

Title:46 – 47 Bloomsbury Square Fire Strategy ReportRevision:01Date:7th October2021Author:Daniel Taylor BSc (Hons) AlFireE

Marshall Fire Ltd. 46 – 47 Bloomsbury Square Fire Strategy Report

Revision	Description	Author	Approver	Date
00	Initial Issue	Daniel Taylor	Steven Marshall	1 st October 2021
01	Updated Section 1 & 3.1	Daniel Taylor	Steven Marshall	7 th October 2021

Contents

1.	Exec	utive Summary	4
2.	Introd	luction	5
	2.1	Overview	5
	2.2	Purpose of this report	5
	2.3	Scheme description	5
	2.3.1	Anticipated Occupancy Figures	6
	2.3.2	Purpose Group	6
	2.4	Report limitations	6
3.	B1 - I	Jeans of Warning and Escape	8
	3.1	Means of Warning and Evacuation Regime	8
	3.2	Horizontal Means of Escape	8
	3.2.1	Travel Distance	8
	3.2.2	Horizontal Means of Escape	8
	3.3	Vertical Means of Escape	9
	3.4	Merging flows	10
	3.5	Provision of Refuges	10
	3.6	Emergency Lighting and Escape Signage	11
4.	B2 - I	nternal Fire Spread (Linings)	12
5.	B3 - I	nternal Fire Spread (Structure)	13
	5.1	Loadbearing Elements of Structure	13
	5.2	Compartmentation	13
	5.2.1	Size of Compartments	13
	5.2.2	Compartmentalisation	13
	5.3	Sprinkler Protection	14
	5.4	Provisions for Cavities	14
6.	B4 - I	External Fire Spread	16
	6.1	Overview	16
	6.2	Space Separation	16
	6.3	Surface Spread of Flame Requirements	16
	6.4	Combustibility of Insulation and other Components in the External Walls	16
7.	B5 - /	Access and Facilities for the Fire Service	17
	7.1	Access to the Building for Firefighting	17
	7.2	Provision of Fire Hydrants	18
	7.3	Ventilation	18
	7.4	Emergency Power Supplies	18
8.	Refe	ences	19

1. Executive Summary

The proposals outlined in this document are considered to demonstrate a level of fire safety equal to or greater than the general standard implied by compliance with the recommendations in Approved Document B. This level of safety therefore satisfies the functional requirements of Part B of the Building Regulations.

The project is an existing listed office building and therefore has limitations as to the amendments possible in order to meet the current guidance. It is proposed to convert the topmost storey from residential to office space by removing internal partitions and on the floor levels below remove varies internal partitions creating an open plan floor plate. With respect to the site constraints and where improvements can be achieved to compensate against any deviations it has been done with a view to protect means of escape and firefighting.

The fire strategy described in this report can be summarised as follows (note this is not an exhaustive list but outlines the main fire safety requirements. Please read the remainder of the report for the full requirements):

- A Category L1 fire alarm system consisting of fire detection throughout the building in accordance with BS5839-1.
- It is proposed that the buildings will operate a simultaneous evacuation regime and therefore in the event of a fire, both buildings will be evacuated in full at the same time. It is not currently proposed to incorporate an investigation period given the nature of the building.
- The occupancy is based on 6m² per person for an office.
- The maximum recommended travel distances where the layout is known for an office is 18m in a single direction and 45m where more than one direction of escape is available.
- The existing elements of structure will maintain their current fire resistance as it is considered no less satisfactory than before the refurbishment works with any new elements of structure achieving at least 60 minutes fire resistance given the topmost storey is less than 18m in height.
- The buildings will afford 15% perimeter access for firefighting purposes.
- The unprotected area consisting of non-fire rated openings (i.e. windows and doors) is not being altered and therefore no less satisfactory than the existing condition.

The fire strategy for the proposed building complies with Approved Document B except for the following departures:

- It is acknowledged that the single stair should be lobby protected on every storey served by the stair, which has not been introduced within the existing plans due to space constrains and in accordance with the existing conditions only refurbishment works are being carried out. See Section 3.2.2 for more detail.
- To support the omission of lobby protection on all floor levels it is proposed to introduce an automatic openable vent (AOV) measuring 1m² free area and located at high level in the stair to assist with smoke escaping to atmosphere. See Section 7.3 for more detail.

The above departures are subject to agreement with the Approving Authority.

2. Introduction

2.1 Overview

Marshall Fire has been appointed by Polestar Plc to provide fire safety advice to the project. Our role is therefore to advise on the design of the buildings against compliance with Part B of the Building Regulations and assist in steering the designs towards Building Regulation approval.

2.2 Purpose of this report

This report details how we consider the building will comply with the requirements of Part B of the Building Regulations. In doing so the guidance contained in Approved Document B has been used, with the main structure of the report following the main parts of Part B of the Building Regulations.

The approval status of the fire strategy should be considered as a risk until such time as the appointed Building Control Body has reviewed the proposals and provided their approval in principle. Once approved in principle the building should be constructed in accordance with the contents of this report and any amendments should be reviewed and approved accordingly by the Building Control Body.

The findings of this report are based on the information available at the time of writing this report. We cannot be held responsible for any subsequent changes to the design that we are not made aware of.

2.3 Scheme description

Project 5 works consist of the refurbishment of existing office buildings known as:

- 20 22 Southampton Road
- 46 47 Bloomsbury Square

This report is for 46 - 47 Bloomsbury Square.

The proposed project consists of the refurbishment of an existing office building and a change of use on the top storey where the apartment will be converted into an open plan office. Each building is treated separately but having a similar floor plate arrangement.

Both buildings consist of a lower ground, ground and four upper floor levels having a topmost storey measure 16.4m above access level.



Marshall Fire Ltd. 46 – 47 Bloomsbury Square Fire Strategy Report



Figure 1: Units 46 – 47 Bloomsbury Square

2.3.1 Anticipated Occupancy Figures

Table 1: Anticipated Occupancy Figures

The maximum anticipated occupancy figures are noted below. For an office a floor space factor of 6m²/person has been used.

Project 5 Units	46		47	
Level	Floor Area m ²	Anticipated Occupancy	Floor Area m ²	Anticipated Occupancy
Lower Ground	23	4 people	41	7 people
Ground	30	6 people	40	7 people
First	38	7 people	40	7 people
Second	38	7 people	40	7 people
Third	38	7 people	40	7 people
Fourth	41	7 people	40	7 people
Roof Terrace	33	33 people	-	-
TOTAL		71people		42 people
Total upper floor occupancy		61 people		35 people

2.3.2 Purpose Group

Approved Document B reviews the type of building as purpose groups based on fire severity and risk.

• Office space which will be designated as Purpose Group 3.

2.4 Report limitations

This report is intended for use on this project only and the contents and approaches should not be applied to any other building. This report details how the building will be constructed and does not guarantee that the building has been constructed in accordance with this document. We cannot take any responsibility for any shortfalls in the standard of construction on site as this would lie with the installer.

The proposals within this report are strategic only and any works listed herein will need to be appropriately designed and installed by others. Where it is considered that the proposals within this report may present a risk

46 - 47 Bloomsbury Square Fire Strategy Report

under the Construction (Design and Management) Regulations 2015 (CDM) these will be highlighted to the Principal Designer.

This report focuses on Part B of the Building Regulations. Compliance under the other Parts of the Building Regulations will also need to be achieved through works undertaken by others.

The contents and findings herein are based on the information available at the time of publication and referred to within this document. The contents should be considered an approvals risk until formally approved by the appointed Building Control Body.

By complying with the recommendations in this report it will not ensure that fires will not occur, and ongoing management of the building is essential to ensure the fire risk is controlled as much as possible. This is controlled in part by the risk assessment required under the Regulatory Reform (Fire Safety) Order 2005. This legislation applies to the common areas in the building and requires that a fire risk assessment is undertaken and regularly reviewed (including whenever changes occur that might affect standards of fire safety within the building). The risk assessment will need to be made available to the Fire Service upon inspection of the building and any findings within the risk assessment are required to be addressed by the person responsible for fire safety within the building. If this is not undertaken the Fire Service have powers to serve notices on the building which could ultimately lead to it being shut down.

3. B1 - Means of Warning and Escape

Schedule 1 of the Building Regulations provides the following functional requirement in relation to B1, Means of warning and escape:

"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."

3.1 Means of Warning and Evacuation Regime

It is proposed that both buildings are treated under a simultaneous evacuation regime and therefore in the event of a fire within either unit will result in a full evacuation. It is not currently proposed to incorporate an investigation period given the nature of the building.

To enable an efficient evacuation of the building, the fire alarm system will be designed and installed in accordance with BS5839-1 to a minimum standard of Category L1. This will consist of smoke detection, manual call points and sounders throughout the building. The proposed fire detection and alarm system will incorporate fire detection in all rooms and areas of the building. Areas with suitably low fire risk need not be protected, as follows:

- Toilets, shower rooms,
- Small cupboards less than 1m², and
- Some shallow voids (less than 800mm in depth) and concealed spaces.

In areas with noisy environments or where people might otherwise have difficulty in hearing the fire alarm, visual alarm devices (flashing warning beacons) should be used.

3.2 Horizontal Means of Escape

3.2.1 Travel Distance

The maximum recommended travel distances for an office building where the layout is known is as follows:

- Purpose Group 3 (Office) 18m in a single direction and 45m where more than one direction of escape is available.
- Open Air Roof Top Escape (external plant of normal hazard and roof terrace) 60m in a dead-end condition and 100m where more than one direction of escape is available.

It should be noted that the above limits are actual travel distances where the layout is known. Where the internal layout is not known the maximum distances should be reduced to 2/3rds of those shown above. Therefore, the above limits should be borne in mind when the internal layout is being developed. From inspection of the drawings, the current travel distances are satisfactory.

3.2.2 Horizontal Means of Escape

The buildings have a topmost storey measuring 16.4m above ground floor with a single stair, which is not lobby protected on every floor level which is a departure from current guidance. The proposed works are considered reasonable on the following basis:

- The original building height is not being changed and the sleeping risk on the top floor will be removed.
- The proposed works are to remove internal partitions to create an open plan feel to the existing office floor plates. The removal of non-fire rated partitions is deemed no less satisfactory than the existing condition and therefore not detrimental to life safety.
- The building is listed and space is a constraint, therefore introducing lobbies is not practically possible.
- The occupancy for a typical floor plate is limited to 60 people but from inspection of the plans the highest anticipated occupancy on a single floor plate using 6m²/person is 7 people, therefore the building will have a low occupancy.
- The office buildings will be provided with a Category L1 fire and detection system, this is an enhancement over the minimum Category M required by ADB.

46 - 47 Bloomsbury Square Fire Strategy Report

- The single stairs serving the building does not have lobby protection but with interlinking between the two buildings there are alternative escape routes available via the adjacent stair. Alternative escape to a separate building is via the roof. (The client will need to obtain formal confirmation that they can use the reciprocal means of escape as part of the evacuation procedures).
- It is proposed to introduce an Automatic Openable Vents (AOV) to the head of the stair measuring 1m² free area to allow smoke to escape and as a compensatory feature.

The following justifications are deemed acceptable but subject to approving authorities.

Doors that are to accommodate more than 60 people in an emergency must swing in the direction of escape. From inspection of the plans, the final exit doors do not open outward however the existing condition is deemed acceptable. This is no less satisfactory than the existing condition and therefore no change is proposed.

The roof terrace should be limited to 60 people for a 750mm clear width opening.

All doors would require a minimum clear width of 750mm to comply with Part B. Where reduced mobility access is provided a door width of 850mm is required. From inspection of door widths, 750mm is achieved.

Any gradients on escape routes should be no steeper than 1:12.

Note: Doors should either not be fitted with a lock, or provided with fastenings that are easily negotiated in the event of a fire. Doors where it is expected will be used by more than 60people in the event of a fire should open in the direction of escape and any access controls on doors should be overridden in the event of a fire being detected.

3.3 Vertical Means of Escape

Each building has a single staircase without lobby protection, which is a departure from the current guidance. However, as the buildings are listed, it is very difficult to redesign and change the overall design. Due to the space constraints making additional lobbies is not possible as it would encroach on the usable office space. It is therefore considered that the existing provisions are deemed as satisfactory as will be no less satisfactory than before the work was carried out and the design team will look to introduce stair AOVs to overcome this shortfall.

Unit 46 and Unit 47 have interconnecting access to the other buildings stair which will form part of the escape strategy for the building. This is available due to an internal door within the stairs; therefore, has a form of alternative escape into a separate compartment.

The vertical means of escape has been carried out in a tabular format with the stair width, number of floors served and stair capacities.

Table 2:	Stair	Capacities	
----------	-------	------------	--

	Building 46	Building 47
Stair Width*	800mm	800mm
Purpose Group	3 (Office)	3 (Office)
		Floor Levels Served
Roof Terrace	Х	
4 th floor	Х	Х
3 rd floor	Х	Х
2 nd floor	Х	Х
1 st floor	Х	Х
Ground floor	Х	Х
Lower Ground	Х	Х

46 - 47 Bloomsbury Square Fire Strategy Report

Single Stair Buildings	Single Stair Buildin	gs are limited to 60 people per floor level served
Allowable Capacity (People)	420 people	360 people
Total Anticipated Building Occupancy	61 people	35 people

Note: Table 3.1 of ADB allows for a minimum stair width of 800mm under Part B but should achieve 1000mm for Part M, this existing stair width is considered acceptable as t is no less satisfactory than before the refreshment works.

All escape routes are to remain sterile (i.e. free from fire load).

Lower Ground

As per the guidance, an escape stair forming part of the only escape route from an upper storey should not continue down to serve a basement storey. The below ground storey has windows and doors opening to atmosphere and is considered as a lower ground floor rather than a basement where there would be no paths to ventilate accommodation available. The existing condition adopts the same stair connecting all floor levels which is deemed acceptable as it is no less satisfactory than prior refurbishments; however the existing condition is improved where smoke control in the form of a AOV is applied to the stair allowing for smoke to escape.

The building is provided with a stair leading from Lower Ground to open air at ground floor level via the light well. This can be used as an alternative exit if required but is not accounted for as part of the means of escape or firefighting requirements.

3.4 Merging flows

Where a storey exit shares the final exit, the width of the final exit should be sufficiently sized to account for the additional congestion.

Due to the low occupancy per floor level it is anticipated that no merging will likely occur. On this basis the merging flow is deemed acceptable and will not provide detrimental effects to an evacuation.

3.5 Provision of Refuges

The building will have stepped access, meaning access to people with reduced mobility is restricted.

No refuge locations will be provided on the ground, lower or upper floor levels due to space constraints and no reduced mobility occupants will be able to access the building.

The lift is not part of the evacuation strategy and where a tenant wishes to include access for reduced mobility then a Personal Emergency Egress Plan (PEEP) will be required and an assisted escape strategy to ensure safe egress.

46 – 47 Bloomsbury Square Fire Strategy Report

3.6 Emergency Lighting and Escape Signage

Emergency lighting should be provided in accordance with BS5266-1 and include coverage in the following areas:

Table 3: Emergency Lighting and Escape Signage

Emergency Lighting and Escape Signage Requirements

Office	 Underground or windowless accommodation;
	Stairs;
	 Internal corridors more than 30m long;
	• Open plan areas greater than 60m ² ;
	 All sanitary accommodation with a floor area over 8m²;
	 Windowless sanitary accommodation with a floor area less than 8m²;
	Electricity and generator rooms;
	 Switch room/battery rooms for emergency lighting systems;
	Emergency control rooms (where provided).
	Areas directly outside the final exits.
	Areas directly outside the final exits.

Every escape route should be adequately signed in accordance with BS5499-4.

4. B2 - Internal Fire Spread (Linings)

Schedule 1 of the Building Regulations provides the following functional requirement in relation to B2, Internal Fire Spread (Linings):

(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' means the materials lining any partition, wall, ceiling or other internal structure.

Internal linings are required to be provided in accordance guidance in Approved Document B as given in Table 4.

Table 4: Classification of Linings

Location	Classification
Small rooms of maximum internal floor area of 4m ²	D-s3, d2
Other rooms (including garages)	C-s3, d2
Other circulation spaces	B-s3, d2 ⁽¹⁾

NOTE:

1. Wallcoverings 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.

5. B3 - Internal Fire Spread (Structure)

Schedule 1 of the Building Regulations provides the following functional requirement in relation to B3, Internal Fire Spread (Structure):

(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 two buildings.

(3) To 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.

(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.

5.1 Loadbearing Elements of Structure

The elements of structure are based on the top occupied floor height measured from ground access level being less than 18m achieving no less than 60 minutes fire resistance in accordance with ADB.

The existing elements of structure will remain as it is considered no less satisfactory than before however any new loadbearing element of structure will be provided with 60 minutes fire resistance in line with current guidance.

Where one element of structure supports or stabilises another loadbearing element of structure, the supporting element should not have a lesser fire resistance than the loadbearing element.

Existing walls that are reviewed on site with any obvious damage (such as large cracks etc) should undergo remediation during the site works to ensure building integrity.

Any elements which only support themselves, provided for wind loading and/or a roof can be non-fire rated.

5.2 Compartmentation

5.2.1 Size of Compartments

An office has no limit on the size of compartments and therefore there is no requirement to subdivide the building into further compartments.

5.2.2 Compartmentalisation

Each building will be separate, this is achieved by having a compartment line rated to 60 minutes fire resistance as per the elements of structure.

The office buildings are less than 30m in height and have no sleeping risk, therefore having no compartment floors within the building. We would recommend that the floors are inspected and any obvious repairs made to enhance its performance where possible.

The stair enclosure within each unit will require 60 minutes fire resistance due to breaching the ground floor compartment line.

Any penetrating shafts/service riser which passes through the compartment floor at ground and constructed as a continuous vertical protected shaft shall afford a fire resistance equal to the elements of structure (i.e. 60 minutes fire resistance). No smoke seals or self-closers are needed however the riser doors should be kept locked shut and labelled kept locked shut.

The kitchenette is a tea point with a microwave and therefore considered low risk and will achieve no less than 30 minutes fire rating with a FD30 fire door. No commercial/large scale cooking will take place.

Table 5: Compartmentation (fire-resistance) requirements

	Part of building	Fire resistance rating (mins)	Fire doors
Means of escap	e stair	60 (each side separately)	FD30S
Service risers		60 (each side separately)	FD30
Substation		120 (each side separately)*	FD60*
Places of specia	l fire hazard	30 (each side separately)	FD30

46 – 47 Bloomsbury Square Fire Strategy Report

Separating Buildings

30 (each side separately)*	FD30
60 (each side separately)	FD60S

Note:

*Please be aware that electrical suppliers may require additional fire resistance to any substation on site.

5.3 Sprinkler Protection

There is no requirement to provide a sprinkler system due to the building being under 30m in height to the uppermost storey.

5.4 Provisions for Cavities

The unseen spread of fire and smoke will be controlled by the provision of cavity barriers. These will be rated to 30 minutes integrity and 15 minutes insulation and be provided such that the maximum dimension of any cavity will be limited in size to 20m in any direction. This is on the assumption that the linings achieve the fire performance listed in Table 9.1 of Approved Document B. This is reproduced below for reference.

Table 9.1 Maximum dimensions of cavities in buildings other than dwellings (purpose groups 2 to 7)				
Location of cavity	Class of surface/product exposed in cavity (excluding the surface of any pipe, cable or conduit, or any insulation to any pipe)	Maximum dimension in any direction (m)		
Between roof and a ceiling	Any	20		
Any other cavity	Class C-s3, d2 or better	20		
	Worse than Class C-s3, d2	10		

Figure 3: Maximum dimensions of cavities

Cavity barriers will also be required to be provided in the following locations:

- Around openings;
- Around the edges of a cavity wall;
- Within external cavity walls along the lines of internal fire rated walls;
- Concealed spaces greater than 20m in length.

This is detailed in Diagram 9.1 of Approved Document B as reproduced below.

Marshall Fire Ltd. 46 – 47 Bloomsbury Square Fire Strategy Report



Figure 4: Provision of Cavity Barriers

6. B4 - External Fire Spread

Schedule 1 of the Building Regulations provides the following functional requirement in relation to B4, External Fire Spread:

(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 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.

6.1 Overview

Buildings are required to be assessed for external fire spread however the proposed works are to be undertaken on an existing building. Given the external walls of the buildings will not be altered or changed, then they are considered no less satisfactory.

6.2 Space Separation

It is not proposed to change the boundary distances nor introduce additional non-fire rated openings that increase the unprotected area. On this basis the existing condition is deemed no less satisfactory.

6.3 Surface Spread of Flame Requirements

It is not proposed to change the external façade surface and therefore the existing condition is deemed acceptable.

Should the client wish to improve or change the external wall, the surface spread of flame is required to achieve no provisions given a boundary greater than 1000mm and a building height less than 18m. A separation distance less than 1000mm requires Class B-S3, d2 or better.

6.4 Combustibility of Insulation and other Components in the External Walls

It is not proposed to change the external façade build up and therefore the existing provision is deemed acceptable.

It is noted that the office buildings are not part of a "Relevant Building" group, defined as over 18m in height or contains;

- One or more dwellings,
- An institution,
- A room for residential purposes such as student accommodation, sheltered housing, hospitals and boarding schools excluding hotels, hostels and boarding houses.

Then Regulation 7(2) does not apply; therefore, no limitation on insulation products.

7. B5 - Access and Facilities for the Fire Service

Schedule 1 of the Building Regulations provides the following functional requirement in relation to B5, Access and Facilities for the Fire Service:

(1) The building shall be designed and constructed so as to provide reasonable facilities to assist fire fighters in the protection of life.

(2) Reasonable provisions shall be made within the site of the building to enable fire appliances to gain access to the building.

7.1 Access to the Building for Firefighting

Fire service will accessed the building via the same public roadways prior to the refurbishment works. The following parameters are considered to be achieved and no less satisfactory than before given no changes to the landscaping are proposed.

Table 6: Pump	appliance	access	route	requirements

Appliance	Min. width	Min. width of	Min.	Min.	Min.	Min.			
Туре	of road between kerbs (m)	gateways(m)	turning circle between kerbs(m)	turning circle between walls (m)	clearance height (m)	carrying capacity (tons)			
<i>Pump</i> 3.7	3.7	3.1	16.8	19.2	3.7	12.5*			
High Reach	3.7	3.1	26.0	29.0	4.0	17.0*			

Note: * The minimum carrying capacity should be checked with the local fire brigade.

As the topmost storey is less than 18m in height then there is no requirement for a firefighting shaft.

The existing firefighting provisions will not be changed and therefore is considered no less satisfactory than before the refurbishment works.

Given the building exceeds 11m in height to the top occupied floor level it is required to achieve 15% perimeter access. An allowable hose coverage of 45m measured from the parked fire tender location will be used to enter the building which is to reach the most remote part of the building

Turning facilities should be provided in any dead-end access route that is more than 20m long. This can be by a hammer-head or turning circle. From inspection of the plans this should not be applicable to the current building access point.



Figure 5: Fire Service Access

46 - 47 Bloomsbury Square Fire Strategy Report

Any gates that the fire and rescue service vehicle must pass are required to be provided with a fire brigade lock only (no other padlocks or locking devices are permitted).

7.2 Provision of Fire Hydrants

On the basis that the existing building provisions are no less satisfactory with no changes it is deemed acceptable.

7.3 Ventilation

Above Ground

An office building less than 18m in height requires no stair ventilation is required, however to support the single stair arrangement with the omission of lobby protection on all floor levels then the rooflight/access point to the roof will be converted into an automatic openable vent measuring 1m² free area to assist with smoke escaping to atmosphere.

This is deemed a building enhancement to the existing condition and improves life safety.

Ancillary Accommodation

A protected lobby should be provided between an escape stair and a place of special fire hazard to protect from the ingress of smoke. The lobby should have a minimum 0.4m² of permanent ventilation, or be protected by a mechanical smoke control system.

No high risk areas are provided adjacent the stair, the tea points and toilets are deemed low risk.

7.4 Emergency Power Supplies

In the event of a failure of the mains power supply a secondary backup power supply will be provided to feed all life safety systems that require electricity to function as intended. The secondary supply will be appropriate for the life safety system concerned. The following life safety systems will include a backup power supply:

- Emergency lighting.
- Automatic fire alarm and detection systems;
- All fire alarm interlinked fire/smoke dampers (where present);

It should be ensured that all power and control cabling required for life safety equipment within the building is specified and installed in accordance with BS8519.

8. References

- i. Approved Document B 2019 with 2020 amendments, Volume 2: Buildings other than dwelling houses.
- **ii.** BS 5839-1:2017, Fire detection and fire alarm systems for buildings. Code of practice for system design, installation, commissioning and maintenance.
- **iii.** BS 5266-1:2016, Emergency lighting. Code of practice for the emergency lighting of premises.
- iv. BS EN 1838:2013, Lighting applications. Emergency lighting.
- v. BS 5499-4:2013, Code of practice for escape route signing.
- vi. BS ISO 3864-1:2011, Graphical symbols. Safety colours and safety signs. Design principles for safety signs and safety markings.
- vii. BS 9990:2015, Non automatic fire-fighting systems in buildings. Code of practice.
- viii. BS 476 series: 1987, Fire tests on building materials.
- ix. BS EN 1366-3:2009, Fire resistance tests for service installations. Penetration seals.
- **x.** BS 8519:2020, Selection and installation of fire-resistance power and control cable systems for life safety and fire-fighting applications. Code of practice.
- xi. BR 187: 2014 External Fire Spread Building Separation and Boundary Distances.