fire occur in blocks of flats and multiple occupancy dwellings. Those living in specialised housing can be amongst the most vulnerable to hazards such as fires.

Compliance with the Building Regulations alone is not necessarily sufficient to address the protection of vulnerable residents from fire.’

Therefore, the specific vulnerabilities and risks to the resident population must be adequately identified and addressed within the Fire Safety Strategy which may require provision above and beyond that specified for general needs housing. The NFCC Guide further recommends a need for a “person-centred approach” to fire safety. Although not all the guidance within the NFCC guide will be applicable to Leopold Court, where appropriate additional measures have been taken based on the recommendations of that guidance.

Possible factors which may impact the resident population of Leopold Court include but are not limited to:

- Increased risk of physical health conditions;
- Increased risk of mental health conditions;
- Increased risk of alcohol and drug use.

The extent to which each individual resident is impacted by the stated risk factors will vary significantly across the resident population at any given time. It is therefore necessary to ensure that account is taken of the nature of the residents, in that mobility and health issues may slow a person in their escape using the common parts or increase the risk to a particular resident of contributing to the likelihood of a fire or fire development.

It is noted that where vulnerabilities are known to exist before residents are placed in supported housing, those responsible for the safety of the residents (commissioning groups and care providers) should consider whether additional fire safety measures are necessary before placement or, more fundamentally, whether the premises are suitable for the residents. Requirements of the building management are discussed further in Section 8 and should be informed by the development of a "Person-centred fire Risk Assessment" (see NFCC Section 36 for further information).

2.6 Fire Hazards

2.6.1 Activities

Activities are considered to be consistent with a building containing mainly Residential (institutional) occupancies. No processes or activities have been identified that indicate excessive fire risks.

ADB specifies that the following rooms are considered 'places of special fire hazard' or areas requiring special consideration and will be dealt with accordingly in the strategic design.

- Boiler room

The boiler room can only be accessed directly from outside, and therefore does not require a lobby. However, this room must still satisfy the structural fire resistance requirements as outlined in Section 5.

2.6.2 Ignition Sources

Typical ignition sources comprise the following:

- Smoking related materials - lighters etc
- Matches and Candles
- Cooking appliances - Cooker incl. oven, Deep fat fryer, Grill/Toaster, Microwave oven, Ring/hot plate etc
- Space heating appliances
- Central and water heating appliances
- Electrical distribution - batteries, generators, Wiring, cabling, plugs, Heating equipment etc
- Electric lighting - Fairy lights, Fluorescent lights, Spotlights etc
- Other domestic style appliances - Audio equipment, Battery charger, Dishwasher, Electric blanket, Kettle, TV, Hoover, Washing Machine, Personal Computer etc
- Oil/Incense burners
- Food warming equipment (not cooking)
- Domestic style gardening appliance

The potential ignition sources are expected to be consistent with well managed Residential (institutional) building types.

2.6.3 Unusual or High Hazard Factors

Micro-mobility Devices

An external bike store is located on the northern elevation of the site, which is for use by staff only.

Cognisance should be taken of the risk posed by the storage of micro-mobility devices (such as e-bikes and e-scooters) utilising lithium-ion batteries. Fires involving lithium-ion batteries can develop quickly and be challenging to extinguish.

3. B1 – Means of Warning and Escape

3.1 Functional Requirement of the Building Regulations

The functional requirement contained within Schedule 1 Part B1 of The Building Regulations states that:

- (1)
- The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire, and appropriate 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 at all material times.*

3.2 General Philosophy

The general principle to be followed when designing for means of escape is that when occupants are confronted by fire within a building they can turn away and walk to a place of safety in a different direction by their own unaided efforts. Escape in a single direction is only allowed when the distances are short and people could be expected to escape before the fire becomes large enough as to block the escape route.

3.3 Evacuation Policy

As the building in question is a residential institutional building, a 'simultaneous' evacuation protocol will be operated. this means that upon sounding of the alarm, all occupants within the building should begin their evacuation. No delay between alarm activation and evacuation is proposed. This will also apply to the non-residential areas of the building.

As a 24-hour staffed building, refuge areas provided with emergency communication systems may be of benefit to the staff and residents in supporting escape procedures of mobility impaired persons and therefore should be considered as an option as part of the evacuation management plan for the building. See Section 8 for the requirements of the building management.

3.4 Classification of Occupancy

The building is considered to be primarily a Residential (Institutional) building containing multiple bedrooms. It will also contain ancillary occupancies as outlined below:

- Office: Common Room, Office i.e. small standalone
- Assembly and Recreation: Staff Room, Common Room
- Industrial: Laundry Room, Plant Rooms
- Storage and other non-residential: Store rooms

3.5 Means of Warning

In accordance with ADB, the minimum standard of fire alarm should be based on the type of occupancy and the means of escape strategy for the building. BS 5839-1 Fire detection and fire alarm systems for buildings, is consulted to provide guidance on the system to be used.

A Grade D1, Category L2* detection and alarm system is usually appropriate within hostels, in line with the recommendations of BS 5839-1 for a building extension - Residential (institutional) development. This system will be installed throughout the building, including in the non-residential and ancillary areas.

*Note: There is a potential to reduce this category based on risk assessment

A category L2 system is specified as a system installed only in defined parts of the building. The objective of a Category L2 system is to afford early warning of fire to occupants of rooms in which people sleep, and in specified areas of high fire hazard level and/or high fire risk.

A Grade D1 category is specified as a system of one or more mains-powered detectors, each with a tamper-proof standby supply consisting of a battery or batteries.

In the case of Grade D systems, where more than one smoke alarm is installed, the smoke alarms normally need to be interlinked. Any heat alarms also need to be interlinked with the smoke alarms.

These grades are defined in such a way that a requirement for one grade of system can be satisfied by the installation of a higher grade of system; for example, if the fire risk justified the installation of a Grade D system, it would be acceptable to install a Grade A or Grade C system.

3.6 Audible Warning

Audible warning will be provided to the development using sounders in accordance with BS 5839-6 and the previous sections of this chapter.

3.7 Horizontal Means of Escape

The horizontal means of escape considers the escape from any point on a level to a storey exit on that level. The general principle is that any person confronted by a fire within a building can turn away from it and escape safely. Protected escape routes (residential corridors, stairs) are designed to function as a sterile space where a fire should not be able to break out. Were a fire to break out there should be virtually no combustible material to provide fuel to the fire.

The means of escape design depends on the occupancy, occupancy numbers, number of escape routes, escape route widths and travel distances.

3.7.1 Occupancy Load Factors

The occupancy numbers for each floor are based on a floor space factor as given in ADB Table D1. For Residential (institutional), the occupant load factor will be as follows:

Table 4: Main Occupancy Occupant load requirement

Occupancy	Area	Occupant Floor Space Factor (m²/person)
Residential (institutional)	Bedrooms -	Based on designed no. occupants

There are 22 bedrooms on the ground floor of the building, and 10 bedrooms on the first floor. Based on the drawings provided, it is understood that there will be one occupant per bedroom.

Since detailed layout drawings have been provided by the client, showing the number of seats within the non-residential areas (including the office and break room areas); the occupancy of these areas has also been calculated using the designed no. occupants, based on the number of seats within each room.

Additional ancillary occupancies will be provided with occupant load factors as summarised in the table below. All load factor figures should be verified at fit out stage.

Table 5: Occupant Load Factors

Occupancy	Occupant Floor Space Factor (m²/person)
Store room*	30

*Plant rooms have been taken to have the same occupancy as store rooms.

3.7.2 Occupancy Calculations

The total occupant load has been calculated and represented in the table below, for each floor. See Appendix A for full representation of the calculated capacities for each individual area of the building.

Table 6: Occupancy numbers

Floor	Area (m2)*	Occupancy
Ground Floor	863.5	99
First Floor	281.0	20



9 Seats

Maximum number of persons	Minimum number of escape routes/exits
60	1
600	2

3.9 Minimum Width of Escape Routes / Storey Exits

The table below outlines how egress width is calculated and the minimum widths of all components of egress in common areas. However, as the guidance in Approved Document M must also be followed, the doors along the escape routes should have a minimum width of 800mm. Measurements from the plans provided suggest that this requirement is met, but this should be confirmed by the architect.

Note: For residential areas, Approved Document M Volume 1 should be referenced.

Table 8: Minimum Width of Escape Routes

Maximum number of people	Minimum width (mm)
60	800 (as per ADM)
110	850
220	1050

There are two doors on leading to external which currently measure at around 770mm that require to be widened to 800m (as above); these two doors can be seen below in Figure 8. This is a minor deviation from the prescriptive requirements, and in the considered opinion of Maze Fire, this does not pose an increased risk to life safety due to the limited occupancy at first floor.

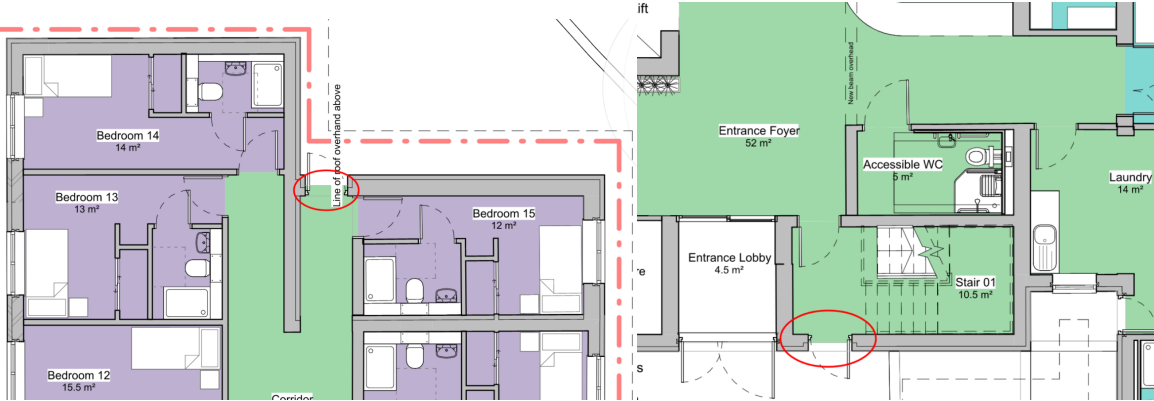


Figure 8: Two exits within Lepold Court measuring around 770mm.

3.10 Travel Distance

Travel distances within each area will be as follows:

Table 9: Travel Distances

Occupancy	One direction only (m)	More than one direction (m)
Residential (Institutional)	9	18
Staff Room	18	45
Laundry Room	9	18
Common Room	18	45
Office i.e. small standalone	18	45
Plant Rooms - distance within the room	9	35

Occupancy	One direction only (m)	More than one direction (m)
Plant Rooms - escape route not in open air (overall travel distance)	18	45
Store room	25	45

Travel distances on the ground floor and first floor are provided below in Figure 9 and Figure 10 respectively. It can be seen that the distance requirements outlined above are satisfied.

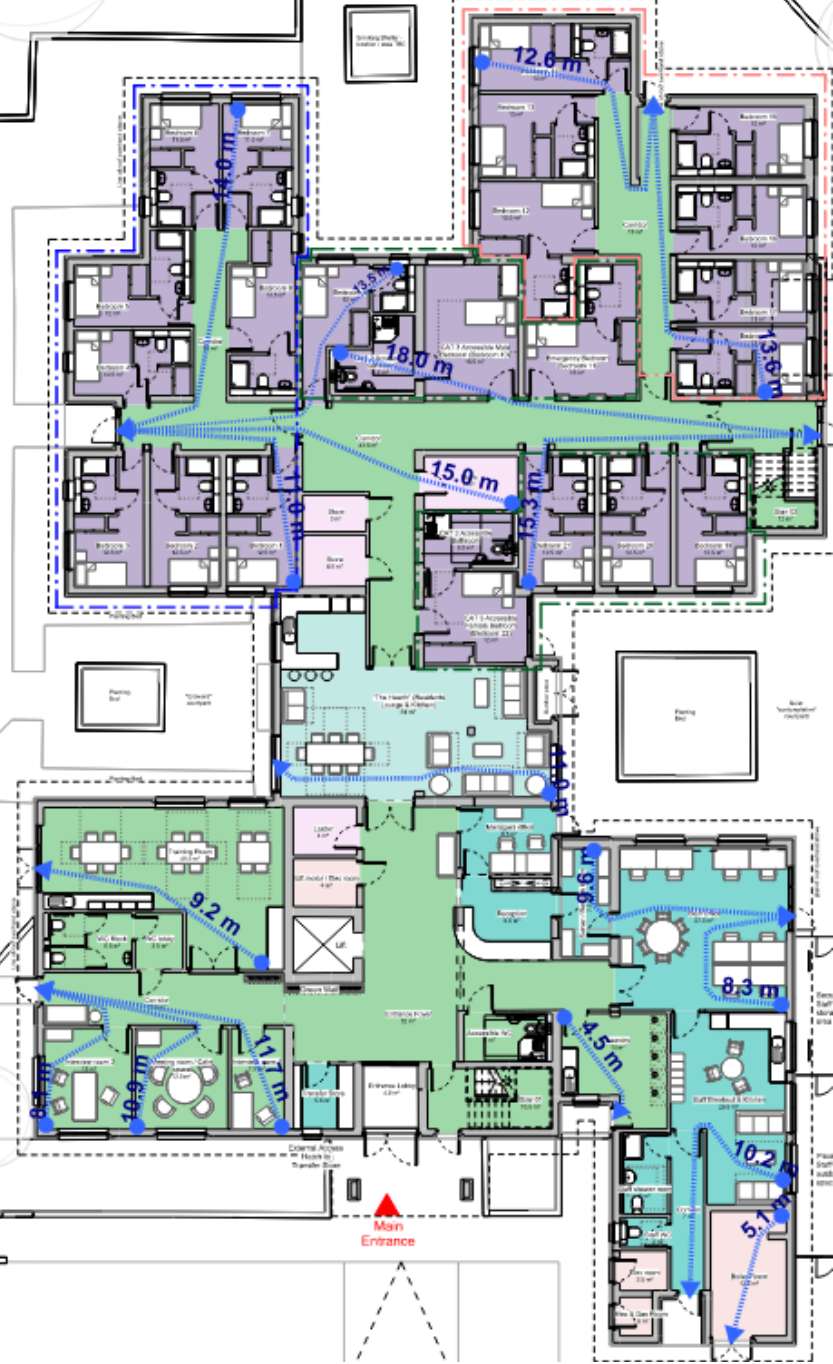


Figure 9: Travel distances on ground floor.



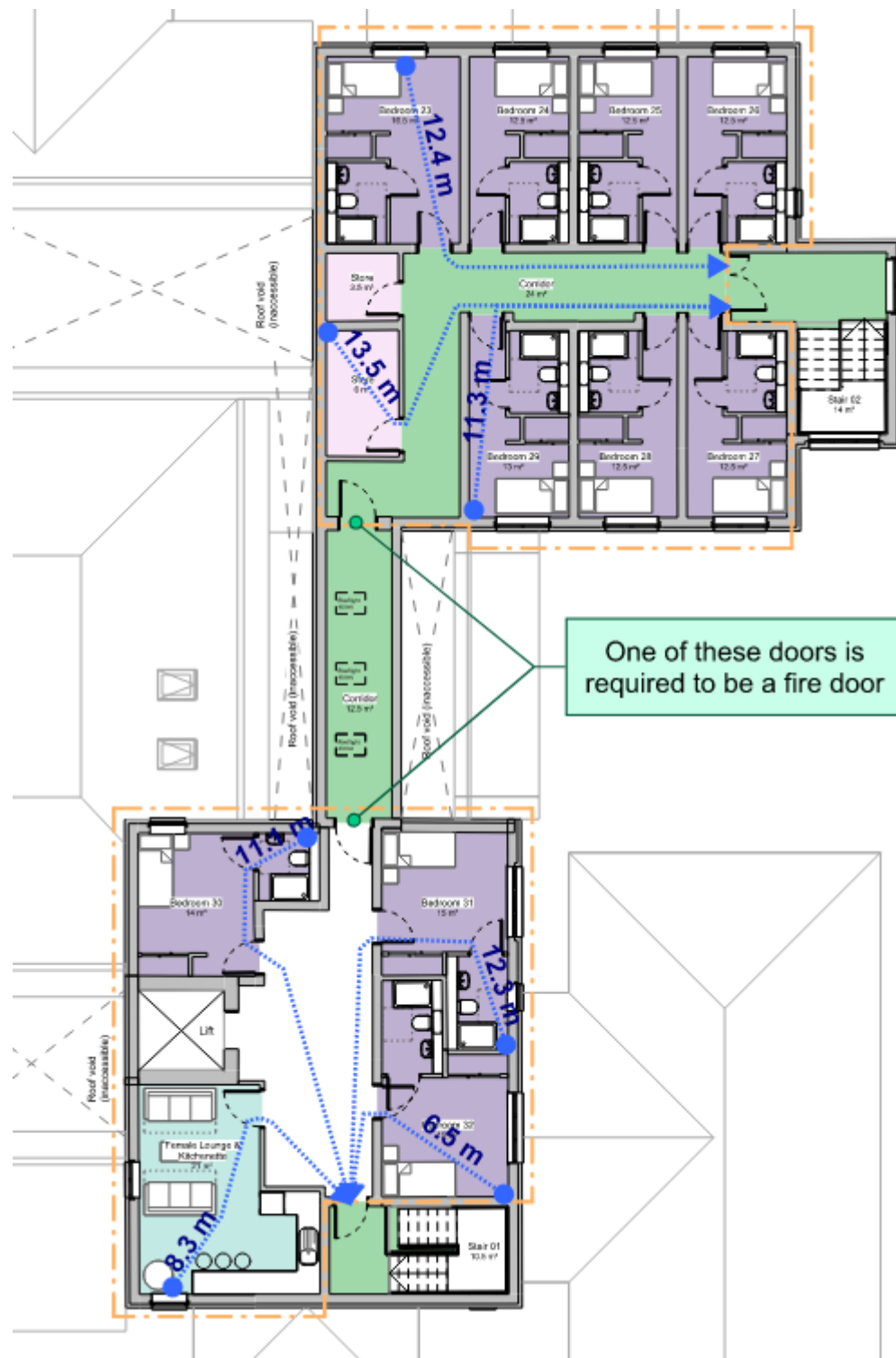


Figure 10: Travel distances on first floor.

3.11 Final Exits

Discharge from common stairs and final exits should meet the recommendations from ADB Volume 2:

- Every protected stairway should lead to a final exit, either
 - directly.

- via a protected exit passageway.
- Any protected exit corridor or stair should have the same standard of fire resistance and lobby protection as the stair it serves.
- People should be able to rapidly leave the area around the building. Direct access to a street, passageway, walkway or open space should be available. The route away from the building should comply with the following:
 - be well defined.
 - if necessary, have suitable guarding.
- Final exits should not present a barrier for disabled people. Where the route to a final exit does not include stairs, a level threshold and, where necessary, a ramp should be provided.
- Final exit locations should be clearly visible and recognisable.
- Final exits should avoid outlets of basement smoke vents and openings to transformer chambers, refuse chambers, boiler rooms and similar risks.

ADB prescribes that the final exits should not be narrower than the stair and/or corridor that serves them in order to avoid 'pinch points'. This is not satisfied on the current plans; the width of both stairs within the Leopold Court development is 1000mm, and the width of the final exits from the stairs are around 800mm, creating a 'pinch point'. However, in the considered opinion of Maze Fire, this arrangement is acceptable due to the limited occupancy on the first floor and the large number of exits provided at the ground floor.

3.11.1 Corridors

A corridor providing access to alternative escape routes should be divided by fire doorsets fitted with a self-closing device (and associated screens) where both of the following apply.

- it is more than 12m long
- it connects two or more storey exits

The fire doorsets (including any screens) should be approximately mid-way between the two storey exits. They should safeguard the route from smoke, while considering the layout of the corridor and any adjacent fire risks.

If a cavity exists above the enclosures to a corridor as described above (because the enclosures are not carried to full storey height or the underside of the roof covering at the top storey), the potential for smoke to bypass the enclosure should be restricted by one of the following methods:

- Method 1 – Fitting cavity barriers on the line of the enclosure(s) to and across the corridor.
- Method 2 – Dividing the storey using fire resisting construction that passes through the line of the division of the corridor (Diagram 2.9 of Approved Document B). Any cavity above this division should be fitted with cavity barriers on the line of division of the storey and the corridor.
- Method 3 – Enclosing the cavity on the lower side by a fire resisting ceiling that extends throughout the building, compartment or separated part. Any door that could provide a path for smoke to bypass the division should be fitted with a self-closing device (but need not necessarily be fire resisting).

If a corridor is used for a means of escape but is not a protected corridor, even though the enclosing partitions may have no fire resistance, both of the following should be met to inhibit the spread of smoke:

- partitions should continue to the soffit of the structural floor above, or to a suspended ceiling
- openings into rooms from the corridor should be fitted with doors, which do not need to be fire doorsets.

Open planning will not inhibit the spread of smoke, but occupants can become aware of a fire quickly.

3.12 Vertical Means of Escape

The stairs should be protected stairs, enclosed in fire resisting construction.

3.12.1 Facilities for Mobility Impaired Persons

There is no prescriptive requirement for refuges to be provided on the residential levels due to the high level of compartmentation. However Approved Document B, Volume 2 states that the fire safety aspects of the Building Regulations aim to achieve reasonable standards of health and safety for people in and around buildings.

People, regardless of ability, age or gender, should be able to access buildings and use their facilities. The fire safety measures incorporated into a building should take account of the needs of everyone who may access the building, both as visitors and as people who live or work in it. It is not appropriate, except in exceptional circumstances, to assume that certain groups of people will be excluded from a building because of its use.

The provisions in this approved document are considered to be of a reasonable standard for most buildings. However, some people’s specific needs might not be addressed. In some situations, additional measures may be needed to accommodate these needs. This should be done on a case-by-case basis.

The day to day management of the development should reflect the principles discussed in the statement above. Where residents would be unable to self-evacuate, an assessment should be undertaken into how they will be safely evacuated in the event of a fire. This should include the completion of personal emergency evacuation plans (PEEPs) for all residents that will require assistance to leave the building. This will determine the needs of such residents and what level of staff support is required during an evacuation. See Section 8.1.2 for more information regarding the completion of PEEPs.

3.12.2 Width of Escape Stairs

The required width of the escape stairs depends upon how many stairs are available for means of escape, the number of people needing to use the stairs and the evacuation strategy. Egress stairs should be at least as wide as any exits giving access to the stairs. The width of the stairs should not reduce at any point on the way to a final exit.

When a simultaneous evacuation policy is in place, Table 3.2 of ADB is used to determine the required width of the stairs for the occupancy of the building. As one stair may be affected by fire, and the stairs do not have lobbies, each stair must support the evacuation of the entire occupancy of the building above ground floor level. Each stair serving the anticipated occupancy of 20 persons above ground should therefore be at least 1000mm wide.

General arrangement drawings provided to Maze Fire indicate that the stairs meet the required clear width of 1000mm, this should be confirmed on site.

3.12.3 Enclosure of Stairs

The stair should be a protected stair, enclosed in fire resisting construction (30 mins to each side separately), leading to a final exit.

Both stairs appear to be enclosed in fire resisting construction. The stair on the east side of the building discharges directly to outside, whereas the stair on the west side of the building discharges to a lobby which leads directly outside.

3.12.4 Construction of Escape Stairs

The flights and landings of the escape stair should be constructed of materials of limited combustibility.

3.12.5 External Walls Adjacent to Protected Stairs

With some configurations of external walls, a fire in part of the building could subject the external wall of a protected stairway to heat.

Therefore, if the protected stairway projects beyond or is recessed from or is in an internal angle then the distance between any unprotected area in the external enclosures to the building and any unprotected enclosure to the protected stairway should be 1800mm. As such, the walls in these zones must be a fire resisting construction providing E 30 from inside the building.

This requirement applies to two walls adjacent ‘Stair 02’ shown below in Figure 11. The existing external structure of the building should provide the required resistance.

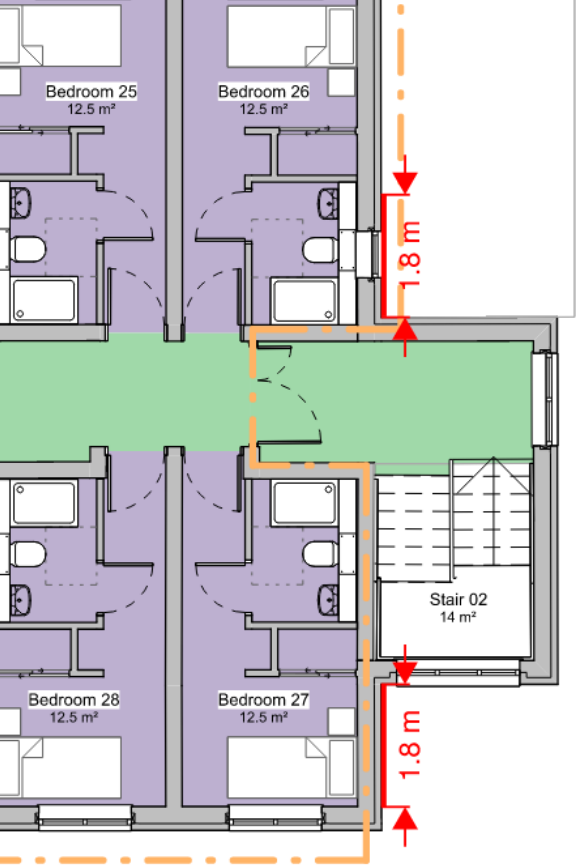


Figure 11: External walls adjacent to protected stairs that require protection.

3.13 Protected Escape Routes and BS 7671:2008 + A2:2022

Electrical services should generally be installed and maintained in accordance with BS 7671:2018+A2:2022. It should be noted that Amendment 2 to the guidance, current as of 28th September 2022 and published more recently than BS 9999, places in Section 422.2 additional restrictions on the presence of cables and other electrical equipment within ‘protected escape routes’ (routes which are designed to be enclosed in fire-resistant construction for a specified time).

The recent May 2023 Corrigendum to the standard provides further clarification to Section 422.2 to the effect that ‘cables or other electrical equipment shall not be installed in a firefighting lobby, shaft, or staircase of a protected escape route’ unless they are part of one of the following:

- An essential fire safety or related safety system
- General needs lighting
- Socket outlets provided for cleaning or maintenance.

It is therefore recommended that the electrical engineer for the project be made aware by the design team of this fire strategy in order that their detailed design can be appropriately harmonised, taking into account relevant protected enclosures and the restrictions which will apply.

3.14 General Provisions

The following general provisions should be provided to all escape routes:

3.14.1 Headroom in Escape Routes

All escape routes should have clear headroom of not less than 2m.

3.14.2 Doors on Escape Routes

All doors on escape routes should not be fitted with lock, latch or bolt fastening, and are to be provided with simple fastenings i.e. thumb turns or push pads to allow them to be open. Any security devices should be provided with an over-ride that allows them to release without a key/fob.

Electrically powered locks should return to the unlocked position if the fire detection and alarm system operates, there is loss of power/system error, or the security mechanism override is activated.

Security mechanism overrides for electrically powered locks should be a Type A call point as described in BS 7273-4. The call point should be positioned on the side approached by people escaping. If the door provides escape in either direction, a call point should be installed on both sides of the door.

The door of any doorway or exit should always be hung to open in the direction of escape if the number of persons that might be expected to use the door at the time of a fire is more than 60.

Where doors are hung to swing both ways, they should be fitted with vision panels. Vision panels are also required if the door is dividing a corridor on an escape route.

3.14.3 Emergency Lighting

Emergency escape lighting will be installed to provide temporary illumination in the event of failure of the primary power supplies to the normal lighting system. As part of the emergency lighting system, escape lighting will be provided to ensure the escape routes are sufficiently illuminated to enable occupants to escape. Additionally, emergency escape lighting will be provided as follows:

Table 10: Provisions for Emergency Lighting

Use of the building or part of the building	Areas requiring escape lighting
Residential	All common escape routes*
Office / Industrial / Storage and other non-residential	Windowless Accommodation (e.g. Interview Room 1)
Assembly and recreation	All escape routes*
	Accommodation
Other Areas	All toilet accommodation with a minimum floor area of 8m²

* Including external escape routes.

Typical mounting height of luminaires is at least 2m as specified in BS EN 1838. This may need adjusting based on effects of glare or specific smoke control strategies.

Emergency lighting should be in accordance with BS 5266-1. Emergency lighting must be automatic and provide a minimum of 1-hour illumination.

3.14.4 Exit Signage on Common Escape Routes

Every doorway or other exit providing access to a means of escape, other than exits in ordinary use (e.g. main entrances), should be distinctively and conspicuously marked by an exit sign in accordance with BS ISO 3864-1 and BS 5499-4.

Exit signage should be located and operated in accordance with BS 5499-4. The signs designated as E001 and E002 in BS EN ISO 7010:2020+A6:2023 should be used with the appropriate directional arrow in accordance with BS 5499-4.

Colorimetric and Photometric Requirements

Powered - internally illuminated escape route signs should be as follows:

- Colorimetric and photometric requirements specified in BS ISO 3864-4 Table 2 and the luminance contrast requirements specified in BS ISO 3864-4 Table 3 should be met.
- The minimum luminance of the safety colour green should be at least 2 cd/m² and the luminance of the contrast colour white 5 to 15 times that.
- The ratio of maximum to minimum luminance within either green or white should not exceed 10:1.
- Response times should conform to BS EN 1838.
- Durations should be the same as the Emergency Lighting.

Externally illuminated escape signs and unpowered internally illuminated escape route signs (i.e. normal lighting conditions) should meet the colorimetric and photometric requirements specified in BS ISO 3864-4 Table 1. The illuminance on any part of the face should not be less than 5 lx.

Sign Height and Viewing Distances

The maximum viewing distance normal to escape route signs should be determined from the sign height and distance factors using the recommendations given in BS 5499-4. The angle of viewing should also be considered when calculating these factors.

3.15 Primary and Secondary Power Supplies

All power supplies, electrical wiring and control equipment should be protected against fire for an appropriate period of time where the effects of fire are likely to result in the failure or incorrect operation of the life safety system.

Power and control cables should be installed in accordance with BS 8519:2020.

Where dual power supplies are recommended by the relevant British Standard or industry guide to any life safety system, the primary power source should generally be taken from the public electricity supply, with secondary power being supplied from an alternative utility supply from another substation, a generator, an uninterruptable power supply (UPS) or batteries.

The output of each power supply should be sufficient to satisfy the maximum demands of the system.

Where practicable, power supplies should be provided via two separate intakes into the building from the same external substation or via a single intake and a standby generator. Where neither of these options is technically viable, e.g. a risk assessment has been undertaken which concludes that a life safety generator would not be suitable, a single intake from the external substation may be provided as the only alternative option remaining, provided that the following recommendations are met (following guidance from BS 9991 Section 15).

- The life safety system should be connected to an independent distribution board used exclusively for that system.
- The life safety distribution board should be clearly marked at the point of isolation with a warning explaining that isolation would switch off the life safety system.
- The life safety distribution board should be located in a separate fire-resisting enclosure (with a minimum of 60 min fire-resisting construction) to the primary main electrical distribution board and should not be accessible directly from the communal areas of the building or from a part of the building where dual supply is required (such as a shaft serving an evacuation lift).
- The enclosure surrounding the primary main electrical distribution board should be provided with a minimum of 60 min fire-resisting construction.



- The substation or transformer room should be either located outside the building or separated by 120 min fire-resisting construction and directly accessible from the outside. The diverse (primary and secondary) power cables should only come together in the fire compartment housing the control panel by means of an automatic change-over switch, unless the cable route is via a fire compartment which does not open onto areas requiring protection via the relevant life safety system.

NOTE 1: Where the secondary power source is not taken from a generator, alternative utility supply or primary main electrical distribution board, and is contained within the fire compartment housing the control panel (e.g. a control panel containing battery back-up providing secondary power and control for an extra low voltage system), then secondary power cables are not required.

NOTE 2: Particular attention is drawn to the requirement in BS 7671 for suitable support of cabling to avoid obstruction of escape routes and firefighting access due to the failure of fixings.

If the primary power source fails, then the power supply should be automatically switched over to a secondary power source. Failure of or damage to one of the power sources should not cause the failure of the other power source or the failure of the supply of power to the system.

The electrical distribution system should conform to BS 7671, the relevant parts of BS EN 60947 and BS 7346-8.



4. B2 – Internal Fire Spread (Linings)

4.1 Functional Requirement of the Building Regulations

The functional requirement contained within Schedule 1 Part B2 of The Building Regulations states that:

- (1) To inhibit the spread of fire within the building the internal linings shall –

a. Adequately resist the spread of flame over their surfaces; and
b. Have, if ignited, a rate of heat release which is reasonable in the circumstances.
- (2) In this paragraph “internal linings” mean material lining any partition, wall, ceiling or other internal structure.

4.2 Surface Linings

The interior wall and ceiling surfaces in a building can have a significant influence on how fast a fire may develop. It is particularly important that, in circulation spaces , where the rapid spread of fire is most likely to prevent occupants from escaping, surface linings are restricted by making provision for them to have low rates of heat release and surface spread of flame.

The wall and/or ceiling linings must satisfy the classifications given in ADB when tested under the European classifications in accordance with BS EN 13501: Part 1. Although ADB provides guidance on national classifications which are obtained through testing against British Standards, Maze do not recommend these classifications are used. In the case of some products, the British Standard test methods may not provide as robust assessment as the European system. It is anticipated that the national classification route will be removed in future editions of ADB.

Table 11: Classification of wall and ceiling linings

Area	European Class
Small rooms in residential accommodation not exceeding 4m²	D-s3, d2
Small rooms in non-residential accommodation not exceeding 30m²	D-s3, d2
Other rooms	C-s3, d2
Other circulation spaces	B-s3, d2*

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

Note 1: When a classification includes ‘s3, d2’ this means that there is no limit on the production of smoke or flaming droplets/particles.

Note 2: A product achieving a classification ‘A’ achieves a higher standard than the minimum classifications set out in the table above.

Note 3:Maze recommends that regardless of classification achieved, relevant metal composite material should not be used as an internal lining. This includes panels or sheets, having a thickness of no more than 10mm, which is comprised of a number of layers—

- (i)two or more of which are made of metal, alloy or metal compound; and
- (ii)one or more of which is substantial (at least 1mm thick or has a mass per unit area of at least 1kg per m²) and is made of a material having a gross calorific value of more than 35 MJ/kg when tested in accordance with BS EN ISO 1716

Parts of walls in rooms may be of lower performance than stated in the table above, but no worse than class D-s3, d2. In any one room, the total area of lower performance wall lining should be less than an area equivalent to half of the room’s floor area, up to a maximum of 20m² in residential accommodation and 60m² in non-residential accommodation.

For the purposes of this requirement, a wall includes the internal surface of internal and external glazing (except glazing in doors) and any part of a ceiling which slopes at an angle greater than 70° to the horizontal.

A 'wall' does not include

- Doors and door frames.
- Window frames and frames in which glazing is fitted.
- Architraves, cover moulds, picture rails, skirtings and similar narrow members.
- Fireplace surrounds, mantle shelves and fitted furniture.

For the purposes of this requirement, a ceiling includes glazed surfaces, any part of a wall at 70° or less to the horizontal, the underside of a gallery or the underside of a roof exposed to the room below.

A 'ceiling' does not include

- Trap doors and their frames.
- The frames of windows or rooflights and frames in which glazing is fitted.
- Architraves, cover moulds, picture rails, exposed beams and similar narrow members.

4.3 Green Walls

A small area of the entrance foyer (adjacent to the lift) can be seen to contain a green wall system. Since this spans roughly 1m² of the internal wall, this green wall arrangement is permitted. To further mitigate the risk of fire spread over green walls, the following measures should be followed:

- Where possible, increase the non-combustible content of the growing medium.
- Where possible, decrease the organic content of the growing medium (<20%).
- Prevent the system from drying out.

4.4 Specific Products

There is specific guidance provided for some internal lining products which may be additional to or an alternative to the requirements detailed in Section 4.2 of This Report. Specific products include:

- Flexible membranes;
- PTFE-tension based roofs and structures;
- Insulated core panels;
- Thermoplastic windows;
- Thermoplastic lighting diffusers; and
- Suspended or stretched-skin ceilings.

Thermoplastic lighting diffusers are commonly used in buildings, therefore, further details are provided below. Maze Fire are not aware of any of the other products listed above being specified for Leopold Court. If any are to be used Maze Fire must be informed to enable them to provide relevant information.

4.5 Rooflights

Rooflights are indicated on the corridor between the two residential wings on the first floor.

Rooflights should meet the following classifications, according to material. No guidance for European fire test performance is currently available, because there is no generally accepted test and classification procedure.

Non-plastic rooflights should meet the relevant classification in Table 13.

Plastic rooflights, if the limitations in Table 4.2 and Table 12.2 of ADB are observed, should be a minimum class D-s3, d2 rating. Otherwise, they should meet the relevant classification in Table 4.1 of ADB.



4.6 Light Diffusers

Thermoplastic light diffusers which form part of a ceiling should meet the guidance detailed in ADB Section 4.12, 4.15 and 4.16. Such lighting diffusers may be incorporated in ceilings to rooms and circulation spaces, but not to protected stairways, if both of the following conditions are met:

- Except for the upper surfaces of the thermoplastic panels, wall and ceiling surfaces exposed in the space above the suspended ceiling should comply with the table above; and
- Diffusers should be classified as one of the following:
 - TP(a) rigid - no restrictions on their extent.
 - TP(b) - limited in their extent (refer to Table 4.2 of ADB).

The TP(a) rigid and TP(b) classifications must be in accordance with Section B13 of ADB.



5. B3 – Internal Fire Spread (Structure)

5.1 Functional Requirement of the Building Regulations

The functional requirement contained within Schedule 1 Part B3 of The Building Regulations states that:

- (1) *The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period.*
- (2) *A wall common to two or more buildings shall be designed and constructed so that it adequately resists the spread of fire between those buildings.*
- (3) *To reasonably inhibit the spread of fire within the building, it shall be sub-divided with fire-resisting construction to an extent appropriate to the size and intended use of the building comprising either or both of the following –*

a. Sub-division of the building with fire-resisting construction;

b. Installation of suitable automatic fire suppression systems.
- (4) *The building shall be designed and constructed so that the unseen spread of fire and smoke within concealed spaces in its structure and fabric is inhibited.*

5.2 Loadbearing Elements of Structure

The period of fire resistance required is linked to the purpose group for the building taking into account the height of the top floor, depth of any basement and whether the building is sprinklered or not.

Where any element supports another the supporting element should possess at least the resistance of the other which it is supporting.

As the building is classified as 'Residential (institutional)' with a height no more than 5m, in accordance with Table B4 of ADB it will require 30 minutes fire resistance applied to the structure.

Structure that only supports the roof may be excluded from the definition of element of structure (and therefore not fire rated) unless:

- The structure is essential to maintain the stability of the building
- The roof serves as a floor (i.e. supporting plant) or
- Its failure leads to unreasonable or disproportionate damage that could render the building inoperative for a prolonged period.

5.3 Compartmentation

Compartment walls and floors should form a complete barrier to fire between the compartments they separate. Where a compartment wall or floor meets another compartment wall or external wall the junction should maintain the fire resistance of the compartmentation. Key requirements are as follows:

- The maximum floor area of any one storey in the building or any one storey in a compartment for a multi storey building is unlimited, so long as the requirements of 'Typical Compartmentation Provisions' (below) are also met.
- All floors should be compartment floors.

5.3.1 Typical Compartmentation Provisions

The table below sets down typical compartmentation provisions for the scheme. Where walls are shared between fire separating elements, the higher standard of fire rating should be applied to the shared wall.

Table 12: Fire resistance requirements

Area	Above Ground Storeys	
	Fire resistance of construction	Fire resistance of any doors (Integrity only)*
Structural frame, beam or column	R 30 to exposed faces	N/A
Loadbearing wall	R 30 to each side separately	Based on location
Floors - including compartment floors	REI 30 from the underside	FD 30
Any part of an external wall a minimum of 1000mm from the relevant boundary (for loadbearing resistance requirement of loadbearing external walls see above)	E 30 and I 15 from inside the building	FD 60
Other compartment walls	REI 30 to each side separately	FD 30 S
Enclosure to a protected stairway	30 to each side separately	FD 60 S
Enclosure to a protected lobby or protected corridor to stairway	REI 30 to each side separately	FD 30 S
Enclosure to a protected corridor	REI 30 to each side separately	FD 20 S
Sub-division of a corridor	REI 30 to each side separately	FD 20 S
Construction that encloses places of special fire hazard	REI 30 to each side separately	FD 30
Fire resisting sub-division	REI 30 to each side separately	FD 20 S
Cavity barriers	E 30 and EI 15 to each side separately	FD 30
Ceilings (where specifically required)	EI 30 from the underside	FD 30
Ducts passing through cavity barriers	E 30 from the outside	FD 30
Casing around a drainage system	E 30 from the outside	FD 30
Flue walls	EI 15 from the outside	FD 15

* S = Smoke resisting door

R = Loadbearing

E = Integrity

I = Insulation

Rooms of special fire hazard will be protected as follows:



Table 13: Fire resistance requirements for rooms of special fire hazard

ADB Rooms of Special Hazard	Requirement	Fire Door Resistance
Boiler room	REI 30 to each side separately	FD 30

If an existing wall or floor is to be relied upon to provide the protection detailed in the above tables, it is recommended that the compartmentation is checked to confirm it meets the required standard and, if applicable, remedial work is conducted. If any existing wall or floor provides a resistance beyond any of the required standards outlined above, it is recommended that such wall or floor be maintained during development works.

The timber floor at first floor must achieve REI 30 at minimum; if this is not achieved by the existing building construction, guidance on increasing the fire resistance of existing timber floors is given in BRE Digest 208 .

5.3.2 Fire Doors

Fire doors should normally be self-closing unless they give access to cupboards or service risers, in which case they should be kept locked. Fire doors should meet the specified level of integrity but do not usually need to be insulated as there is no fire load immediately adjacent to a door.

Doors installed on site should conform, in dimensions and workmanship, to the manufacturer’s specification for the appropriate fire resistance test report/assessment. Doors should be hung to ensure a good fit to the frame when closed, and the junction between door assembly and surrounding structure should be adequately sealed.

Security requirements should not override the need to provide adequate means of escape.

Integrated elements such as locks, letter plates and security viewers should not reduce the fire resistance of the door.

5.3.3 Securing of External Wall Cladding

Maze Fire is not aware of the external wall construction detail and have not been engaged to review this detail. If external cladding is used, this should be restrained at the junction of compartment walls and floors to resist movement in the event of fire.

5.3.4 Junction of Compartment Wall with Roof

In accordance with ADB, the detail at the head of a compartment wall must not permit fire spread via materials from a compartment on fire to an adjacent compartment. Fire stopping at the head of the wall must also be appropriate. Diagram 5.2 in ADB shows the requirements for typical construction at the head of a compartment wall where it junctions with the roof. This diagram is reproduced in the Figure below.

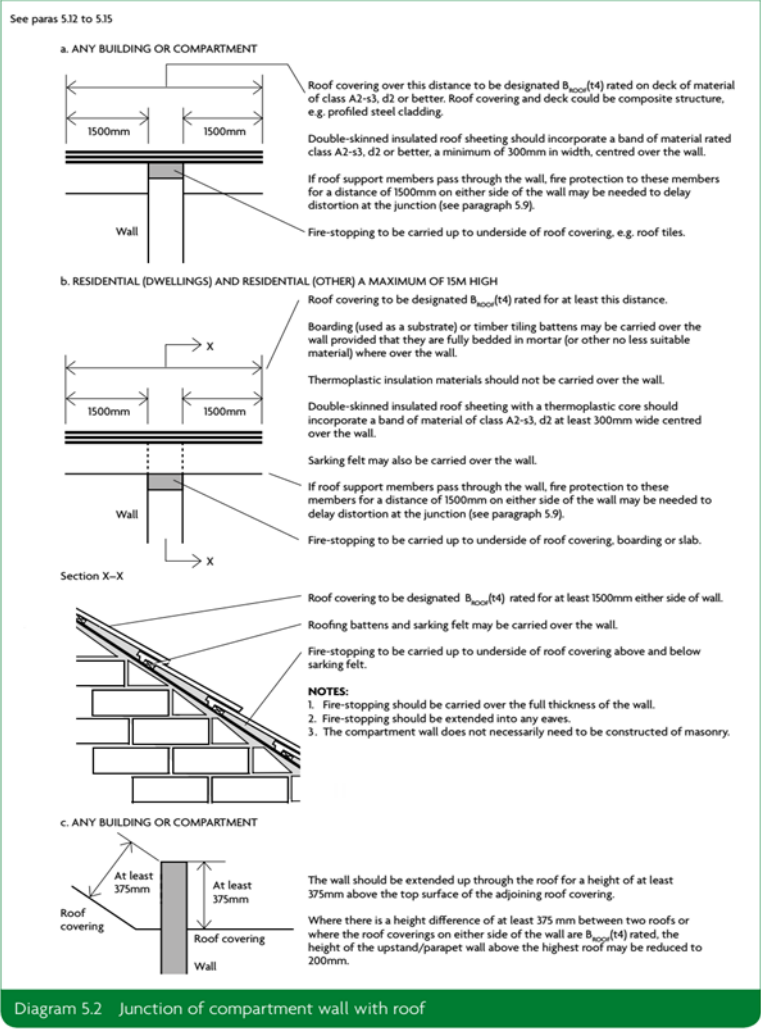


Figure 12: Junction of compartment wall with roof (ABD diagram 5.2)

5.3.5 Risers / Service Ducts / Shafts

Where any service risers pass through compartment floors, they should either be treated as protected shafts and enclosed in fire resisting construction equal to the compartment floor through which they are passing, or they should be fire stopped in line with the compartment floors.

5.3.6 Cavity Barriers

There are limits to the extent to which any cavities can exist, for example between walls and cladding and between ceilings and roofs. Cavity barriers should close gaps around windows and separate cavities on compartment lines.

Cavity barriers shall be provided in floor and ceiling voids (where these are present) to sub-divide the concealed space and reduce the potential for fire or smoke to spread over large areas of the building unchecked. They shall be located not more than 20m apart in the large open plan spaces and they shall be aligned with partition walls wherever practicable. In areas where there are smaller rooms cavity barriers shall be provided such that no undivided void is greater than 20m in any one direction. The maximum distance between cavity barriers must be reduced to 10m if the surfaces of the cavity do not have a Class 0 or Class 1 surface spread of flame rating.

Cavity barriers shall also be provided at the junction of compartment walls and other construction where there is a void and in other construction where there are large, concealed voids and around openings.



Cavity barriers shall be constructed to achieve at least 30 minutes fire resistance for integrity and 15 minutes fire resistance for insulation.

Cavity barriers should generally be provided in accordance with Figure 8.1 of ADB (reproduced in the following figure).

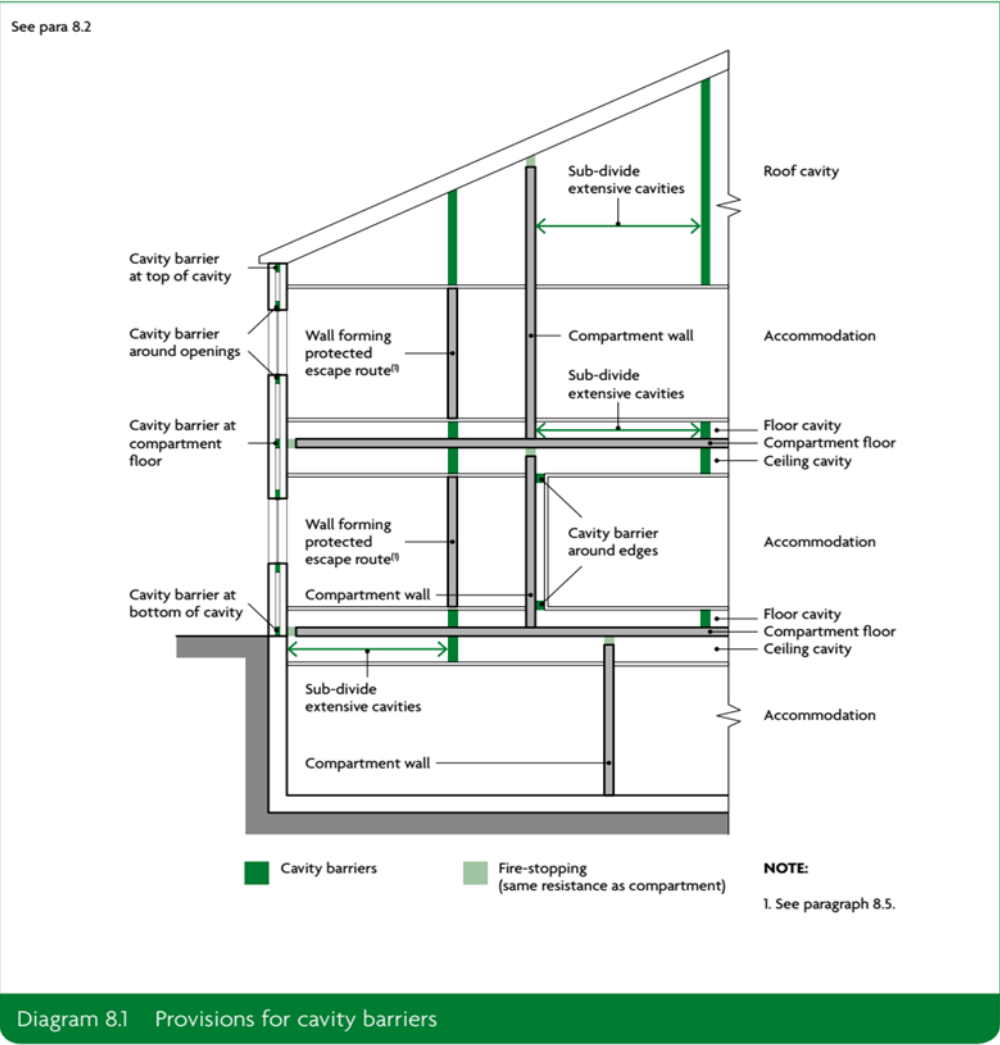


Figure 13: Cavity barrier and fire-stopping provision (Figure 8.1 of ADB)

Cavity barriers should be provided to close the edges of any cavities, including around openings* (but see also note below: Figure 9.2 of ADB). As set out in ADB, cavity barriers are also required:

- at the junction between an external cavity wall* and every compartment floor and compartment wall and
- at the junction between an internal cavity wall* and every compartment floor, compartment wall or other wall or door assembly which forms a fire resisting barrier.

*This provision is not required where the cavity wall conforms with Figure 8.2 of ADB. This figure is reproduced below. Note that in this type of configuration it is permissible for combustible material (lowest classification Euroclass B) to be placed within the cavity.

Every cavity barrier should be constructed to provide at least 30 min fire resistance. It may be formed by any construction provided for another purpose if it meets the provisions for cavity barriers. Cavity barriers in a stud wall or partition, or provided around openings, may be formed of:

- steel at least 0.5 mm thick or

- timber at least 38 mm thick or
- polythene-sleeved mineral wool, or mineral wool slab, in either case under compression when installed in the cavity or
- calcium silicate, cement-based or gypsum-based boards at least 12 mm thick.

Further information regarding the requirements for construction and fixing of cavity barriers is set out in Section 5 of ADB, including requirements to specific configurations and reaction to fire requirements for surfaces within or adjacent to cavities.

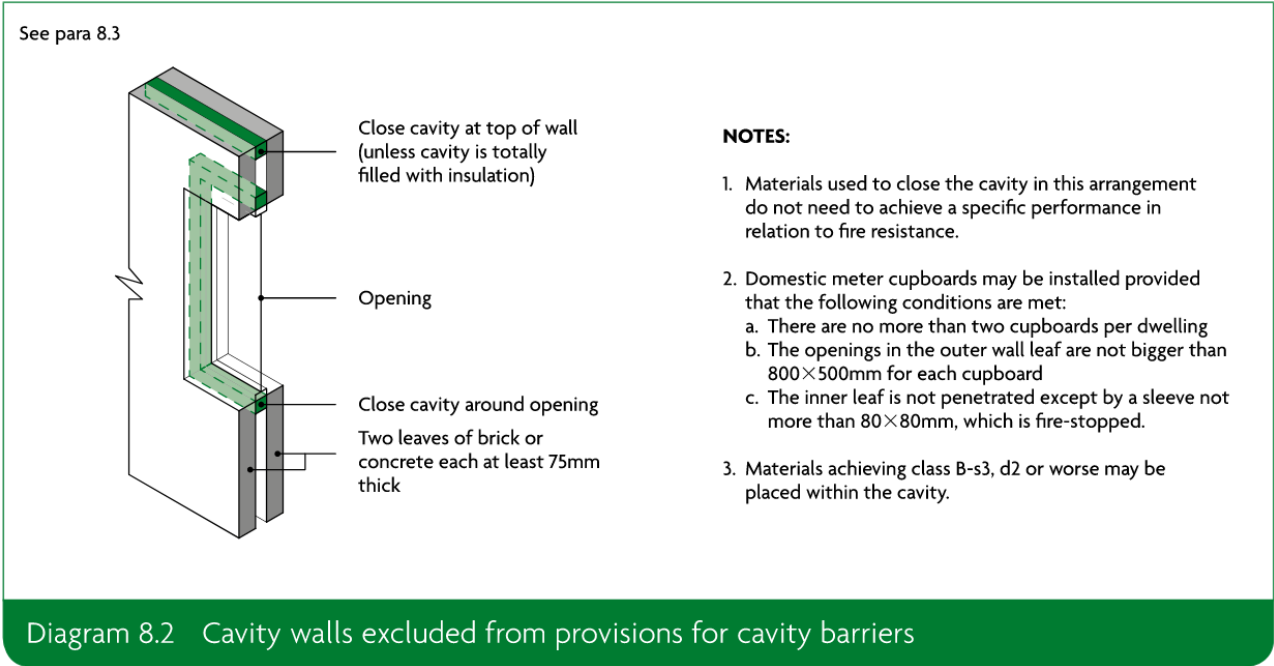


Figure 14: Cavity wall exclusions Figure 8.2 - of ADB

5.3.7 Installation of Ductwork Systems

If air handling ducts pass through fire-separating elements, the fire performance of the elements should be maintained using one or more of the following four methods outlined in Section 9.12 of ADB. In most ductwork systems, a combination of the four methods is best as follows:

- Method 1 – thermally actuated fire dampers.
- Method 2 – fire-resisting enclosures.
- Method 3 – protection using fire-resisting ductwork.
- Method 4 – automatically activated fire and some dampers triggered by smoke detectors.

Both fire dampers and fire and smoke dampers shall be tested to BS EN 1366-2:1999 and be classified to BS EN 13501-3: 2005. They require an E (fire dampers) or ES (smoke and fire dampers) classification to be the same fire resistance standard or 60 minutes (whichever is greater) as the wall/floor through which the duct passes.

5.3.8 Protection of Openings

Where services penetrate compartment walls, floors and between the junction with the walls or façade; suitable fire stopping should be provided.

Pipes which pass through a fire separating element (unless within a protected shaft) will meet the following provisions:

Option 1 - proprietary seals (any pipe diameter)

Provide a proprietary sealing system which has been shown through test evidence to maintain the fire resistance of the compartmentation.

Option 2 – pipes with a restricted diameter

When a proprietary sealing system is not used, fire stopping may be used around the pipe, where every effort is made to keep the opening as small as possible. Any mastic used for the protection of pipe penetrations should be compatible with the pipework material and size to maintain the prescribed standard of fire resistance, tested and installed in accordance with the manufacturer’s instructions.

The nominal internal diameter of the pipe should not be greater than that detailed in Table 9.1 of ADB and graphically represented in the figure below:

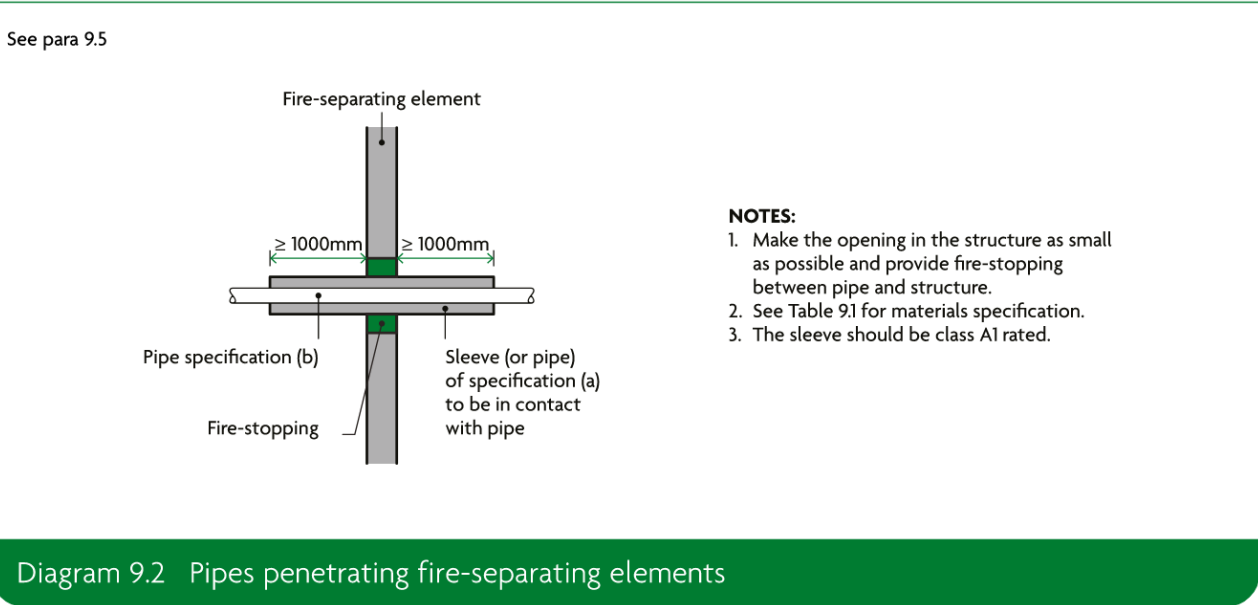


Figure 15: Maximum Internal Diameter of Pipes Passing Through Compartment Wall / Floor (Figure 9.2 of ADB)

Option 3 – sleeving

A pipe of lead, aluminium, aluminium alloy, fibre-cement or uPVC, with a maximum nominal internal diameter of 160mm, may be used with a sleeving of non-combustible pipe as per Figure 9.2 of ADB.

5.3.9 Fire Stopping

Penetrations through lines of fire-resisting separation will be fire-stopped to achieve the same fire resistance as the separation.

All pipes, ductwork and services passing through fire-resisting separations will be either enclosed in fire-resisting construction (i.e. shafts) of matching fire resistance or provided with fire dampers of matching fire resistance. Certain small-diameter pipes require only fire-stopping around the pipe, dependent on pipe material and the type of fire-resisting barrier penetrated. The ASFP Red Book provides information on fire stopping and penetration seals, the following figure is recreated from the Red Book and gives examples of where fire stopping is typically required.

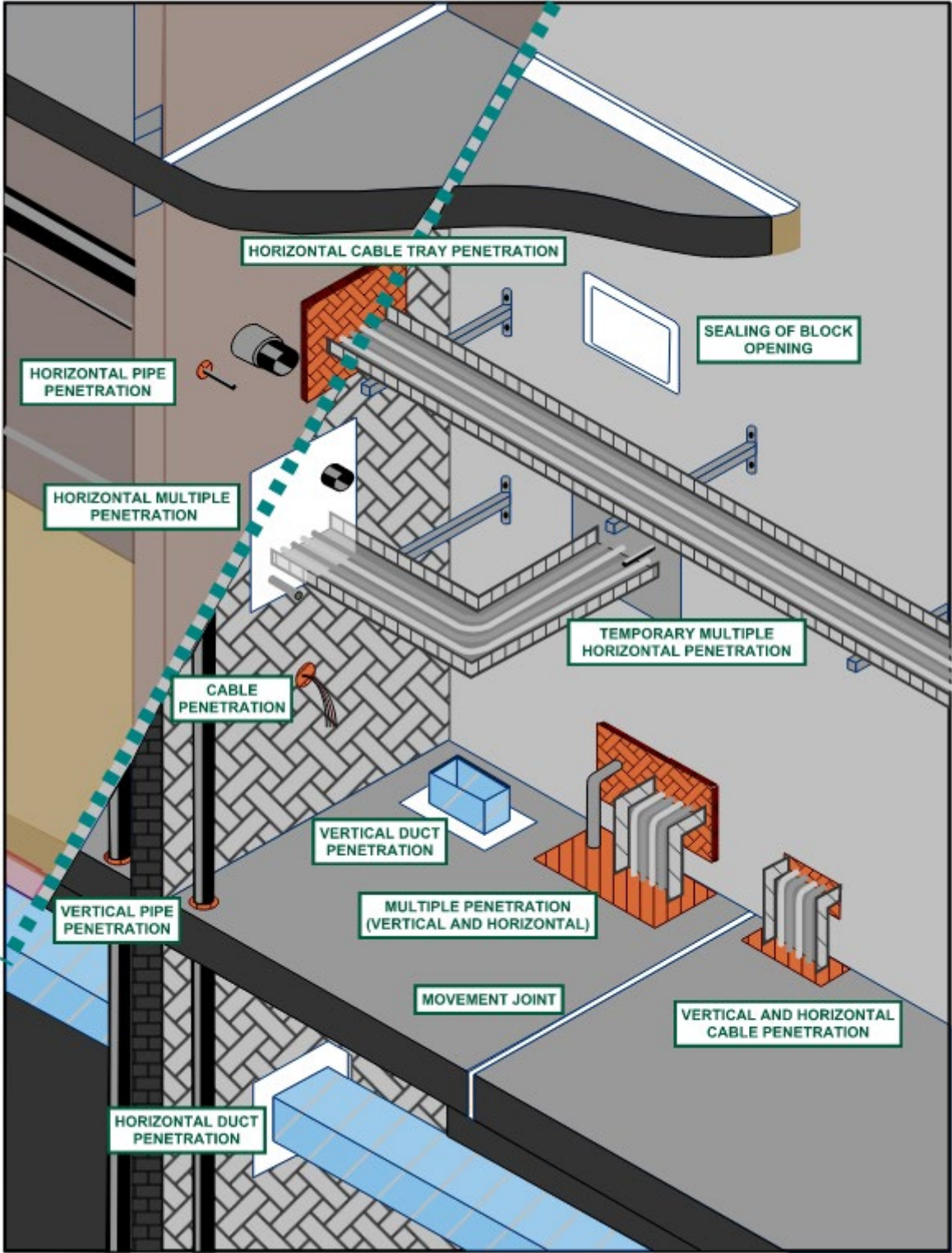


Figure 16: Examples of locations where fire stopping should be provided (Recreated from ASFP Red Book)

6. B4 – External Fire Spread

6.1 Functional Requirement of the Building Regulations

The functional requirement contained within Schedule 1 Part B4 of The Building Regulations states that:

- (1) *The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another having regard to the height, use and position of the building.*
- (2) *The roof of the building shall adequately resist the spread of fire over the roof and from one building to another, having regard to the use and position of the building.*

6.2 General

The guidance in this section is designed to reduce the risk of vertical fire spread as well as the risk of ignition from flames coming from adjacent buildings. To review fire resistance requirements for external walls, see Section 5.3.1of This Report.

Consideration should be given to the choice of materials (including their extent and arrangement) used for the external wall, or attachments to the wall, to reduce the risk of fire spread over the wall. Flame spread over or within an external wall construction should be controlled to avoid creating a route for rapid fire spread bypassing compartment floors or walls.

The external envelope of the building should not provide a medium for undue fire spread to an adjacent building or be readily ignitable by fires in adjacent buildings. In addition to restricting the risk of ignition of the external wall, the amount of thermal rational that falls on a neighbouring building in the event of a fire is also restricted. Furthermore, the flame spread over and / or fire penetration from an external source through the roof is restricted.

6.3 Resisting Fire Spread Over External Walls

ADB provides two routes to demonstrate the compliance of the external wall:

- Route A - Follow the provisions given in ADB paragraphs 10.5 to 10.8, this is commonly referred to as the 'linear route'.
- Route B - Meet the performance criteria given in BRE report BR135 for external walls using full-scale test data from BS 8414-1 or BS 8414-2.

Note 1: Regardless of which route is followed, cavity barriers should be provided in accordance with Section 5.3.6 of This Report to satisfy requirement B3.

Note 2: Relevant metal composite materials are prohibited regardless of which route is followed. as described in Section 6.3.1 of This Report.

6.3.1 Route A – ‘Linear Route’

External walls should be constructed using a material that does not support fire spread and therefore endanger people in or around the building. Flame spread over or within an external wall construction should be controlled to avoid creating a route for rapid fire spread bypassing compartment floors or walls.

External wall surfaces near to other buildings should not be readily ignitable, to avoid fire spread between buildings.

Consideration should be given to the choice of materials (including their extent and arrangement) used for the external wall, or attachments to the wall (e.g. balconies, etc.), to reduce the risk of fire spread over the wall.

External Surfaces

The external surfaces of walls should meet the provisions in Table 10.1 of ADB. The requirements are summarised below:

Table 14: Reaction to fire performance of external surface of walls

Less than 1000mm from the relevant boundary	1000mm or more from the relevant boundary
Class B-s3, d2 or better	No Provisions

The outer leaf of the external wall is understood to be comprised of brickwork. Brickwork is a product that meets class A without testing. This information is given in the Commission Decision 96/603/EC (OJ L 267 19.10.1966 p23) as amended by 2000/605/EC (OJ L 258 12.10.2000 p36) and 2003/424/EC (OJ L 144 12.6.2003 p9). However, since no relevant boundary exists within 1000mm of any external wall, no provisions are required.

There is some ambiguity in the text used within ADB with respect to materials this recommendation is intending to cover;

- All materials used in the construction of external walls due to the use of ‘etc.’; or
- Only insulation and the array of materials which may fall under the term filler.

It is always necessary to consider how all materials impact on the risk of fire spread over the wall. Noting the ambiguity, Maze recommends that the more stringent interpretation is used. On this basis, the recommendation is to apply the same rules which are mandated for Relevant Buildings. Materials which become part of an external wall, or specified attachment, are of European Classification A2-s1, d0 or A1 (classified in accordance with the reaction to fire classification).

The above paragraph does not apply to:

- cavity trays when used between two leaves of masonry (and, until 01 December 2023, in other wall constructions where is isn’t reasonable to use cavity trays achieving European Classification A2-s1,d0 or better);
- any part of a roof (other than any part of a roof which falls within paragraph (iv) of regulation 2(6)) if that part is connected to an external wall;
- door frames and doors;
- electrical installations;
- fibre optic cables;
- insulation and water proofing materials used below ground level or up to 300mm above that level;
- intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part B of Schedule 1;
- membranes (they should still achieve Euroclass B-s3,d0. The curtain of solar shading devices are not classified as a membrane);
- seals, gaskets, fixings, sealants and backer rods;
- components associated with a solar shading device excluding components whose primary function is to provide shade or deflect sunlight such as the awning curtain or slats;
- thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part L of Schedule 1 (thermal breaks are small elements used as part of the external wall construction to restrict thermal bridging, combustible thermal breaks should not span two compartments and should be limited in size to the minimum required to restrict the thermal bridging, the principal insulation layer is not to be regarded as a thermal break);
- window frames and glass (this does not include window spandrel panels and infill panels); or
- materials which form the top horizontal floor layer of a balcony which are of European Classification A1fl or A2fl-s1 (classified in accordance with the reaction to fire classification) provided that the entire layer has an imperforate substrate under it.



6.3.2 Cavities and Barriers

Cavity barriers should have sufficient fire test evidence that they will operate in the proposed façade system. They should be provided in accordance with Section 5.3.6 of This Report.

Surfaces which face into cavities should also meet the provisions of Table 10.1 of ADB, and provisions in Section 5.3.6.

6.3.3 Route B – BR135

Full Scale Test

Full fire test evidence of the proposed façade system should be carried out to demonstrate that compliance with BR135 (via a BS 8414 Part 1 or Part 2 fire test) is met along with compliance with the guidance contained within Approved Document B.

Cavities and Barriers

Cavity barriers should have sufficient fire test evidence that they will operate in the proposed façade system. They should be provided in accordance with Section 5.3.6 of This Report.

Attachments

The full-scale BS 8414 test doesn’t typically include attachments. Consideration of how attachments impact the risk of fire spread over the wall is required. As such, as a minimum balconies, solar shading devices greater than 4.5m from ground level and solar panels attached to external wall should be constructed from materials of limited combustibility (European Classification A2-s3, d2 or A1 classified in accordance with BS EN 13501-1).

6.4 Summary of external wall build up for the scheme

The outer leaf of the external wall system is understood to be constructed from brickwork, however the details of the inner leaf are unknown.

6.5 Space Separation

The requirements of B4 of the Building Regulations are considered to be met if the external walls of the building adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building. External fire spread calculations were therefore carried out to ensure that the proposed scheme would not create an unacceptable risk to adjacent sites.

The north elevation of the site faces the Rochdale Cricket Club, while the east elevation faces houses on Glencoe Place. The south elevation faces houses on Bury Road, and the west elevation faces houses on Lansdowne Street. Since a site boundary has been provided for the Leopold Court building, the relevant boundary has been taken to the site boundary.

A minimum horizontal distance is usually required to prevent fire spread between adjacent buildings. Alternatively, the facade can be fire rated. This horizontal separation is measured at a 90-degree angle to the exterior wall. The enclosing rectangle method as outlined in BR 187 has been used to calculate the permissible unprotected percentage on the largest compartment on each elevation. The elevations that were used in this calculation can be seen below:



Figure 17: Elevation references to site boundary.

Please note that the site plan above is that of the existing site, however enclosing rectangle widths shown above are consistent with the proposed layout plans. Results of the enclosing rectangle calculation are available in the Table below. It can be seen that the permissible unprotected percentage is 100% on each of the elevations tested.

Table 15: Enclosing rectangle calculation.

Elevation Reference (Figure 18)	Width of Enclosing Rectangle (m)	Height of Enclosing Rectangle (m)	Distance to Boundary (m)	Permissible Unprotected Percentage
North	13.6	2.6	11.5	100%
East	19.4	2.6	20.9	100%
South	12.6	2.6	9.5	100%
West	6.3	2.6	19.0	100%

6.6 Roof Construction

The recommendations in this section are principally concerned with the performance of roofs when exposed to fire from the outside. The separation distance is the minimum distance from the roof (or part of the roof) to the relevant boundary. Separation distances should be as recommended in the following table by the type of roof covering and the size and use of the building.

Table 12.1 Limitations on roof coverings				
Designation ⁽¹⁾ of covering of roof or part of roof	Distance from any point on relevant boundary			
	Less than 6m	At least 6m	At least 12m	At least 20m
B _{ROOF} (t4)	●	●	●	●
C _{ROOF} (t4)	○	●	●	●
D _{ROOF} (t4)	○	● ⁽²⁾⁽³⁾	● ⁽²⁾	●
E _{ROOF} (t4)	○	● ⁽²⁾⁽³⁾	● ⁽²⁾	● ⁽²⁾
F _{ROOF} (t4)	○	○	○	● ⁽²⁾⁽³⁾
● Acceptable. ○ Not acceptable. NOTES: Separation distances do not apply to the boundary between roofs of a pair of semi-detached dwellinghouses and to enclosed/covered walkways. However, see Diagram 5.2 if the roof passes over the top of a compartment wall. Polycarbonate and uPVC rooflights that achieve a class C-s3, d2 rating by test may be regarded as having a B_{ROOF}(t4) designation. 1. The designation of external roof surfaces is explained in Appendix B. 2. Not acceptable on any of the following buildings. a. Dwellinghouses in terraces of three or more dwellinghouses. b. Any other buildings with a cubic capacity of more than 1500m³. 3. Acceptable on buildings not listed in (1) if both of the following apply. a. Part of the roof has a maximum area of 3m² and is a minimum of 1500mm from any similar part. b. The roof between the parts is covered with a material rated class A2-s3, d2 or better.				

Figure 18: Limitations on roof coverings (ABD Table 12.1)

In addition, roof covering products (and/or materials) defined in Commission Decision 2000/553/EC of 6 September 2000, implementing Council Directive 89/106/EEC, can be considered to fulfil all of the requirements for the performance characteristic ‘external fire performance’ without the need for testing, provided that any national provisions on the design and execution of works are fulfilled, and can be used without restriction.



7. B5 – Access and Facilities for the Fire Service

7.1 Functional Requirement of the Building Regulations

The functional requirement contained within Schedule 1 Part B5 of The Building Regulations states that:

- (1)

The building shall be designed and constructed so as to provide reasonable facilities to assist firefighters in the protection of life.
- (2)

Reasonable provision shall be made within the site of the building to enable fire appliances to gain access to the building.

7.2 Access for Vehicles

Fire access should be provided to 15% of the perimeter or within 45m of every point of the footprint of the building (whichever is less onerous).

Every elevation to which vehicle access is provided should have a suitable door(s), not less than 750mm wide, giving access to the interior of the building. Door(s) should be provided such that there is no more than 60m between each door and/or the end of that elevation (e.g. a 150m elevation would need at least two doors).

The building has a total perimeter of 211m, so for 15% of the perimeter to be accessible by the fire service, this would equate to an accessible perimeter access requirement of 31.65m. The east (front) elevation of the building is directly accessible by the fire service off Leopold Street; the perimeter of the front elevation is measured at around 41.5m, which satisfies the above requirement. The remaining perimeter is accessible by fire service personnel (but not the fire appliance) via a gate on the south-east side of the building, leading to the garden areas; this gate is understood to be locked during normal operation of the building, therefore the management procedures during an evacuation should include the unlocking of this gate so the fire service can access this route.

The required dimensions of access routes and hard-standings vary according to the fire appliances that are used, typical access route requirements are provided in Table 13.1 of ADB. As the developments highest occupiable floor is up to 11m, a pump appliance will be referenced. Requirements are detailed in the following table:

Table 16: Measurements for pump appliance vehicle access route (Table 13.1 of ADB)

Minimum width of road between kerbs (m)	Minimum width of gateways (m)	Minimum turning circle between kerbs (m)	Minimum turning circle between walls (m)	Minimum clearance height (m)	Minimum carrying capacity (tonnes)
3.7	3.1	16.8	19.2	3.7	12.5

Should any security features be added to the access route (e.g. gates), it will be necessary to ensure these do not prevent the fire service gaining access to this route. This includes the two gates on the front elevation of the building (adjacent to the front entrance).

7.3 Hydrants

A building requires additional fire hydrants if both of the following apply:

- It has a compartment with an area more than 280m²,
- It is being erected more than 100m from an existing fire hydrant.

If additional hydrants are required, these should be provided in accordance with the following:

- For buildings provided with fire mains – within 90m of dry fire main inlets.
- For buildings not provided with fire mains – hydrants should be both of the following.
 - Within 90m of an entrance to the building.

- A maximum of 90m apart.

Each fire hydrant should be clearly indicated by a plate, fixed nearby in a conspicuous position, in accordance with BS 3251.

Guidance on aspects of provision and siting of private fire hydrants is given in BS 9990.

The two nearest hydrants to the Leopold Court building are both located on the nearby Bury Road, the locations of which are shown in Figure 19 below. Both hydrants are located around 130m away from the Leopold Court building, therefore a private hydrant is required to be installed within 90m of the Leopold Court building.



Figure 19: Hydrant locations and distance to Leopold Court building.

8. Management Responsibilities

8.1 Management Policies

8.1.1 Person-Centred Fire Risk Assessment (PFRA)

The Regulatory Reform (Fire Safety) Order 2005 includes the common parts of specialised housing (and measures within residents' accommodation that impact on the safety of other residents), but not residents' private accommodation (other than in relation to the power to prohibit or restrict use of such accommodation in the event of serious risk, which is an action rarely taken by fire and rescue authorities). However, the FSO does not have scope to take action protect residents from a fire within their own dwelling. The NFCC Guidance considers the most effective way to protect residents from fire in their own accommodation is to provide advice to residents, who may not have control over all of the measures required for their safety, and to support residents, where necessary, by provision of measures to reduce risk, which may include products or systems specific to the nature of the residents.

Fires, and deaths or serious injuries from fires, in specialised housing are not normally the result of inadequate design of the residents' private accommodation. The likelihood of fire and the consequential risk to residents normally arises from the characteristics of the residents themselves. Therefore, to ensure that residents who are most at risk of harm from fire are adequately protected in their own accommodation, a person-centred approach should be adopted. This approach takes into account the characteristics of the resident, in particular the likelihood that they may start a fire, the potential for the fire to develop, their capability and mental capacity to respond to a warning of fire, and their ability to then escape from the fire. The foundation for this approach is a person-centred fire risk assessment for each vulnerable resident. The steps to follow in carrying out this risk assessment are set out in Appendix 4 of the NFCC Guide.

The outcome of the person-centred fire risk assessment should comprise an appropriate action plan for those residents where additional measures may be necessary which should, wherever possible, be discussed and agreed with the person, or with others who are able to speak on their behalf.

Additional measures are discussed in Part G of the NFCC Guide and may comprise fire prevention measures. for example, ignition resistant bedding, safer forms of portable heating, assistance with smoking cessation or vaping, safer ashtrays, safer forms of cooking, etc. or the use of Personal Emergency Evacuation Plans (PEEPs).

The person-centred fire risk assessment and, if applicable, the Personal Emergency Evacuation Plan needs to be reviewed regularly to take into account changes in the capabilities of residents, which may deteriorate or vary over time. Changes in risk may necessitate changes to the fire safety measures provided. People should be involved in these reviews and consent to any new measures, and, in particular, to any new restrictions on their liberty.

Maze Fire note that all residents must be capable of independent evacuation, however a PFRA is an important tool to minimise the risk to the residents of Leopold Court.

8.1.2 Personal Emergency Evacuation Plans (PEEPs)

Personal emergency evacuation plans (PEEPs) are recommended for all people requiring assistance to leave the building. By engaging with residents to determine their needs during an evacuation or fire incident the management team will determine if staff support or other measures are required to support all building occupants to evacuate independent of the Fire and Rescue Service. There are three types of PEEP that might be developed:

- Individual PEEP for disabled people who are regularly in the premises, for example staff, residents and regular visitors. Individual PEEP should seek to a plan for the persons specific needs and contain details of how they will evacuate the premises. Management should seek to identify and make any reasonable adjustments to the premises or procedures that are necessary to ensure the successful evacuation of the individual.

- PEEPs for visitors to the premises who will make themselves known to staff. All visitors who are likely to require assistance in the event of an evacuation should be encouraged to make themselves known to staff on arrival. Management should be encouraged to have staff available (especially at reception locations), who are trained in disability awareness. PEEPs for visitors who make themselves known to staff should provide a wide range of guidance for differing disabilities and should include what the visitor should do in an evacuation, and the management response provided for disabled persons on the premises. It is important that the generic PEEP is discussed with each visitor and his or her particular needs taken into account where possible.
- PEEPs for visitors not previously identified to staff. The standard evacuation plan should include measures to make evacuations suitable for all persons on the premises. Information for disabled people should be noted in fire action notices and in the fire management plan. It is vitally important that staff are trained so that they are aware of the facilities and their responsibility to evacuate disabled people.

As the building is provided with 24hour staff presence the development of the emergency procedures should be specific to the persons present at all times.

Appendix A - Occupancy Tables

This appendix outlines the calculation used to determine the occupancy values given in Table 8 within Section 3.7.6.

For the office, assembly and bedroom areas, design occupancy values have been given (e.g. the number of chairs in the office), which have been used to determine the occupancy of such areas. For the storage and plant areas, the occupancy of these areas is estimated using the floor are of the occupancy type and the floor space factor given by Approved Document B. This calculation is summarised in Table A1 below:

Table A1 – Occupancy Values

Area	Floor Space Factor (m ² /persons)	Floor Area (m ²)	Number of Persons
Bedrooms	Design occupancy used		32
Store / Plant	30	76.5	3
Office	Design occupancy used		23
Assembly	Design occupancy used		61
Total			119

