



Report

Project	Winners Chapel, Blackley
Report Title	Fire Strategy
Our Ref	JM2669/R2 Issue 1

Report

Project Winners Chapel, Blackley

Report Title Fire Strategy

Report No. JM2669/R2
Issue No . Issue 1
Issue Date. 07/10/2024

	Issue 1	Issue 2	Issue 3	Issue 4	Issue 5	Issue 6
Date	07/10/2024					
By	CJK					
Checked	SJ					
Approved	JB					

Contents

- 1.0 INTRODUCTION
- 2.0 ACTIVE FIRE SYSTEMS
- 3.0 MEANS OF ESCAPE
- 4.0 INTERNAL FIRE SPREAD
- 5.0 EXTERNAL FIRE SPREAD
- 6.0 FIREFIGHTING
- 7.0 FIRE SAFETY MANAGEMENT
- 8.0 INFORMATION, LIMITATIONS AND ASSUMPTIONS

1.1 Description of Building

Winners Chapel is a proposed mixed

The top storey height of the building will be approximately 3.5m above lowest adjacent ground level.

The proposed ground and first floors are shown in Figures 1 and 2 respectively





1.2 Aim of Report

This report summarises the buildings fire strategy against the recommendations of Building Regulations guidance. The report is intended for the submission to Building Control and the Fire Service.

This report addresses life safety only and does not consider property protection or insurance requirements.

1.3 Building Regulations' Guidance

The fire strategy of the building has been developed by drawing guidance from *Approved Document B Volume 2 - 2019 incorporating 2020 and 2022 amendments*.

Where beneficial to the design, fire engineered solutions have been developed and are included within this report.

2.0 ACTIVE FIRE SYSTEMS

2.1 Sprinklers

The building is not proposed to have a floor above 30m and therefore there is no life safety requirement to provide sprinklers as part of the design. The building will achieve a high standard of safety without them.

2.2 Automatic Fire Detection and Alarm

2.2.1 General

The building will be provided with an L3 fire alarm and detection system designed to BS 5839-1. This is a higher standard of safety compared to the minimum requirements of Building Regulations guidance, which would only require a manual system.

2.2.2 Roof Terrace

The first floor will be provided with two roof terraces, one with a single means of escape which leads directly to the first floor foyer and the other has two means of escape, into Stair 2 or the board room. The terraces will be provided with fire alarm sounders if the alarm volume inside is not adequate to alert occupants on the terrace. Where the terraces are only accessed via an access room it will be treated as an inner room as described in section 3.4.



Figure 3: Roof Terrace Locations

2.3 Emergency Lighting

Emergency lighting will be provided in accordance with BS 5266-1.

2.4 Escape Signage

Emergency signage will be provided in accordance with BS 5499-4.

3.0 MEANS OF ESCAPE

3.1 Evacuation Strategy

The building will operate on a simultaneous evacuation. Whereby a confirmed fire will result in all occupants evacuating at the same time.

3.2 Travel Distance

Unless otherwise specified, the travel distances will be a maximum of 18m in a single direction or 45m where there are multiple escape routes available. The Junior and Senior Teens Church rooms at Level 1 will have a small extension to the single direction travel distance of 18.8m, this is considered reasonable as each room will discharge directly to a protected lobby serving Stair 4 which will lead directly to outside via a protected corridor at ground floor. Also, the building will be provided with an L3 fire detection and alarm system which is an enhancement to the minimum required and therefore occupants will be expected to evacuate at an earlier stage of the fire development.

The chapel, having seating in rows will be limited to 15m in a single direction or 32 where occupants can escape in multiple directions.

The facility management storage will have a maximum travel distance of 25m in a single direction or 45m where there is a choice of escape routes on the basis of it being a normal hazard store. Plant rooms will have a maximum travel distance of 9m in a single direction or 35m where occupants can escape in multiple directions. If the plant room will be defined as a place of special fire hazard, the occupants will be able to escape within 9m in a single direction or 18m where there is a choice of escape routes.

There will be access to the rooftop via the Technical Room, Tech Storage and Stair 2 at level 1. Travel distances at roof level, open to the air, will be 60m in a single direction or 100m where there is a choice of escape routes.

3.3 Dead-end Corridors

Any dead-end corridor longer than 2m will be enclosed in fire resisting construction (i.e. 30 minutes fire resisting enclosure). If the dead-end is longer than 4.5m, the dead-end section of corridor will be separated from the rest of the corridor with a cross-corridor door. This applies to the corridors shown below.

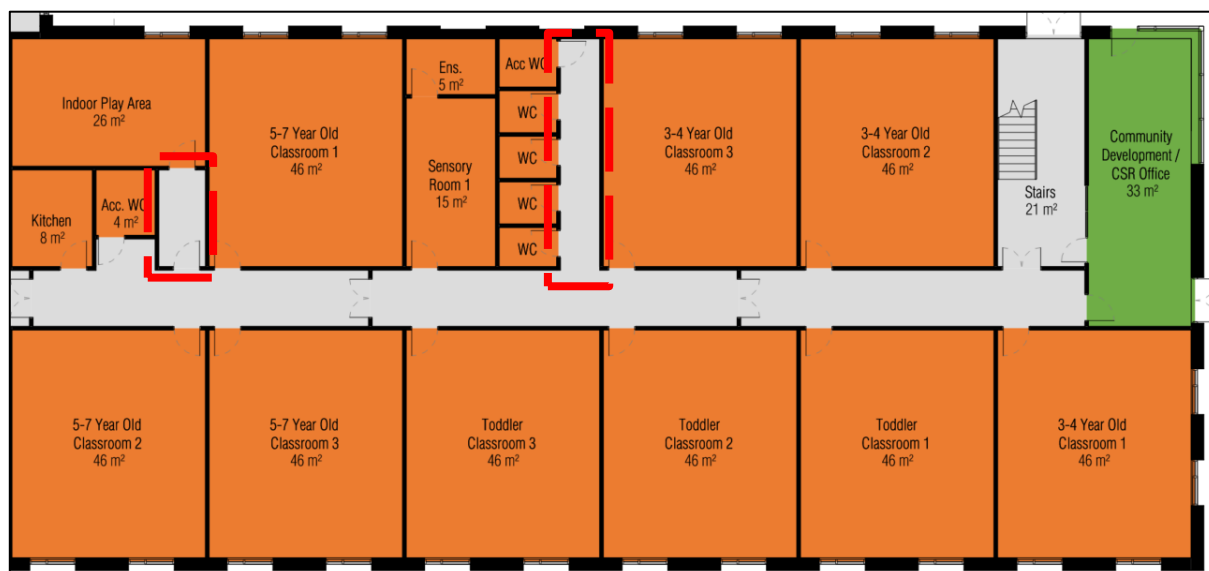


Figure 4: Ground/First Floor Dead End Corridor

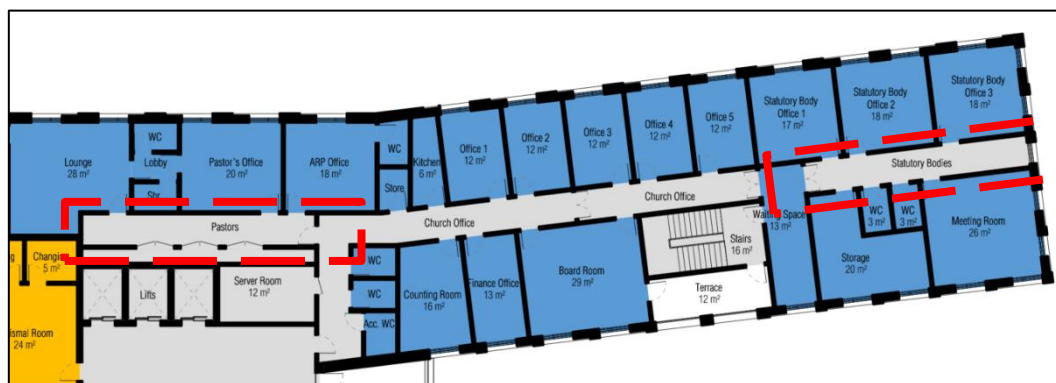


Figure 5: First Floor Dead End Corridors

3.4 Cross-corridor Doors

Corridors longer than 12m will be divided with a cross-corridor door, approximately midway along the corridor. Cross corridor doors that will be accessed by more than 60 occupants from either side of the door will swing in both directions and be provided with a vision panel at least 0.1m².

Cross-corridor doors on hold open devices will fail closed on fire alarm activation, power failure or device malfunction.

3.5 Inner Rooms

The Winners Chapel building will have inner rooms. An inner room is a room where escape is only available via an access room. All inner rooms will be limited to an occupancy of 60 and will be provided with sounders which operate immediately upon detection within the access room or the door into the inner room will have a vision panel measuring at least 0.1m².

3.6 Maximum Occupancy

The building has a proposed maximum occupancy of 1500 when the chapel will be utilised at maximum capacity. It is assumed that all other spaces will have no occupants when the Chapel is at full capacity. We have estimated that there will be around 1000 occupants at ground level and 500 occupants on the balcony based on the seating arrangement. The day to day use is proposed to be less than this. The required exit capacity has been assessed on the worst case scenario.

3.6.1 Escape from Individual Rooms

Doors in individual rooms will be at least 850mm wide to support unassisted wheelchair evacuation.

Rooms with a single exit will be limited to a maximum of 60 occupants. The first floor Junior Teens Church show seating for 150 occupants which will exceed the allowed occupancy. The Junior and Senior Teens Churches will be provided with a movable partition which, when open, would allow the space to utilise the full 300 seats as shown below. However, when the partition is closed the Junior Teens Church will be limited to 60 occupants. Management will be made aware of this restriction or, to provide flexibility, a fixed door will be provided at one end of the moveable partition to allow for the maximum 150 occupants in the Junior Teens Church.

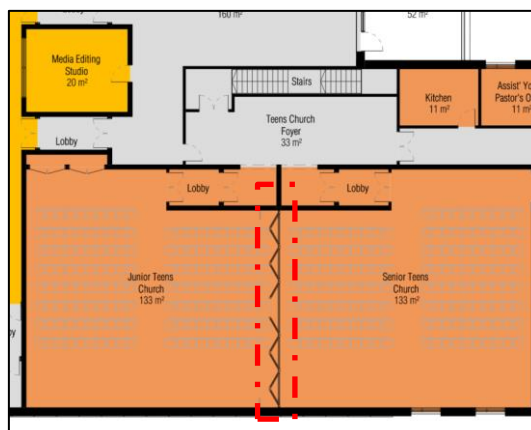


Figure 6: Junior and Senior Teens Church Partition

The building is proposed to be provided with 6 stairs serving the first floor. Stair 3 will be an accommodation stair and has not been accounted for when determining escape capacity. All doors into stairs and along escape routes will open in the direction of escape.

	5/11/2018	h
--	-----------	---



The first-floor chapel balcony will be provided with 5 exits that swing in the direction of escape. The balcony will be provided with at least 2 exits achieving 1050mm clear width with the remaining exits achieving at least 850mm clear width to accommodate the given occupancy. After discounting the largest exit, this will provide escape capacity for 550 occupants.

The final exits from the chapel at ground level will achieve at least 1250mm clear width and swing in the direction of escape. This will provide exit capacity for 1000 occupants after discounting the largest exit.

[illegible]

Stair final exits will be at least as wide as the stair they serve. The ground floor final exit door widths elsewhere in the building will achieve at least 850mm clear width and swing in the direction of escape.

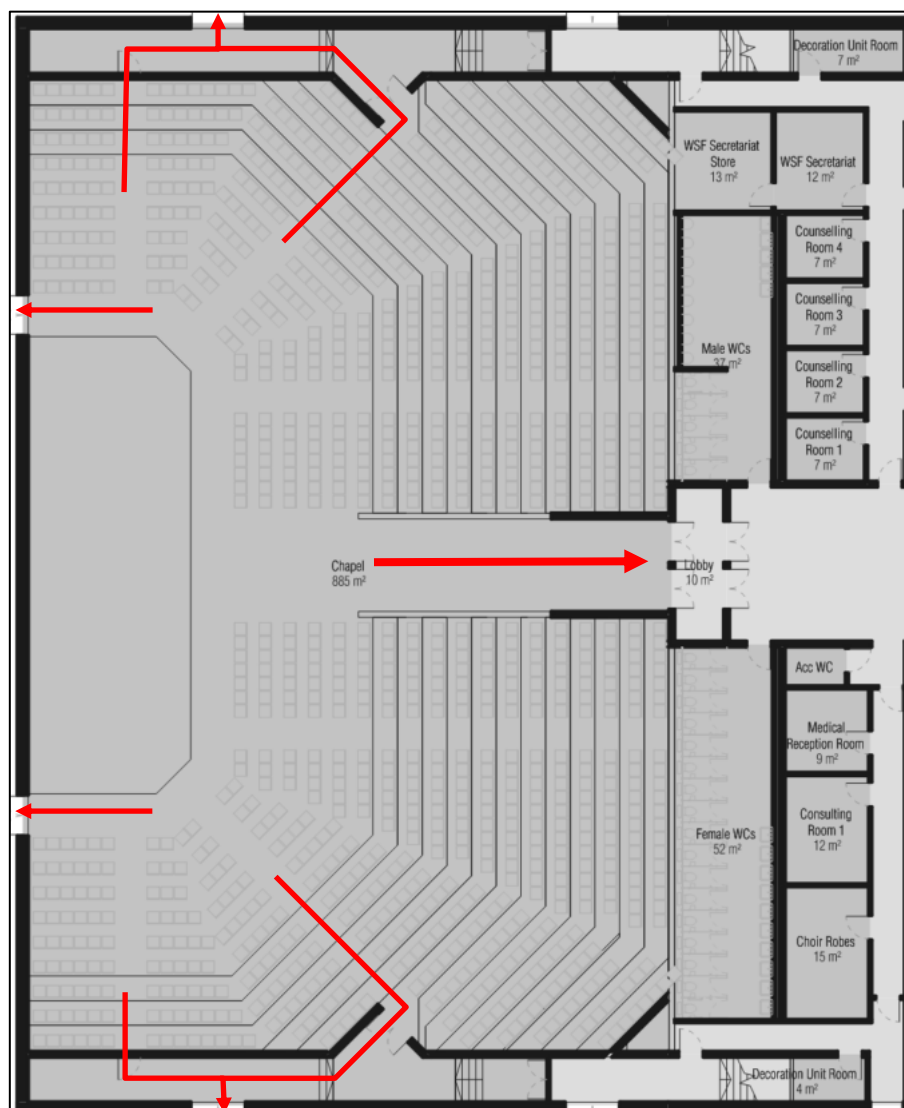


Figure 8: Ground Floor Chapel Escape Routes

3.10 Disabled Occupants

The building is proposed to be provided with 4 lifts however these are not required to be evacuation lifts.

Each stair or adjacent lobby will be provided with a disabled refuge at first floor, the refuge will be at least 900x1400mm wide and will not reduce the required stair width. The disabled refuges will be provided with a two-way Emergency Voice Communication (EVC) system.

3.11 Stair 2 Waiting Space

At first floor, Stair 2 is accessed via a 'waiting space'. The waiting space will be a transient space with no permanent occupants and will either be kept free of fire load or furniture will be made of limited combustibility.

4.0 INTERNAL FIRE SPREAD

4.1 Structure

The highest occupied level is approximately 3.5m above ground level. The elements of structure will achieve at least 60 minutes of fire resistance.

Structure supporting only the roof where the roof is not a floor, does not need to be fire resisting, unless the structure has a secondary role e.g. supporting other structural elements, internal fire compartmentation, supporting fire resisting external walls etc.

Where the roof will also be used as a floor e.g. the first-floor terraces, the floor and structure supporting this area which do not support other elements of structure will achieve at least 30 minutes fire resistance.

4.2 Compartmentation

There is no specific code recommendation to provide compartment floors (outside of protected corridors and escape routes) to the building and a high standard of safety will be achieved without it.

The following will be enclosed in fire resisting construction achieving at least 30 minutes resistance:

- Plant rooms (life safety plant will achieve 120 minutes fire resistance).
- Server Room.
- Risers.
- Protected Stairs.
- Store rooms.
- Lift Shafts.
- Chapel.
- Children's Church Entrance Corridor.
- Protected lobbies and corridors.
- Dead-end corridor arrangements.
- Facility management storage.

4.3 Internal Wall and Ceiling Linings

Wall and ceiling linings will achieve at least the following classifications:

Area	National Class	European Class
Small Room no larger than 30m ²	3	D-s3, d2
Other Rooms	1	C-s3, d2
Circulation Spaces	0	B-s3, d2*

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

Table 2: Wall and Ceiling Linings Classifications

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 60m².

4.4 Cavity Barriers

Cavity barriers will be provided in line with the recommendations of Section 9 of the ADB Volume 2. This will include the recommendations of Figure 9.

Cavity barriers will achieve at least 30 minutes for integrity and 15 minutes for insulation.

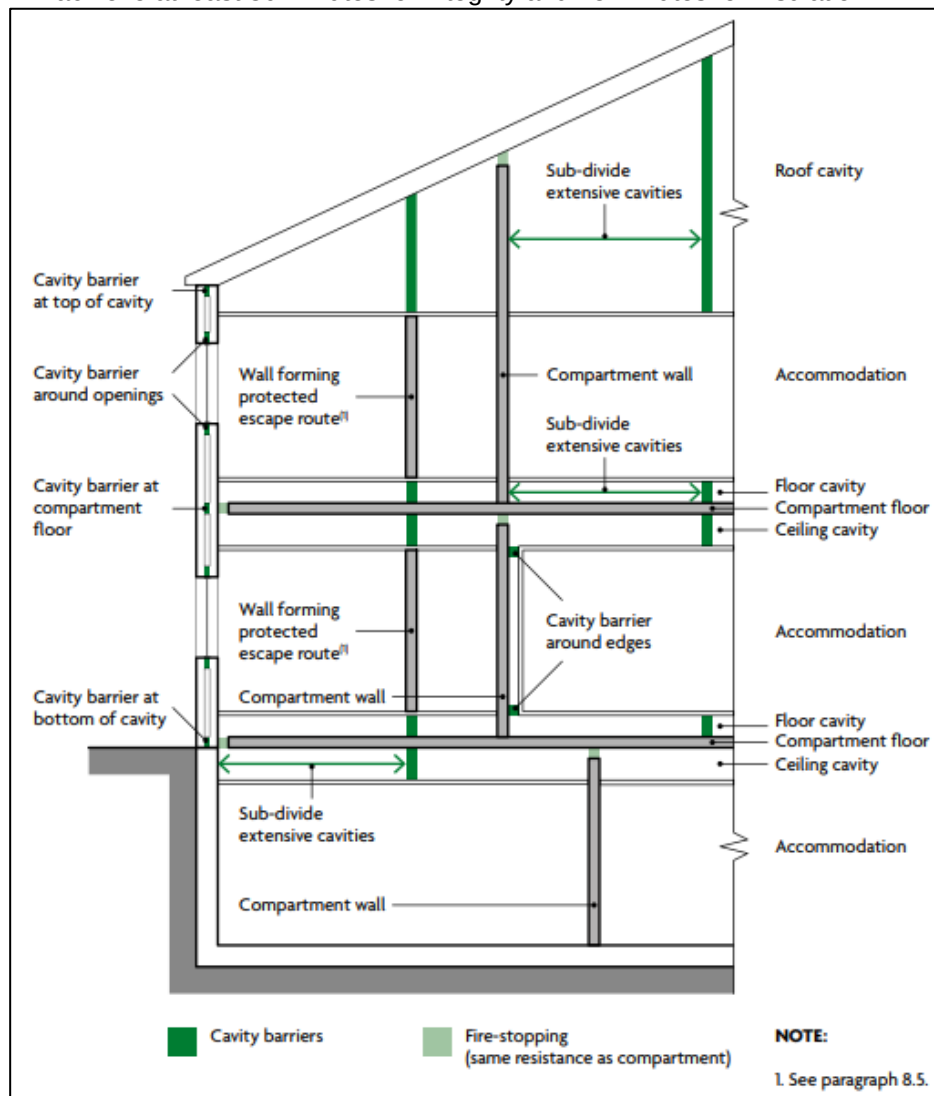


Figure 9: Provision of Cavity Barriers – Reproduced from Approved Document B – Volume 2

4.5 Fire Stopping and Fire Dampers

Fire stopping will be provided in line with the recommendations of Section 10 of the ADB Volume 2.

5.0 EXTERNAL FIRE SPREAD

5.1 Fire Spread Between Buildings

The requirements for fire rated elevations have been assessed following the enclosed rectangle method as described in BR 187: *External Fire Spread – Building separation and boundary distances*. The elevations are shown in Figure 10. The largest compartment on each elevation was measured for the purpose of external fire spread calculations.

Fire resistance will be achieved from the inside face. The permitted unprotected areas on each elevation compartment are shown below. The architectural design will ensure these are not exceeded. The remainder of the external walls (the protected areas) will be designed to achieve at least 60 minutes fire resistance for integrity and 15 minutes fire resistance for insulation.

Elevation	Compartment Height	Compartment Width	Boundary		Permitted Unprotected Area
			Distance	Measured to	
North	8.3m	53.7m	2.5m	Site Boundary	121.5m ² (27.3%)
East Restaurant	8.3m	8.7m	>15m	Site Boundary	72.2m ² (100%)
East School	8.3	16.6	>15m	Site Boundary	137.78m ² (100%)
South	8.3m	37.8m	>15m	Site Boundary	313.74m ² (100%)
West	8.3m	35.5m	>15m	Site Boundary	294.65m ² (100%)

Table 2: External Fire Spread

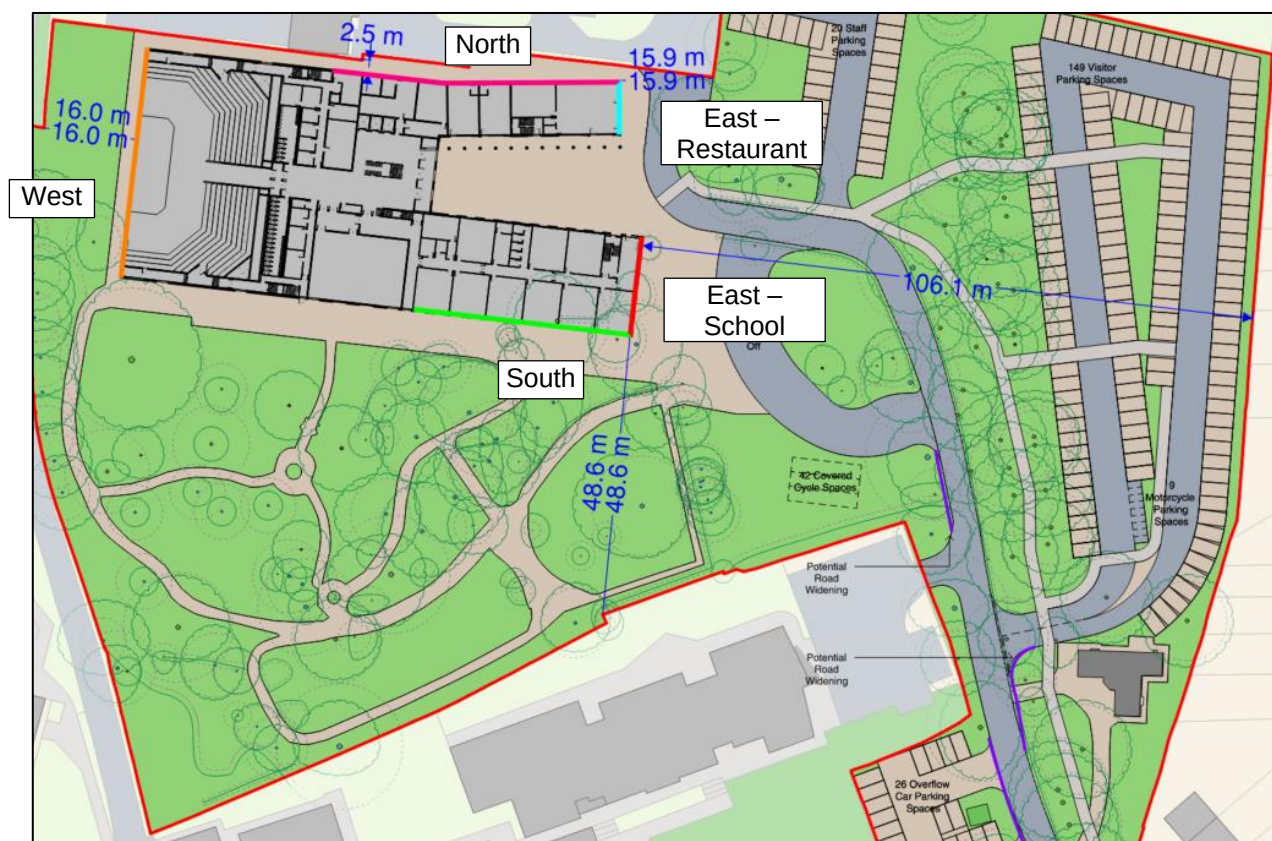


Figure 10: External Fire Spread Site Boundary

5.2 External Wall Construction

All external surfaces of the building will achieve a surface spread of flame classification of at least class C-s3, d2 in line with ADB guidance for external walls of assembly and recreation buildings less than 10m above ground.

Other than that, there is no specific recommendation in Building Regulations guidance to restrict the primary materials used in the external walls of this type of building, however consideration should be given to minimise the risk of fire spread across the walls. As best practise we recommend all primary external wall materials (insulation, filler materials and cladding) achieve at least class A2-s3, d2.

5.3 Roof Coverings

New roof coverings will achieve Class $B_{\text{roof}}(t_4)$ or better where the roof is within 6m of the relevant boundary, otherwise it will achieve Class $C_{\text{roof}}(t_4)$ where it is greater than 6m.

Alternatively, the roof covering products or materials will be defined in Commission Decision 2000/553/EC of 6 September 2000, implementing Council Directive 89/106/EEC.

5.4 PV Panels

There will be an array of photovoltaic (PV) solar panels on the roof. If these will be above a concrete structural deck and non-combustible roof materials, with no significant risk of fire spreading down into the building, they are not considered to present any significant life safety concern.

However, the manufacturer of the solar panels should be consulted for input on any associated fire risk with their products and suitable mitigation measures to reduce the risk and impact of a solar panel fire. Property protection recommendations for PV panels and installations can be found in *RC62: Recommendations for fire safety with PV panel installations*.

A recently published guidance document (May 2024) Fire Safety Guideline for Building Applied Photovoltaic Systems on Flat Roofs recommends the following to aid firefighting operations:

1. *No PV panels next to the edge of the roof on any side, and aisles free of PV panels to enable uninterrupted walking path from any access point on the roof.*
2. *Extension of firewalls to avoid unexpected fire development, sufficiently strong roof construction, and main system shut-off to reduce electrocution concerns.*
3. *The successful application of extinguishing medium requires proximity, as the PV panels will otherwise block the application stream and are thus linked to the two previous requisites. If environmental concerns are of particular importance, this becomes even more crucial, as the amount of water used should be limited.*

Also, we recommend that they become isolated upon fire or smoke detection anywhere in the building.

6.0 FIREFIGHTING

6.1 Firefighting Shafts

The building will consist of one upper floor approximately 3.5m above ground level and therefore the building will not have a firefighting shaft.

6.2 Fire Vehicle Access

Given the size of the building, fire vehicle access will be provided to at least 15% of the building perimeter. The landscaping will ensure this can be achieved without the fire appliance having to reverse more than 20m to turn around.

6.3 Hydrants

If an existing hydrant is not located within 100m a new hydrant will be provided within 90m of the entrance along a path suitable for laying hose. Fire hydrants will not be sited further than 90m apart.

7.0 FIRE SAFETY MANAGEMENT

7.1 General

Once the building is occupied, it is the responsibility of the management to ensure that all fire safety systems are tested and maintained to ensure their continuous effectiveness. The management should: -

- Be aware of all the fire safety features provided and their purpose
- Ensure a competent person is present in the building during all occupied times
- Liaise with and seek the advice of the fire authority

7.2 Staff

Staff should be trained by competent persons. The training should be at regular intervals and should ensure that all staff know what to do if a fire is discovered; the correct response on hearing a fire alarm, and the correct escape procedures from every part of the building.

A management structure should be provided to ensure that in the case of fire staff are aware of their responsibilities, which should be clearly defined. A chain of command should be provided with clear lines of responsibility, authority and accountability.

7.3 Fire Safety Manual

Before a building is occupied, a fire safety manual should be completed. The purpose of the manual is to clearly define the nature of the fire safety systems provided for the building. It should include: -

- An explanation of the overall fire safety strategy
- Evacuation procedures
- Design documentation to describe the use of each fire safety system
- Staff roles in the event of a fire: their responsibility, authority and accountability
- A detailed maintenance routine

The Fire Safety Manual should be reviewed periodically and when any alterations are made to the building. Details of the suggested contents of the fire safety manual are provided in Section 19 of the Approved Document B and Annex H of BS 9999 Code of practice for fire safety in the design management and use of buildings.

7.4 Maintenance and Housekeeping

It is the role of management to ensure that maintenance is carried out in accordance with the relevant British Standards, so that all fire safety systems are operational in the event of a fire. It is also important that good housekeeping practices are followed. The building management should be aware of any hazardous substances or practices within the building, which increase the risk of fire.

7.5 The Regulatory Reform (Fire Safety) Order 2005

This Order places a duty on the 'responsible person' to ensure, 'as far as is reasonably practical' the safety of his employees and to take such general fire precautions as may be reasonably required to ensure that the premises are safe [i.e. for non-employees].

Under the Order, there is a requirement to carry out and continually update an assessment of the risk of fire to people in and around the premises/building, and to assess and maintain the measures to reduce those risks to an acceptable level. Where there are five or more employees, the risk assessment must be recorded.

A Fire Risk Assessment should be carried out:

- On completion of the building fit out, and strictly before first occupation of the building.
- Regularly, particularly where any changes occur such as changes in the use of the building, the number or nature of occupants, or building works.
- We would recommend that a fire risk assessment is carried out at least annually.

Other legal duties include:

- Keeping a record of the Fire Safety Arrangements. These are the preventative and protective measures for the building.
- A person must be nominated for any special role identified in an emergency plan.
- Employees must be consulted about nominations to perform special roles, and about any proposals for improving the fire precautions.
- Other employers in the building must be informed about any significant risks, which might affect the safety of their employees, and there must be co-operation with them in measures to reduce the risk.
- Those having control over the workplace have a responsibility to ensure compliance with the regulations in those parts of the building over which they have control.
- A suitable and readily available method of calling the emergency services must be established.
- Employees are required to co-operate in ensuring that the workplace is safe from fire.

The order also adopts 'Principles of Prevention'. These include:-

- Avoiding risks;
- Evaluating the risks which cannot be avoided;
- Combating the risks at source;
- Adapting to technical progress;
- Replacing the dangerous by the non-dangerous or less dangerous [particularly with respect to hazardous substances];
- Developing a coherent overall prevention policy which covers technology, organisation of work and the influence of factors relating to the working environment, and;
- Giving appropriate instructions to employees.

8.0 INFORMATION, LIMITATIONS AND ASSUMPTIONS

The information limitations and assumptions used in the preparation of this report are noted below: -

Drawings

This report is based on drawings issued to us. Dimensions have been taken from these drawings. The following drawings were used: -

No.	Drawing No	Drawing Title
1	23040-MOJO-01-ZZ-DR-A-90-0001	Proposed Site Plan - P03
2	23040-MOJO-01-00-DR-A-00-0002	Proposed GA – Level 00 P06
3	23040-MOJO-01-01-DR-A-00-0002	Proposed GA – Level 01 P04
4	23040-MOJO-01-02-DR-A-00-0002	Proposed GA – Roof Level P03
5	23040-MOJO-01-ZZ-DR-A-00-0006	Proposed Elevations

Building Regulations

This report considers building regulations, which deal with life safety. The impact on property protection, including the way recommendations in this report could affect insurance premiums should be consulted with insurers.

Other Limitations

Complying with the recommendations of this report will not guarantee that a fire will not occur.

Unless otherwise described in this report, the fire strategy assumes that the building design, the mechanical and electrical systems, construction methods and materials specifications will comply with current Building Regulations guidance, and relevant British Standards and Codes of Practice. The design of mechanical and electrical systems such as fire alarm and sprinklers is a specialist area. Fire Strategy recommendations are given in this report, however, the design and specifications need to be developed at the appropriate stage in consultation with the specialist designers of these systems.

This report has been prepared for the sole benefit, use and information of Zerum Consult Limited and the liability of Jeremy Gardner Associates Limited, its directors and employees in respect of the information contained in the report will not extend to any third party.

OFFICES AND CONTACT INFORMATION

Should you have any queries with this report please contact our Manchester Office.

Manchester Office:
Suite 9C, Manchester One
53 Portland Street
Manchester
M1 3LD
Tel: +44 (0)161 236 6527
manchester-jga@jensenhughes.com

OTHER JENSEN HUGHES OFFICES AT:

London Office:
209-215 Blackfriars Road
London
SE1 8NL
Tel: +44 (0)20 7202 8484
london-jga@jensenhughes.com

Edinburgh Office:
22 Hanover Street
Edinburgh
EH2 2EP
Tel: +44 (0)131 226 1661
edinburgh-jga@jensenhughes.com

Dublin Office:
16 Clanwilliam Terrace
Grand Canal Quay
Dublin
2 D02 DR98
Tel: +353 (0)16 614 925
dublin-jga@jensenhughes.com

Galway Office:
Office 3, Monterey Court
Salthill
Galway
H91 Y4E9
Tel: +353 (0)91 528 342
galway-jga@jensenhughes.com

Birmingham Office:
5th Floor
126 Colmore Row
Birmingham, B3 3AP
Tel: +44 (0) 121 281 4513
birmingham-jga@jensenhughes.com

Glasgow Office:
Suite 2.1
106 Hope St
Glasgow
G2 6PH
Tel: +44 (0)141 847 0446
glasgow-jga@jensenhughes.com

Belfast Office:
19A Weavers Court Business Park
Linfield Road
Belfast
BT12 5GH
Tel: +44 (0)289 023 0300
belfast-jga@jensenhughes.com

Cork Office:
Office 126 Cube Building
Monahan Road
Cork
T12H 1XY
Tel: +353 (0)16 614 925

