

FRaMS ASSOCIATES (PM) Ltd

57 Prince Street



FIRE STRATEGY
Initial Draft

Revision Status

Date	Revision/ Amendment	Amendment Details	Authority
March 24	Initial	Initial scheme	NJ

Report by P N Jagger (MIFireE) for and on behalf of FRaMS Associates (PM) Ltd

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EXECUTIVE SUMMARY AND INTRODUCTION

FRaMS Associates (PM) Ltd (FRaMS Associates) has been commissioned to produce this fire strategy by 3bd Architects to support an application for Building Regulations (2010) approval in respect of the refurbishment of floors three and four of 57 Prince Street.

The proposals within this strategy are based on information and plan drawings available from the design team. It should be read in conjunction with architectural fire strategy plans, 388-PLA 110 to 114. The plan revisions used are noted in Appendix A – Strategy Plans Revision Status of this strategy.

The content of this strategy is submitted for consideration by the design team and future comment by the enforcing authorities. Statements highlighted in yellow are for further client consideration and discussion.

Legislation

Building Regulations 2010 (as amended)

The build is subject to the Building Regulations 2010 and as such must comply with the functional requirements set out in Approved Documents published in support of the Regulations. Fire Safety is dealt with in Approved Document B, Fire Safety (2019) Volume 2: Buildings other than dwellings (AD B) (as amended 2020 & 2022).

The functional requirements lie within the following Sections of the AD B;

- B1 – means of warning and escape
- B2 – Internal fire spread (linings)
- B3 – Internal fire spread (structural)
- B4 – External fire spread, and
- B5 – Access and facilities for the Fire Service.

Each requirement is dealt with in turn. As the project progresses, the strategy may require amendment. Any such amendment should be sympathetic to any agreements reached with the approving authorities in previous revisions.

Generally, the proposals within the strategy comply with the guidance contained within AD B. Any departure from that guidance is provided with suitable compensatory features based on risk assessment and/or fire engineering principles, and is considered to provide an at least commensurate and balanced level of fire safety as those features recommended in AD B.

Reference is made in this strategy to British Standard BS9999; 2017, Code of practice for fire safety in the design, management and use of buildings or British Standard BS9991; 2015, Code of practice for fire safety in the design, management and use of residential buildings. This reference is for compliance to certain design guidance not specifically identified within the AD B (e.g. for the design of firefighting shafts) or for the management and use of the finished building.

Variation	Compensation
None	

Construction, Design and Management Regulations 2015

Projects undertaken within the UK are subject to the requirements of the Construction (Design and Management) Regulations 2015 (CDM). The content of this strategy defines the measures proposed to meet the functional and performance requirements for fire safety in the finished building. Where the architect, construction team and installers use the standards and proposals contained within this strategy, it should be considered that they are competent and able to alert the client and design team of any CDM issues.

Regulatory Reform (Fire Safety) Order 2005 (as amended)

The Regulatory Reform (Fire Safety) Order 2005, (The Fire Safety Order), is the primary fire safety legislation for occupied premises. The responsible person (the employer, the owner or a person who has some or total control over a premises) has a duty to ensure that the premises are safe from fire for relevant persons to occupy or be in the premises.

To enable the responsible person to carry out this duty, they should carry out a fire risk assessment that identifies the significant findings as required under Article 9(7). These findings are the measures that have been or will be taken by the responsible person to ensure that the premises are as safe as reasonably practicable. This strategy provides information that can be utilised by the responsible person whilst carrying out the risk assessment.

Fire Safety (England) Regulations 2022

The Fire Safety (England) Regulations became law in January 2023 and places additional obligations on responsible persons in relation to fire safety in buildings where there is more than dwelling. The obligations are specific to certain heights of building. In respect of this proposal these obligations are provided in Section 7 of this strategy.

Building Safety Act 2022

The building is not considered a higher risk building due to its height being less than 18m (or less than 7 storeys) in accordance with the Building Safety Act.

Proposal description.

No. 57 Prince street is a listed Building as recorded by Historic England. A Grade 2 listing number 1292440.

This premises was previously known as Number 1The Grove Including the Bristol Clipper Public House. It was formerly known as The Seed Warehouse c1880. Originally constructed as a seed warehouse around 1880, it was later converted into offices and a public house in 1981. The building stands 5 storeys tall (10 .6m) and features a rectangular open plan. Its austere design lacks decorative elements but includes quoins and a limestone band below the parapet. Notably, there are segmental-arched doorways, small segmental-arched windows, and a full-height hoist bay with c20 glazing. The interior boasts cast-iron columns supporting timber beams.

This historic structure, once a seed warehouse, now serves as a blend of licensed premises and hostel accommodation.

Two staircases serve the upper floors and the roof construction involves multiple pitched rooves with clay tiles and roof lights.

Use	Purpose Group
Hostel	Residential Other 2(b)

Table 1; Purpose Groups

1. MEANS OF WARNING AND ESCAPE

1.1. Fire Warning

1.1.1. General

AD B Section 1 suggests that automatic fire detection (AFD) is required for Residential Other (2(b)). It then suggests that guidance from BS 5839 Part 1 (British Standard BS 5839: Fire Detection and fire alarm systems for buildings; Part 1: Code of practice for system design, installation, commissioning and maintenance of systems in non-domestic premises 2017) should be considered. Table A.1 of that standard recommends a Category L1 or L2 system for Hostel type accommodation.

In the case of 57 Prince Street, it is proposed to design and install an AFD system to BS 5839 Part 1, Category L1/M (Category L1 - installed throughout all areas of the building. The objective is to offer the earliest possible warning of fire so as to achieve the longest available time for escape, with Manual call points included at storey and final exits). This is also to accommodate the historic nature of the building and to compensate for any hidden voids that might be present.

System devices will consist of smoke (or multi-sensor) detection units, with heat devices provided where the provision of smoke detectors could give rise to false alarms. The main control and indicating panel will be located within the main school reception entrance, with a repeater panel located in the entrance lobby to the Community Facility.

There will be facilities provided within the building that will depend on detection of fire or smoke in order for them to operate. These include Automatic opening Vents (AoV) door hold-open and securing devices.

Smoke, heat and/or multi-sensor automatic devices will be linked to a control and indicating panel in the main reception area provided this is the main fire service access point

Where voids are greater than 800mm in depth, smoke detectors will be provided within the void. (confirmation of ceiling/floor voids should be required).

The system should be linked to a remote Alarm Receiving Centre (ARC) if the premises is not permanently staffed during all hours premises is occupied

The overall design and installation will be subject to a competent fire alarm engineer and should follow the general recommendations within BS 5839 Part 1.

On occupation, the system should be subject to testing and maintenance regimes as described in Section 6 of the above Standard.

1.2. Means of Escape

1.2.1. General

The means of escape *“are based on the assumption that under normal circumstances (i.e. except in the case of Arson) a fire is unlikely to start in two different places in a building”* (BS999, Section 1: 0.1).

Where reference is made to structural fire resistance, the life safety purpose of such fire resistance is;

- To protect the evacuation routes for occupants to leave the premises in a safe environment.
- To minimize the risk to occupants, some of whom may remain in the premises for a period of time.
- To reduce the risks to fire fighters engaged in firefighting operations.

Reference is made to AD B Tables 2.1, 2.3 and 3.1 (3.2/3,3) for travel distances, exit sizes and staircase capacities respectively. Fire strategy Table 1 replicates travel distance recommendations. Where room layouts are unknown, $\frac{2}{3}$ rds of the actual distance is used. This direct distance assumes a straight line from approximately $\frac{1}{2}$ m in from the furthest part of a room to the nearest exit from it, either into the staircase or final exit door.

Space	Single directional route		Multi-directional route	
	Maximum ACTUAL	Maximum DIRECT	Maximum ACTUAL	Maximum DIRECT
In hostel rooms	9m	6m	18m	12m
In protected corridors within hostel rooms	9m	6m	35m	23m
Elsewhere (escape routes)	18m	12m	35m	23m

Table 1: Travel distances

1.3. Occupancy

The maximum numbers of occupants that should be permitted to be using the premises at any one time are shown below.

The premises benefits from two protected stairs (protected shaft and protected corridor). One stair measures at 1000mm and the other measures at 1030mm.

Each stair serves 4 floors and does not connect with the ground floor.

Table 3.1 Minimum width of escape stairs, refers at 1c to Table 3.2 stair widths for simultaneous evacuation.

A 1000mm stair serving 4 floors (no merging flow at ground floor) has a total capacity of 270 persons, this equates to 67 persons per stair per floor. Both stairs are protected so no stair is discounted due to fire.

Actual occupancy of floors is based upon beds available.

Fourth Floor....31

Third Floor.....38

Second Floor...61

First Floor.....29

Bed space occupancy does not exceed stair capacity.

Storey exits are measured as per strategy drawings and are considered suitable for this scheme.

The evacuation procedure is based upon *single stage evacuation*. Therefore, storey exits, stairs and final exits are sized to facilitate simultaneous evacuation of all occupants of the premises.

1.3.1. Horizontal Evacuation

All single and multi-directional travel distances are within the limitations of Table 3 above. Where multi-direction travel includes initial single direction movement, the initial travel is within the single direction limitations, and the overall final multi-direction travel is also within limitations. Travel distances are considered to end at storey or final exits, whichever is relevant.

Clause 2.14 recommends that occupants should not have to pass through one staircase enclosure to reach another.

The existing layout has by-pass doors between stairs. These provide access to the each but involves passing through one stair to reach another.

In these cases the rooms needing to pass through one stair to reach another are considered as single stair conditions and they meet the recommendations of Clause 3.3.

Clause 3.3 d) A single escape stair may serve a building or part of a building if both of the following are satisfied:

- i. It has no storey with a floor level more than 11m above ground level
- ii. It meets the recommendations of 2.6b wherein travel distance to a storey exit is within those shown in Table 2.1 (see Table 1 above)

Where a corridor connects alternate means of escape and is over 12m in length, the corridor should be divided by fire doorsets fitted with self closing devices (and any associated screens), approximately midway between the two storey exits.

1.3.2. Vertical Evacuation

Vertical evacuation is achieved by the two protected stairs, as these stairs pass through compartment floors the stairs are considered as protected shafts.

To provide additional protection to the protected stairs, it is proposed to instal automatic opening vents to both stairs, therefore enhancing the evacuation strategy.

A lift is to be installed in the Northwest corner, this will pass through compartment floors and as such will be considered a protected shaft.

1.3.3. Disabled Evacuation

Access for mobility-impaired persons (MIPs) to the upper floor is available. Refuge points will be provided in staircase lobbies. They will be sized to be at least 900mm x 1400mm and signed appropriately.

Emergency Voice Communications (EVC) are to be provided to refuge points, with communication to the main reception. The equipment should conform to the recommendations in BS 5839 Part 9.

On occupation the responsible person will be required to provide a suitable means of escape plan for all disabled persons. It should include amongst other considerations;

- Identifying persons with disabilities;
- Producing Personal Emergency Evacuation Plans (PEEPs) for staff;
- Producing a procedure to follow in the event of a fire:

A full access statement is not part of this strategy.

1.3.4. Emergency Lighting

Emergency lighting is to be provided throughout the building. It is to be designed and installed by a competent person to the recommendations in British Standard (BS) 5266 (Emergency lighting) - Part 1: (Code of practice for the emergency lighting of premises) and will incorporate the recommendations within BS 5266 Part 8 (Emergency escape lighting systems). In particular, but not exclusively, the following areas should be provided with emergency lighting;

- Escape routes;
- Open plan rooms exceeding 60m²;
- Windowless accommodation, and;
- Accessible WCs;
- External routes used for evacuation;

The design should be such that exit signage and the fire alarm panels/fire equipment are adequately illuminated.

The system should be such that it operates on the failure of the mains electrical supply, or on a failure of a lighting sub-circuit.

The emergency lighting system should be subject to a test and maintenance regime as recommended in BS 5266 Part 8, clause 7.2.

1.3.5. Signage

Exit signage should be provided throughout to indicate all routes of evacuation.

Appropriate fire door signage should be provided to all doors required to be fire rated doors. This signage is dependent on whether the doors are to be locked, generally closed or held-open under normal circumstances.

Equipment for Fire Service use will be appropriately indicated to that effect.

Signage is to be compliant to the Health and Safety (Safety Signs and Signals) Regulations 1996 and the recommendations within BS 5499 Part 1 (– Graphical symbols and signs – Safety signs, including fire safety signs – Specification for geometric shapes, colours and layout).

1.3.6. Miscellaneous

Fire doors will be fitted with self-closing devices, intumescent strips and smoke seals.

Fire doors to cupboards/storerooms and plant rooms will not be provided with self-closing devices but will be locked shut when not in use.

All fire doors shall be certificated as having passed the relevant performance test in British Standard BS 476 (Fire tests on building materials and structures) — Part 22 (Methods for determination of the fire resistance of non-load bearing elements of construction) (or its equivalent BS EN 1634 (Fire resistance tests for door and shutter assemblies) – Part 1 (Fire doors and shutters)).

Fire doors throughout the development should be certified as applicable under BS 8214. All fire doors are to be provided with intumescent seals along both side jambs and head jambs (smoke seals provided where required). Door and doorframe proximity should be in accordance with the manufacturer's guidance (typically 3mm jamb detail and 8mm sill decreased to 3mm for smoke sealed doors).

Any door or gate on an escape route that is to be locked for security purposes will be openable from the escape side without recourse to a key or numbered keypad system. Relevant electronically locked doors will failsafe on the activation of the fire alarm system, or a failure of the power supply. Over-ride provision should also be made.

Clause 2.15: Where doors serve protected stair and are part of the primary circulation routes, self-closing fire doors should be fitted with an automatic release mechanism linked directly to the fire alarm, to avoid them being rendered ineffective by misuse.

Clause 3.24 The construction of the flights and landings of the escape stairs should be constructed of materials achieving class A2-s3,d2 or better as both stairs are classed as single stairs where they serve only part of the building.

The lift provision is to be assessed. Where a new installation is proposed, the lift should be interfaced with the fire alarm system for it to 'ground' to the ground floor, or to the level above should detection be in the ground floor rear circulation corridor.

Electrical supplies to life safety provisions are to have a secondary power supply as recommended in BS 9999, clause 38.2.3.3. Those provisions where power demand is considered low (e.g. emergency lighting) may have its secondary supply via the use of back-up batteries.

2. INTERNAL FIRE SPREAD – LININGS

It is important to minimise the growth of a fire should it start by restricting its spread across the surface linings of walls and ceilings. Table 3: Linings, below (replicated from Approved Document B: Vol 2, Table 6.1 identifies the recommended class of surface lining materials for specific locations within a building.

The European Classifications are described in BS EN 13501 Part 1. National Classifications are based on tests in BS 476 Part 4, 6, 7 and 11.

For the purposes of this document the internal surface and linings do not apply to the upper surface of floors and stairs as these should not contribute to the adverse spread of flame during occupant evacuation. Doors, door frames, window frames and frames in which the glazing is fitted, architraves and skirting are also exempt from these limitations.

Location	European Class	National Class
Small room not exceeding 4 m ² in a residential accommodation or 30 m ² in a non-residential accommodation.	D-s3, d2	3
Other rooms	C-s3, d2	1
Circulation spaces within dwellings	C-s3, d2	1
Other circulation spaces including common areas of flats	B-s3, d2	0

Table 2; Linings:

A variation to the table above is available for parts of walls in rooms but can be no lower than D-s3,d2. In any one room the total area of lower performance wall lining should be no greater than an area equivalent to half of the room's floor area, up to a maximum of 60m².

3. INTERNAL FIRE SPREAD - STRUCTURE

3.1. Elements of Structure and Compartments

Compartmentation is provided to both reduce the area of the building into acceptable sizes. Compartment sizes are nominated in Table 8.1, AD B.

Table B3 and B4 of AD B provides recommendations on the levels of fire resistance for elements of structure. This is replicated below.

STRUCTURE	AD B - Clause	AD B Table	AD B requirement
Walls common to two or more buildings	8.2	B3.7	60
Walls and floors between different purpose groups/occupancies and all floors in "Residential Other 2(b)	8.3 8.10	B4.4	60
Structural frame, beam or column, and load-bearing walls not described above		B3.1 B3.2 B3.3	60
Shaft between stair and protected corridor		B3.8b	30
Protected shaft passing through a compartment floor	8.10	B3.8c	60

Table 3; Fire resistance:

Non-structural external walls less than 1m from the boundary should be protected from with the same level of fire resistance as the structural elements from both internal and external faces. Those walls greater than 1m from the boundary may require the same level of fire resistance – this is subject to external fire spread conditions (see clause 4 above).

The structural members supporting the compartmentation and building external walls that are required to be fire resisting should be provided with 60-minute fire resistance. This may be by means of inherent fire resistance in the supporting structure materials, or protective materials (boarding or intumescent treatments).

Compartment walls extending through the top floor ceiling should be carried to the underside of the roof covering and fire-stopped at the junction. They should meet the recommendations of Clause 8.25.

3.2. Concealed Cavities

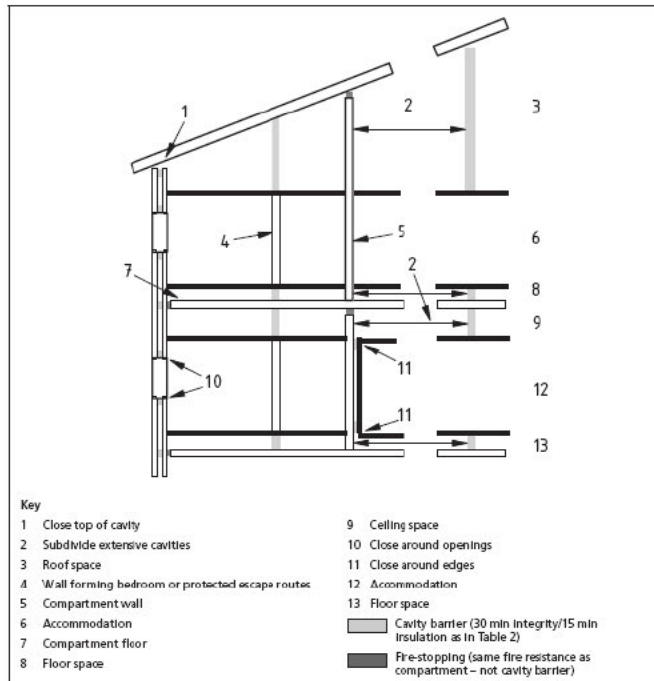
Cavity barrier protection outlines the requirements for the restriction of smoke and flames through sub-dividing cavities for the purpose of either cavities representing a potential pathway for spread of fire to impact on means of escape and firefighters or extensive cavities signifying possibly severe unseen fire spread.

Where these are incorporated into the scheme, cavity barriers should be provided at the following locations;-

- The junction of compartment walls and any external cavity wall
- At the top of such an external cavity wall
- At the junction between an internal cavity wall and every compartment floor, compartment wall, or other wall or door assembly that forms a fire resisting barrier

- In a protected escape route, above and below any fire resisting construction that is not carried full storey height
- Within the void behind the external face of rain screen cladding at every floor level and on the line of compartment walls abutting the external wall
- At the edge of cavities (including around openings i.e. windows).

Provision should be as per the guidance in AD B Section 9.



AD B Diagram 9.1

Cavity barriers are also required in cavities [including ceiling voids and under floor service voids] where the cavity exceeds 10m - 20m in any direction. The cavity barriers should provide a 30-minute fire rating (i.e. 30 minutes integrity and 15 minutes insulation).

Cavity barriers in a stud wall / partition or provided around openings or formed using construction materials of the following:

- Steel at least 0.5mm thick
- Timber at least 38mm thick

Mineral wool [compressed] or
Calcium silicate / cement-based / gypsum-based boards at least 12mm thick.

3.3. Fire Stopping

Any breach in a compartment wall or floor (or a wall or floor required to be fire resisting) for the passage of pipes and services should be protected in accordance with AD B Section 10, depending on the type of breach and size of services passing through it. This includes fire stopping and the provision of dampers where appropriate. The level of stopping should be the same as the fire resistance of the wall the service penetrates to maintain the integrity of the construction. Appendix B1 and B2 informs the client on fire stopping recommendations and ductwork protection respectively within the AD B, and is included specifically within this strategy.

Ventilation ducts supplying or extracting air directly to or from a protected stairway will not serve any other areas.

Ductwork serving other areas and passing through a stair enclosure will be fire rated or separated by a fire resistant enclosure.

Ductwork serving both escape routes and accommodation will be provided with fire and smoke dampers [ES Rated] that are activated automatically on the activation of the building fire alarm and detection system. Dampers will be fully in accordance with BS9999.

Ductwork passing through fire rated walls that only separate fire compartments require protection with thermally operated fire dampers.

Any openings for services [exceeding the dimensions discussed in BS 9999] breaching compartment walls or floors will be fire stopped [unless protected throughout their entire length with fire resisting material] in accordance with BS 9999. This is to prevent the passage of fire and to assist in retarding the movement of smoke. Joints between elements of structure that serve as barriers to fire will be fire stopped to prevent the passage of fire and smoke.

The minimum level of fire resistance of the fire-stopping materials required, will need to be at least equivalent to the level of fire resistance of the fire-resisting construction.

The service risers will be either;

- In filled at each floor level, in which case doors should be FD30S, locked shut when not in use and provided with smoke seals, or
- Vertical shafts throughout their height, in which case doors should be FS30 and locked shut. Smoke seals are not required.

Any damper provision should have easy access for testing, maintenance and damper resetting.

Mechanical and electrical service plans are yet to be confirmed.

4. EXTERNAL FIRE SPREAD

To minimise fire spread from other buildings, the external fabric of the building should be of a material that restricts the spread of fire from this source.

The boundary is more than 1m of the external wall; therefore, in accordance with Table 12.1, there are no surface spread of flame provisions required for the external (outermost) surfaces. There are no restrictions on the materials used in the construction of the external wall; however, Boundary conditions (see below) will dictate the amount of unprotected areas permitted.

The method for calculating the unprotected area/distance to boundary is that of the enclosing rectangle as described in BRE 187 – *external fire spread; building separation and boundary distances*. In the case of 57 Prince Street, all floors are compartment floors, all rooms are fire separated therefore the unprotected areas are considered acceptable for a boundary condition of 6.45m.

External fire spread conditions are considered compliant.

4.1. Roof Coverings

The fire resistance of a roof depends on whether the pitch of the roof is greater or less than 70° to the horizontal. Where the pitch is greater than 70°, the boundary condition includes the roof for unprotected areas within 4.1 above.

The pitch at 57 Prince Street is estimated at 40°; therefore, unprotected areas of the roof are not taken into account for 4.1 above. Fire resistance of the roof to external fire exposure should comply to the relevant Designation in AD B Table 14.1, replicated below.

Designation		Distance from any point on relevant boundary			
Euro Classification	BS 476-3	<6m	At least 6m	At least 12m	At least 20m
B _{ROOF} (t4)	AA, AB or AC	yes	yes		
C _{ROOF} (t4)	BA, BB or BC		yes		
D _{ROOF} (t4)	CA, CB or CC				
E _{ROOF} (t4)	AD, BD or CD				

F _{ROOF} (t4)	DA, DB, DC or DD				
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Table 4; Roof coverings

4.2. Roof Lights

Recommended roof covering is B_{roof}(t4), clause 14.8 allows for unwired glass in roof lights that is 4mm thick to be regarded as having a B_{roof}(t4) classification.

5. ACCESS AND FACILITIES FOR THE FIRE SERVICE

5.1. Access

According to Table 15.1, a building with a total floor area (all floors except basements) of between 2000 and 8000m² requires access to 15% of the perimeter of the building if top floor is less than 11m. 57 Prince Street satisfies this criteria and as such fire mains are not required within the premises. (Access available to 50 % of perimeter)

5.1.1. Water Supplies

The location of existing and new hydrants should be confirmed.

5.1.2. Smoke Venting

The staircases are provided with 1.5m² automatically opening vents. They are to be designed to activate on detection of smoke in the staircase. This is an enhancement of requirements. This provision is to vent any smoke that may have entered the staircases prior to, and during the evacuation stage. The provision will also assist fire-fighting operations.

6. FIRE SUPPRESSION

6.1. Automatic suppression of fire

There is no requirement for automatic fire suppression.

6.2. Fire Extinguishers

The provision of extinguishers is not a Building Regulations requirement. The provision of hand-held firefighting equipment for the project will be subject to the findings of a fire risk assessment to be carried out prior to occupation.

7. FIRE SAFETY MANAGEMENT

Recommendations within the AD B are made on the assumptions that the building will be properly managed. The proper manner in which the buildings are to be managed are expected to further justify the proposals contained within this strategy.

As an occupied building the responsible person should be afforded access to the contents of this report in order to maintain the fire safety provisions built in once occupied. Other strategies and manuals should be passed over by virtue of Regulation 38 of the Building Regulations 2010.

A fire risk assessment should be carried out in compliance with Article 9 of the Fire Safety Order 2005.

8. LIMITATIONS OF THE REPORT






This report has been written to support the Building Regulations application for support an application for Building Regulations (2010)(as amended) approval in respect of the refurbishment of floors three and four of 57 Prince Street, Bristol. It is for use by the architect, designers and client in respect of this project only. It should not be used for any other project. No responsibility will be accepted by FRaMS Associates (PM) Ltd., should any aspect contained within this report be utilised for any other purpose or by other parties unless express written permission has been given.

This strategy is based on information provided to FRaMS Associates. Additional information, or variants to that supplied, may invalidate the conclusions and proposals contained within this report. Where not specified within this report, fire safety measures and provisions should be specified and installed by competent persons in accordance with relevant current British Standards and guidance. FRaMS Associates do not specify, select or install specific construction materials; furthermore we do not inspect or check work of others on site for standards of workmanship.

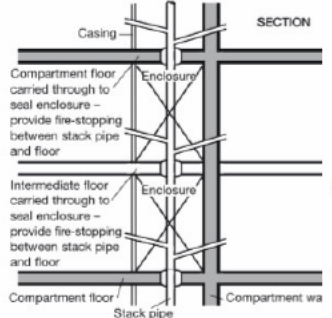
The strategy should be read in conjunction with the architects' fire strategy plans and relevant installers' specifications.

Compliance with the recommendations within this strategy will not guarantee that a fire will not occur.

APPENDIX A – STRATEGY PLANS REVISION STATUS

-  388-PLA-114-B_PROPOSED FOURTH FLOOR PLAN
-  388-PLA-113-B_PROPOSED THIRD FLOOR PLAN (1)
-  388-PLA-112-A_PROPOSED SECOND FLOOR PLAN (1)
-  388-PLA-111-A_PROPOSED FIRST FLOOR PLAN (1)
-  388-PLA-110-A_PROPOSED GROUND FLOOR PLAN

APPENDIX B1 - FIRE STOPPING

MAXIMUM PIPE SIZE (internal diameter) and SITUATION	TYPE OF MATERIAL USED/OPTION AVAILABLE		
	Non-combustible*	Lead, Aluminium, Aluminium Alloy, uPVC**, fibre cement	Any other material
=< 160mm - Any	B	N/A	N/A
=< 160mm – <u>Stack Pipe</u> Through a compartment wall/floor in a flat	B	A, B (– must be enclosed in a partition as Diagram below)*** See para 5.24  Notes: 1. The enclosure should: a. be bounded by a compartment wall or floor, an outside wall, an intermediate floor, or a casing (see specification at 2 below); b. have internal surfaces (except framing members) of Class 0 (National class) or Class B-s3, d2 or better (European class) Note: When a classification includes 's3, d2', this means that there is no limit set for smoke production and/or flaming droplets/particles); c. not have an access panel which opens into a circulation space or bedroom; d. be used only for drainage, or water supply, or vent pipes for a drainage system. 2. The casing should: a. be imperforate except for an opening for a pipe or an access panel; b. not be of sheet metal; c. have (including any access panel) not less than 30 minutes fire resistance. 3. The opening for a pipe, either in the structure or the casing, should be as small as possible and fire-stopped around the pipe.	N/A
=< 110mm – <u>Branch Pipe</u> 1. Structure enclosing a protected shaft (not stairway or lift shaft) 2. Through a compartment wall/floor in a flat	B	A, C A, B (- must be enclosed in a partition as Diagram above)*** C	N/A
=< 40mm 1. Structure enclosing a protected shaft (not stairway or lift shaft) 2. Through a compartment wall/floor in a flat 3. Any other situation	B	A, B, C A, B, C A, B, C	A, B, C A, B, C A, B, C

* Any non-combustible material (e.g. cast iron, copper, steel) which, if exposed to a temperature of 800°C will not soften or fracture to the extent that flame or hot gases will pass through the wall of the pipe.

** uPVC pipes complying with BS4514 and uPVC pipes complying with BS 5255.

*** These diameters are ONLY in relation to pipes forming an above ground drainage system AND enclosed as per diagram 38 (replicated above). All other cases, the maximum diameter is 40mm.

OPTION A - Provide a proprietary sealing system which has been shown by test to maintain the resistance of the wall/floor/cavity.

OPTION B – Fire stopping can be used to maximum sized pipes and in specific situations (above).

OPTION C – A pipe of Lead, Aluminium, Aluminium Alloy, uPVC** or fibre cement used with a sleeve of non-combustible material*. Both materials to be in contact with each other, and fire stopping to the contact and opening for the sleeve. The sleeve to extend no less than 1000mm beyond each side of the opened structure.

All openings for pipes/sleeving should be as small as possible, regardless of Option.

APPENDIX B2 – DUCTWORK PROTECTION

Ventilation ductwork can be a route for fire and smoke spread throughout a building and into escape routes. To minimise this risk, fire dampers can be provided at the point where the duct passes construction breaches. The operation of the damper is dependent on the purpose of the construction it is in.

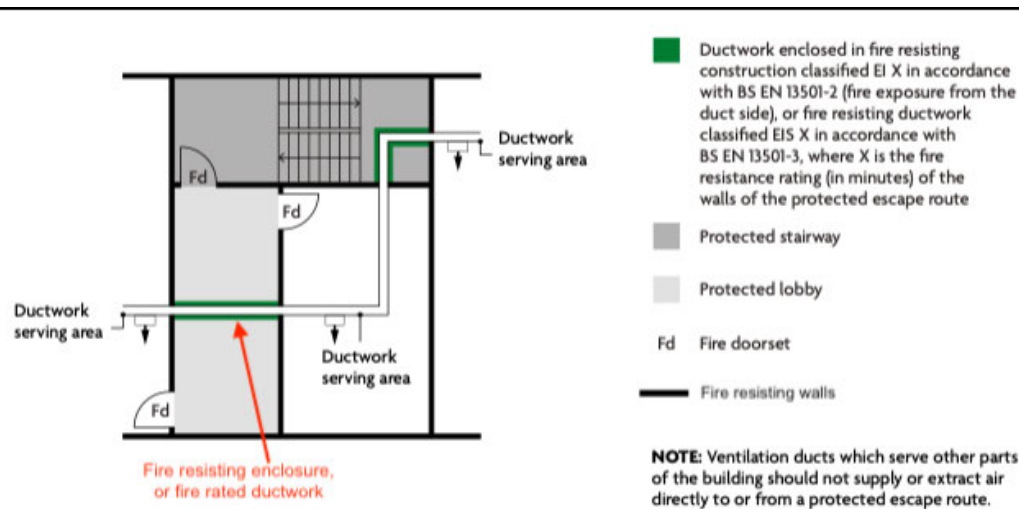
- Compartment walls/floors – thermally activated fire damper.
- Fire resisting walls of protected escape routes via walls/floors that are not compartment walls/floors – thermally and smoke activated dampers.

Alternative methods are available. Ducts may be of a fire resisting material, or they be enclosed in fire resisting materials.

Where fire resisting enclosures or fire rated ductwork passes through compartment walls, inlets/outlets in the ductwork should not serve more than one compartment, unless fire dampers are provided at each inlet/outlet unit. It is considered less suitable to use such protection unless the ductwork passes through compartment walls/floors and does not serve the compartment it passes.

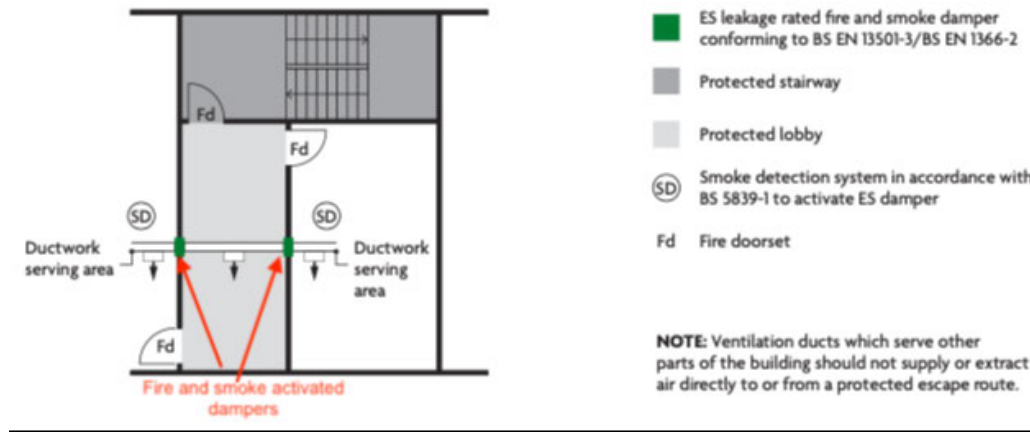
Where fire resisting enclosures or fire rated ductwork passes through a protected escape route, such protection need only be provided within the protected escape route.

Protected ductwork passing through a protected escape route; -



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Dampened ductwork passing through a protected escape route; -

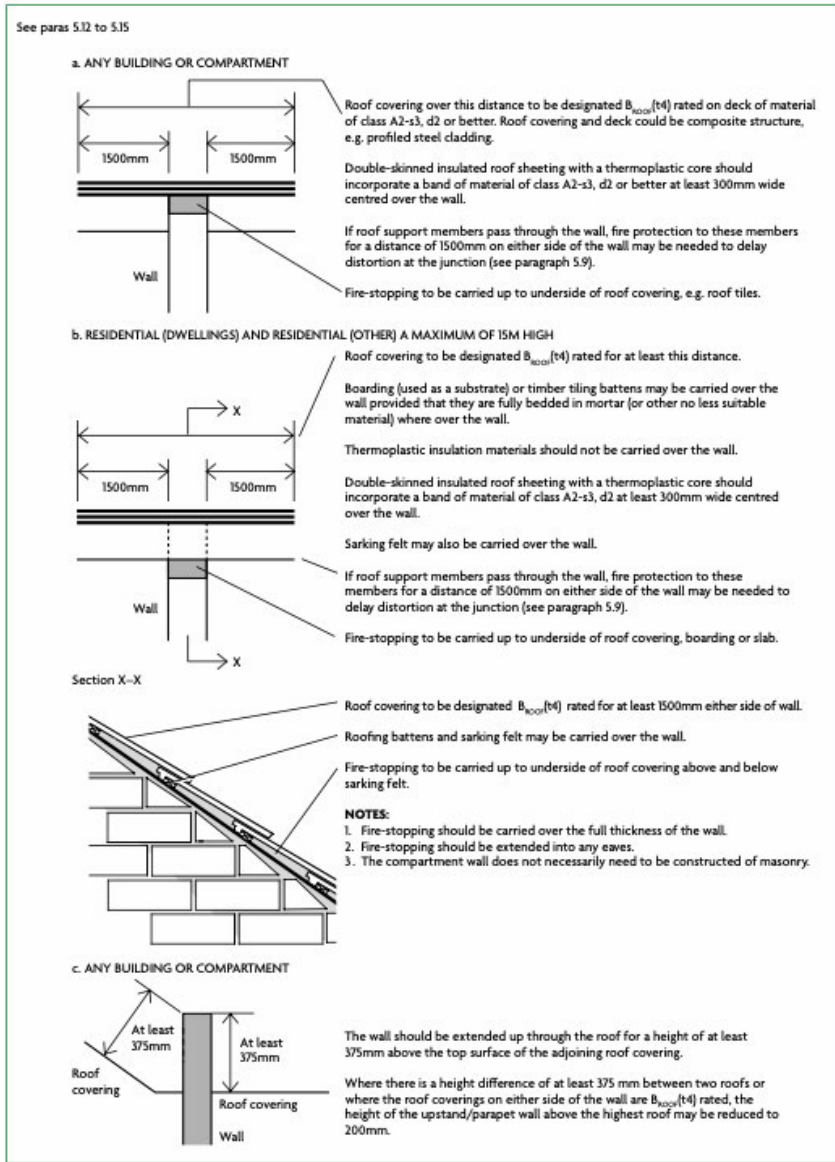


AD B Vol 2: Diagram 10.3

Where air transfer grilles are provided within compartment walls/floors, or in walls/floors to protected escape routes, they should also be provided with thermal dampers/intumescent grilles, or smoke activated dampers respectively.

The fire resistance of the damper, protected enclosure or fire rated ductwork should be the same fire resistance as the wall/floor in which they are situated.

APPENDIX C – COMPARTMENT WALL/ROOF JUNCTIONS



AD B DIAGRAM 5.2

APPENDIX D – TESTING REGIMES

	Daily	Weekly	Monthly	Quarterly	6 Monthly	Annually
Fire Detection System	Visual for faults	Alarm triggered using a different call point each week.	N/A	N/A	External Service	External Service
Emergency Lighting	Visual for faults	N/A	Simulation of failure of power to the system to find any faulty units	N/A	N/A	Simulation of failure of power and full drain down of the lights
Fire Extinguishers	Communal, check if discharged or removed	N/A	N/A	N/A	N/A	External Service
Automatic Opening Vent (AOV)	N/A	Tested on means of escape, this may be on activation of alarm or nearest detector	N/A	N/A	N/A	External Service
Smoke Control System	N/A	Simulation of the system to ensure fans and powered exhaust ventilators operate correctly, smoke dampers close (or open in some systems, nature ventilators open, smoke/fire curtains move into position.	N/A	N/A	N/A	Annual inspection and performance test by a competent person.
Final Exits/ other secure doors on escape routes	N/A	Ensure any devices release on fire alarm	Green Override Boxes tested to see if they release the doors	N/A	N/A	N/A
Fire Doors	Visual for faults	Confirm hold open devices deactivate, and secure doors failsafe on actuation of the weekly fire alarm test.	N/A	Smoke and Heat Seals tested for damage Doors undamaged gaps between the door leaf and the frame are not so small as to be likely to bind, or so large as to prevent effective fire and smoke-sealing;	N/A	N/A
Sprinklers	N/A	As per BS recommendations	As per BS recommendations	As per BS recommendations	As per BS recommendations	As per BS recommendations
Water Mist	N/A	As per BS recommendations	As per BS recommendations	As per BS recommendations	As per BS recommendations	As per BS recommendations
Gaseous Systems						
Refuge points Comms & PEEP	N/A	Tested for line in operation.	Tested to make sure that it is functioning	N/A	N/A	N/A

Equipment						
Lifts	N/A	Tested to check that they go to ground, or floor of egress upon the alarm being triggered.	N/A	N/A	External Insurance Inspection	N/A
Wet/Dry Risers	N/A	N/A	N/A	N/A	Visual check of all visible parts	External Service
Hold Open Devices	N/A	N/A	Tested to check that they operate correctly on activation of actuation method	N/A	N/A	N/A
Fire Dampers	N/A	N/A	N/A	N/A	N/A	Inspection and drop test
Fire Dampers	N/A	Simulation of damper action*	N/A	Simulation of all dampers action	N/A	Inspection and performance test by competent persons

Table 5: Life Safety System Testing Regimes

- Variations available

Additional fire related systems