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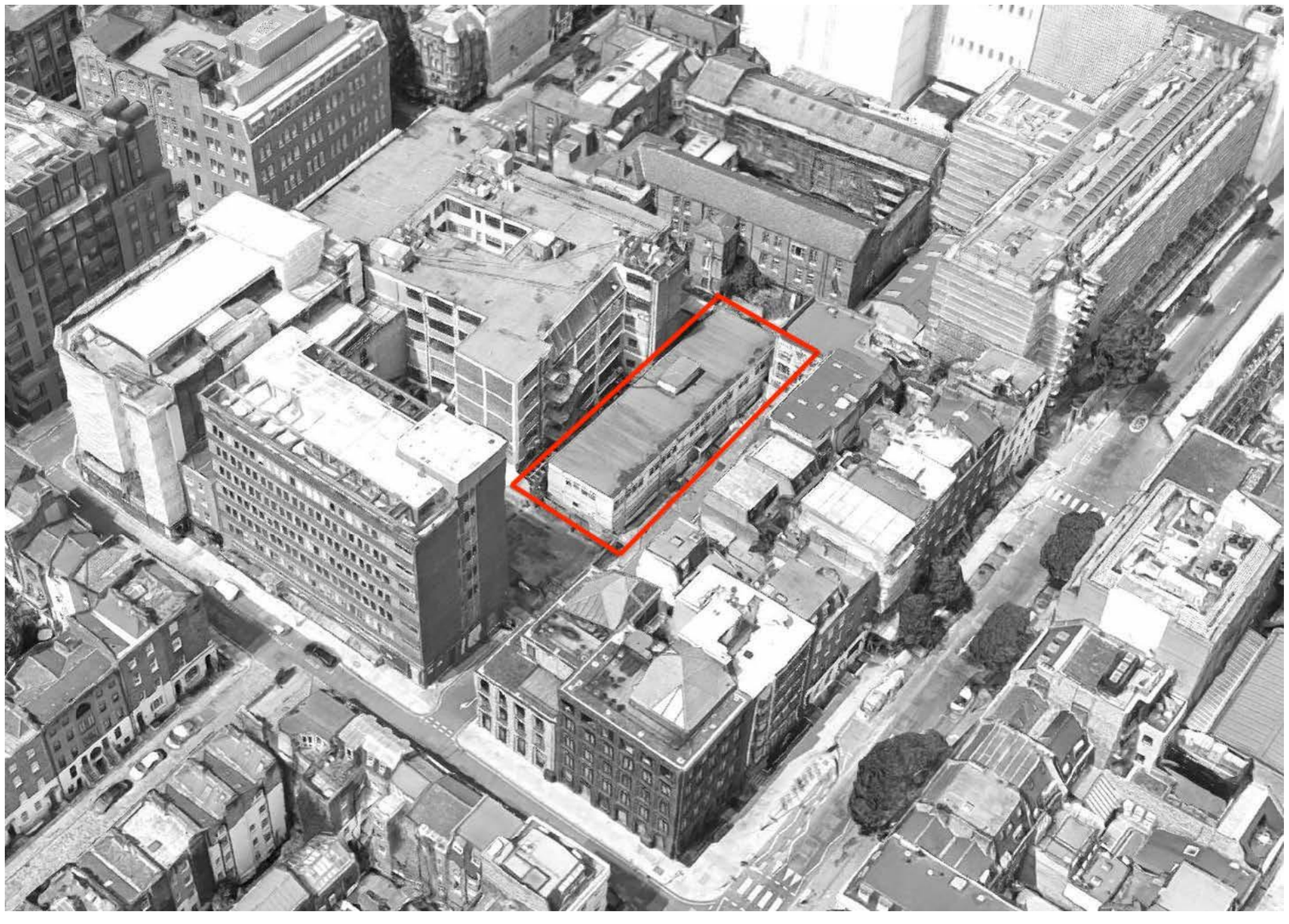
2021

14-19 Tottenham Mews

London W1T 4A

FIRE STRATEGY REPORT



Audit Sheet

Revision	Description	Date	Issued by	Reviewed by
00	Fire Strategy Report - Stage 4 Technical Detailed Design	06/04/23	CE	AS
01	Fire Strategy Report - Stage 4 Technical Detailed Design	23/05/23	CE	AS
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1. INTRODUCTION

1.1 Brief

The purpose of this report is to provide a fire engineering assessment and fire safety strategy for the proposed new-built mixe-use development located at 14-19 Tottenham Mews, Fitzrovia, London.

This report has been developed using the following Stage 4 GA drawings by Cottrell Vermeulen Architecture and is intended to be read in conjunction with the compartmentation and means of escape schematics contained within Appendix B:

- 2960-CVA-TM-B1-DR-A-01101-P01.4_GABasementFloorPlan_P01
- 2960-CVA-TM-00-DR-A-01102-P01.4_GAGroundFloorPlan
- 2960-CVA-TM-01-DR-A-01103-P01.3-S0-GAFirstFloorPlan_GA First Floor Plan_P01
- 2960-CVA-TM-02-DR-A-01104-P01.3-S0_GASecondFloorPlan_GA Second Floor Plan_P01
- 2960-CVA-TM-03-DR-A-01105-P01.3-S0_GAThirdFloorPlan_GA Third Floor Plan_P01
- 2960-CVA-TM-04-DR-A-01106-P01.3-S0_GAFourthFloorPlan_GA Fourth Floor Plan_P01
- 2960-CVA-TM-05-DR-A-01107-P01.3-S0_GAFifthPlan_GA Fifth Floor Plan_P01
- 2960-CVA-TM-RL-DR-A-01108-P01.1-S0_GARoofPlan_GA Roof Plan_P01

This fire strategy addresses issues relating to means of escape, internal fire spread, external fire spread, and Fire Service access, and is principally based upon the guidance provided in BS9991, supplementary British Standards. This document will be provided as part of the Building Regulations submission (in support of Regulation 16B and Part B - Fire Safety) and may be used by the 'responsible person' whilst undertaking the risk assessment of the building required under the Regulatory Reform (Fire Safety) Order 2005.

In accordance with the requirements of the Building Regulations, this strategy has considered the scenario of a fire in a single location at any one time. It is important that the building management have a clear understanding of the fire strategy adopted and of the operation and maintenance of the fire safety systems and equipment within the building that are designed to protect lives and property.

1.2 Building Description

The project consists of a new-build, mixed-use development consisting of the erection of 23 new residential homes and new office space at the Basement Level and Ground Floor level.

The new residential apartments are split over 6 levels, Ground Floor plus 5 upper floors.

The ancillary accommodation rooms (i.e. cycle stores, risers) are located at the Basement Level and Ground Floor level, being separated by the other demises through fire rated construction provided with fire rated doors and smoke seals.

The bin store and the plant room are accessed from outside via a dedicated protected corridor.

1.3 Statutory Guidance

The building will be subject to a range of Statutory Legislation. The principal fire related considerations include:

- The Building Regulations
- The Regulatory Reform (Fire Safety) Order

1.3.1 The Building Regulations 2010

The building will be subject to the requirements of the Building Regulations 2010 – including the 2019 and 2020 Amendments (excluding the 2022 amendments), as the planning permission was acquired during the year 2021. It will be necessary, therefore, for the development, to meet the requirements of Schedule 1 of the Regulations relating to:

- B1 (Means of warning and escape)
- B2 (Internal fire spread (linings))
- B3 (Internal fire spread (structure))
- B4 (External fire spread)
- B5 (Access and facilities for the fire service)

For most building types, guidance as to how the functional requirements of the Regulations can be satisfied is set out in the Approved Document B to the Building Regulations (AD-B). However, although AD-B provides guidance for some of the more common building arrangements, there is no obligation to adopt any particular solution contained in the document, and alternative solutions are acceptable, provided that an equivalent level of fire safety to that provided by the standard solutions can be demonstrated.

For the 14-19 Tottenham Mews development, it is proposed that, the guidance of BS 9999 *Code of practice for fire safety in the design*, *management and use of residential buildings* and BS 9991 *Code of practice for fire safety in the design*, *management and use of residential buildings*, to be utilised. BS9999 and BBS9991 utilises a risk based approach, which is designed to allow a bespoke fire "Risk Profile" to be assigned to the building. This approach also takes into account additional fire safety features (both passive and active), that are to be incorporated into the building. Appendix A and B outlines the design criteria used to determine the risk profile for the 14-19 Tottenham Mews development, which provides the platform for this fire engineering strategy. Where fire engineering solutions have been used by achieving variations from the current codes and standards, appropriate reference shall be made within this document to the standard or method used.

1.3.2 The Regulatory Reform (Fire Safety) Order

The Regulatory Reform (Fire Safety) Order (the RRO) was introduced to replace some previously applicable fire safety legislation, including the Fire Precautions (Workplace) Regulations and the Fire Precautions Act.

This legislation is based on risk-appropriate compliance and requires regular fire risk assessments to be carried out by the building management/owners/occupiers. The Fire Service will conduct inspections of premises to enforce the Regulations. Whilst guidance documents have been produced by the government to assist in the preparation of the risk assessment, it should be noted that these documents are not intended to be used to design the building – the building design should focus on satisfying the functional requirements of the Building Regulations.

The RRO provides Statutory Legislation to ensure that the ongoing maintenance and fire safety management of new premises will be maintained during the life of the building, which is not currently fully addressed under the Building Regulations. Therefore, the fire strategy detailed in this report does not explicitly address all the management requirements of the RRO. It will be necessary for effective fire safety management regimes to be developed by the building occupier, and a risk assessment of the premises to be conducted prior building occupation (and updated on an on-going basis).

1.3.3 Property Protection

Property Protection is not a requirement of the Building Regulations and, as this report deals only with statutory requirements, property protection is not explicitly addressed, although it is recognized that some fire safety provisions will inherently offer a degree of property protection to the building. As such, it is recommended that the building insurers are consulted at an early stage to ensure that any additional needs are satisfied.

1.3.4 Management Issues

This report primarily relates to the fire safety requirements needed to ensure that the building design satisfies the Building Regulations. However, it is recognised that fire safety management is critical to ensure the safety of the building occupants. Although some management issues may be discussed in this strategy document, it does not explicitly address all of the management needs of the development. **Prior**

to building occupation, a suitable management strategy should be developed by the relevant building management bodies to cover issues including:

- **Fire management structure;**
- **Evacuation procedures;**
- **Staff training;**
- **Housekeeping and fire prevention;**
- **Maintenance and control of fire safety systems;**
- **Conflicts between security and means of escape issues.**

2 MEANS OF WARNING AND ESCAPE

Functional Requirements

"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."

2.1 Overview of Means of Warning and Escape Strategies

The escape strategy has been developed on a "Stay put strategy" – strategy normally adopted in blocks of flats. The residential development will be provided with a high degree of compartmentation and therefore there is a low probability for fire spread beyond the dwelling of origin before it is put out.

The office accommodation is located at ground floor and basement and it will be designed against a simultaneous evacuation strategy.

2.2 Fire Alarm and Detection

As a minimum requirement, all new dwellings should have a fire detection and fire alarm system, minimum Grade D Category LD3 standard, in accordance with the relevant recommendations of BS 5839-6.

For the 14-19 Tottenham Mews development, however, this fire strategy proposes an enhance level of detection throughout the building in order to achieve certain variations from the codes and standards.

2.2.1 Apartments with protected lobbies

It is proposed to provide a Category LD2 automatic fire detection and alarm system within each individual apartment.

A LD2 fire alarm is system incorporating detectors in all circulation areas that form part of the escape routes from the premises, and in all specified rooms or areas that present a high fire risk to occupants, including any kitchen and the principal habitable room.

The fire alarm system will be designed and installed in accordance with BS 5839. It is proposed that the alarm system to incorporate smoke detectors in the flats internal lobbies, heat detectors in the kitchen and as mentioned before, smoke detectors in the common areas.

Sufficient sounders (and xenon beacons, where necessary) will be provided so the fire alarm is clearly audible throughout all areas of the apartments, in order to enable early occupant response.

The balconies / terraces of the individual apartments will be provided with beacons and sounders in order to benefit from "early response" as they are considered being inner rooms in regard to the evacuation strategy.

Roof-top and internal plant areas will be covered by, and linked to, the comprehensive automatic fire detection and alarm systems within the main area of the development and will be simultaneously alerted to any incident by means of sounders and xenon beacons.

Note: Any voids which exceed 800mm in height will be provided with additional fire detection in accordance with BS 5839.

2.2.2 Communal corridors

The communal parts of the 14-19 Tottenham Mews development are to be provided with an L2 fire alarm system, which will be designed and installed as a fully addressable fire alarm system in accordance with BS 5839-1.

It is important that the sounders of the communal areas are not located within the upper floors corridors so that it will not allow the occupants of the building to panic. As the residential part of the building will be developed using the "stay-put" evacuation model, the occupants should not be alerted by the communal area fire alarm.

The communal fire alarm should only allow for visual signals to the main panels in order to guide the fire fighters when they arrive for intervention.

The fire alarm system will be developed and coordinated by the MEP designers and the specialist fire alarm contractor. The final design is subject to final approval by fire consultant, Building Control approved inspector.

Note: Any voids which exceed 800mm in height will be provided with additional fire detection in accordance with BS 5839.

2.2.3 Offices

It is proposed to provide a Category L1 automatic fire detection and alarm system within the office demise

A L1 fire alarm is system incorporating detectors in all areas which have an area greater than 1 m^2.

The fire alarm system will be designed and installed in accordance with BS 5839.

Sufficient sounders (and xenon beacons, where necessary) will be provided so the fire alarm is clearly audible throughout all areas, in order to enable early occupant response.

With this level of fire detection, it is considered that the building benefits from early detection and early response and it will allow for certain variations to be claimed in accordance with BS 9999.

Note: Any voids which exceed 800mm in height will be provided with additional fire detection in accordance with BS 5839.

2.3 Means of Escape – General Principles

It is proposed to outline the general principles related to means of escape, however, compliance with these general principles will be assessed for each area of the developments in Sections 2.4 to 2.8 and Appendix B, below.

2.4 Horizontal Travel Distances

2.4.1 Block of Flats

As detailed within the BS9991, for buildings accommodating individual apartments, the arrangement of the layout will be such that the following travel distances are not exceeded.

Table 2.4.1 – Summary of Travel Distance Limits

Area	Maximum permitted travel distance in
	A single direction
From Flat entrance door to the common stair or lobby	7.5m
Internal travel distance within the flat	9m
Communal Corridors – dead end	7.5m
External deck	Unlimited

All flats are designed in accordance with Section 9.4.2 of BS 9991.

The flats will be constructed with protected entrance halls. In all flats, the travel distances within the protected entrance halls should be limited to 9 m to the flat exit. The halls will be enclosed in fire-resisting construction rated to 30 minutes (integrity and insulation) with FD30 fire doors, which do not require cold smoke seals or automatic door closers. The door between the flat and the common area / deck will be FD30S fire doors with cold smoke seals and door closers.

All flats on ground floor are designed as being wheelchair accessible flats. The ground floor flats should be provided with a protected entrance hall (as described in Section 3.3.2) Additional information on means of escape for mobility impair people can be found in Section 3.7.

A few of the flats have private balconies/terraces (open or enclosed), which should be designed according to Section D.3 of BS 9991. According to the guidance, the balcony should be accessed directly through one room and not pass through multiple access rooms. Any cooking risk within the access room should be remote to the balcony and the escape route (typically 1.5-1.8 m is considered acceptable).

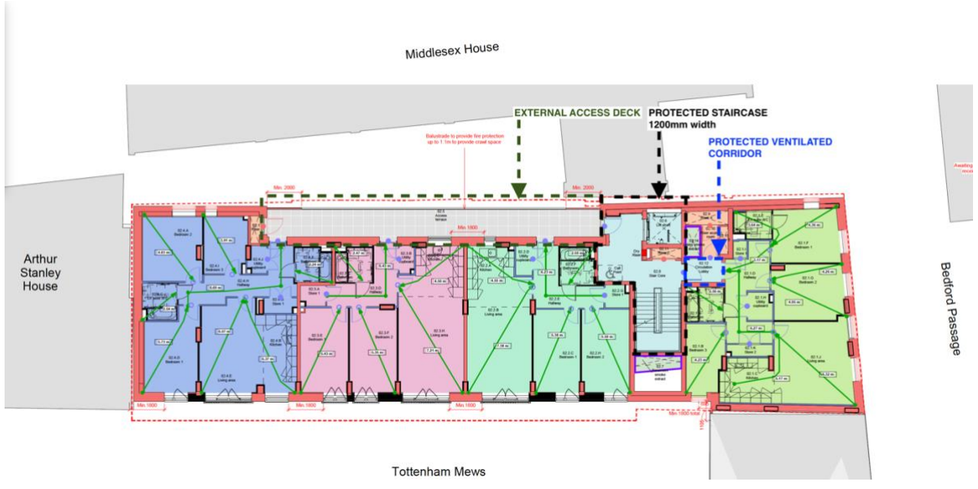
Common escape routes

To prevent exposure of escaping occupants to smoke and heat in the internal corridor or lobby the travel distance between the exit doors from the dwellings and a smoke-free area should be limited, and the amount of smoke and other combustion products in the internal corridor or lobby kept to a minimum by providing either cross-corridor fire doors and ventilation or an independent alternative escape route should be provided.

The development is served by a single stair, which has been provided with a minimum width of 1200mm. This is considered to be in accordance with the minimum provisions outlined in BS 9991.

The staircase gives access to the East Side of the block via a protected ventilated lobby, whilst the rest of the apartments located on the West side of the block are accessed via an external deck.

The common enclosed corridor has been provided with a smoke control shaft and the staircase has been provided with an AOV at the top.



West Side

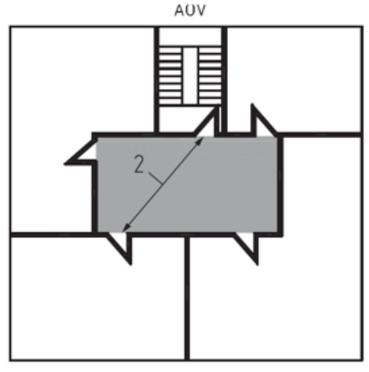
As the West Side does will exceed 11m, the core will have the need to be provided with smoke control in accordance with the schematic of principle presented in BS 9991, as per below.

The distances within the communal corridor do not exceed 7.5m, therefore the layout is compliant with Figure 6, b).

Common corridors widths
The common corridors widths have to be kept at a minimum of 1.2m in order to match the stairs width.

BS 9991:2015 BRITISH STANDARD

Figure 6 **Common escape routes in single stair buildings with a floor level more than 11 m above ground**



Key

1 Maximum travel distance 7.5 m
2 Maximum travel distance 7.5 m (max. 15 m if sprinklers are fitted; see **7.4** and **11.2**)
AOV Automatic opening vent (1.0 m² minimum)
Fire-resisting construction
Self-closing FD 30S fire door (double swing)
Self-closing FD 30S fire door
Area requiring a smoke control system

b) Dwellings with lobby access

Where travel distance is measured to a stair lobby door, the lobby should not directly connect with any dwelling, storage space or any other space containing a potential fire hazard.

Where a fire-fighting lift is required, it should be sited not more than 7.5 m from the door to the stair.

Sprinkler systems used to permit extended travel distances should be in accordance with BS 9251:2014 or BS EN 12845 (see **7.4** and **11.2**, Table 2).

NOTE 1 Where all dwellings on a storey have independent alternative means of escape, the maximum travel distance may be increased to 30 m.

NOTE 2 The arrangements shown in a) and b) also apply to the top storey.

East Side

In accordance with BS 9991, it is recognised that in general there is little risk of a balcony or deck becoming smoke-logged and there is thus no need to impose a limitation on the travel distance from the dwelling entrance to the stairway, although account should be taken of the needs of the fire and rescue service, such as the distance between the nearest connection to a fire main and the flat.

NOTE 1 Where an approach is via a balcony or deck having a width of more than 2 m, or via a balcony that is adjoined to the building wall only where there is an entrance to a flat or maisonette, there is a risk that the balconies might become smoke-logged both laterally along the balcony and upon levels above.

Where there is only a single direction of escape, provision should be made for the safety of persons who might have to escape past the flat or maisonette on fire (see Figure 5).

NOTE 2 In order to avoid impediment to means of escape, it is inadvisable to allow storage of any kind on the balcony or deck approach. Escape routes should be in accordance with Figure 5 of BS 9999 – extract below.

Figure 5 **Common escape routes in balcony/deck approach buildings**

Single-stair building

Key

OV Openable vent for fire and rescue service use from the top storey (1.0 m² minimum)

Fire-resisting construction

Fire-resisting construction up to a height of 1.1 m above deck level

Self-closing FD 30 fire door

Self-closing FD 30S fire door

All doors with glazing that breach the 1.1 m high fire-resisting separation should be self-closing FD 30 fire doors with appropriate fire-resisting glass.

NOTE 1 Although there are no limitations on travel distance, all parts of the building need to be within 45 m of a fire main, measured along a line on which hose can be laid.

NOTE 2 The openable vents to the stairway may be replaced by an openable vent over the stair with remote operation.

The deck design for Tottenham Mews development, presents some additional difficulty, as the adjoining building on the North elevation is located close to the deck at only a distance ranging between a maximum of 5.1m down to a minimum of 2.4m. However, within this distance of 2.4m, there are some external staircases serving the adjacent buildings as means of escape. Therefore, in order to mitigate the fire spread to the other buildings, it is proposed that the external deck is provided with an extension of the proposed residential sprinklers system. The section of the sprinklers located on the external deck should be provided as a dry section of the system or it must be provided with frost protection (i.e. trace heating).

This solution is proposed as a mitigation provision and it is subject to approval and agreement by the Building Control Officers and the London Fire Brigade.

2.4.2 Office

As detailed within the BS9999, for buildings accommodating offices, the arrangement of the layout will be such that the following travel distances are not exceeded.

Table 2.4.1 – Summary of Travel Distance Limits

Area	Maximum permitted travel distance in	
	A single direction	Multiple directions
Office accommodation (direct measurement)	17m	44m
Office accommodation (actual measurement)	26m	55m

2.5 Vertical Means of Escape

As the minimum imposed requirements, the unobstructed width (measured between the walls and/or balustrades) of each common stair should be not less than 750mm; a common stair which is a fire-fighting stair should have an unobstructed width (measured between the walls and/or balustrades) of 1100 m. The width should be kept clear for a vertical distance of 2000mm.

Even though, the stair provided has no requirement to be designed as a fire-fighting stair, the total width will be kept at 1200mm.

Note: Handrails and strings that do not intrude more than 100mm into these widths may be discounted when calculating the common stair width.

The building is provided with a single protected escape stair, which discharges into a protected lobby at Ground Floor level connected straight to outside.

The width of the staircase of 1200mm is considered sufficient for accommodating the “stay-put evacuation” strategy. It is considered that the proposed width of the staircase is in line with the imposed limits.

2.6 Disabled Means of Escape

Evacuation by stairs

Providing an accessible means of escape should be an integral part of fire safety management in all residential buildings. Fire safety management should take into account the full range of people who might use the premises, paying particular attention to the needs of disabled people.

NOTE 1: **It is the responsibility of the premises management to assess the needs of all people to make a safe evacuation when formulating evacuation plans.**

An evacuation plan should not rely on the assistance of the fire and rescue service. This is an important factor that should be taken into account in the building design. It cannot be assumed that facilities provided in a building to make it accessible will be usable in a fire evacuation. For example, lifts that are not appropriately designed for emergency evacuation and are not usable for evacuation. This should be taken into account at the design stage when it is relatively easy to incorporate accessible escape features which will make evacuation planning more effective, an evacuation easier to manage and help to preserve the dignity of disabled people in an evacuation.

The residential apartments that are designed to be occupied by wheelchair users are all located at the Ground Floor level, therefore, they will be directly accessible from the outside. Nevertheless, the residential demise is provided with an evacuation lift, in accordance with the Planning Conditions and the New London Plan.

For the office demise, an evacuation lift has been provided in order to cater for the inclusive means of escape design. A refuge area has been provided within the design intent. The refuge areas need to be provided with a communication system which would allow communication between the members of staff responsible with the fire management of the office and the person waiting in the refuge area.

All the details of the disabled people evacuation have to be written in the Fire Risk Assessment that has to be conducted once the building is handed over and it is the responsibility of the building management bodies that this is done and kept up to date at any given time.

Evacuation lifts

In accordance with BS 9999, where a lift is part of the evacuation sequence for people requiring assistance,
it should be an evacuation lift.

NOTE 1 Where an evacuation lift is used, it is expected that the evacuation will be assisted by an authorized person(s).

An evacuation lift, where provided, should always be available for evacuation purposes. Wherever practicable it should be a lift used routinely as a passenger lift and not one used solely for evacuation or occasionally as a lift for transporting goods. It should be designed and installed in accordance with the relevant provisions in BS EN 81-20 and BS EN 81-70.

An evacuation lift should be situated within a protected enclosure consisting of the lift well itself and a protected lobby at each storey served by the lift, and should be provided with a protected route from the evacuation lift lobby at the final exit level to a final exit. It should be associated with a refuge (see G.1) and
should be clearly identified. No part of an escape route should be served only via a lift.

An evacuation lift should be provided with a switch clearly marked “Evacuation Lift” and situated adjacent to the lift landing door at the final exit level.

Operation of this switch should cause the evacuation lift to operate as described in G.2.3 of BS 9999.
NOTE 2 Unauthorized operation of the switch may be prevented by the use of a key-operated switch or by placing the switch in a glass-fronted box.

Where evacuation lifts are provided, their use to evacuate people requiring assistance should be a matter of priority. Once under staff control, the lift should normally only used to evacuate those persons in need of assistance.

Secondary or alternative power supplies, etc. might only be specified to accommodate the evacuation of people requiring assistance, and might not have sufficient capacity or endurance to allow their use by others. Other building occupants should be directed to escape via the alternative vertical circulation routes provided for that purpose.

All the details of the disabled people evacuation have to be written in the Fire Risk Assessment that has to be conducted once the building is handed over and it is the responsibility of the building management bodies that this is done and kept up to date at any given time..

2.7 Emergency Lighting and Escape Signage

- **Emergency Lighting and Escape Signage for residential demise**

Suitable lighting should be provided to enable the safe movement of persons along escape routes to a place of relative or ultimate safety. For a Type C building, Table 8 of BS9999 recommends that emergency escape lighting should be provided, in accordance with BS 5266-1.

In general, people using this class of premises can be expected to be reasonably familiar with the layout and safety provisions, and orderly evacuation can normally be expected in the event of an emergency. Based on these considerations, a 3 h duration system should be used in common access routes within blocks of flats, as these are escape routes from sleeping risk premises.

It is recommended that the provision for emergency lighting includes all external and roof-top escape routes, which should also be fully demarcated.

Every escape route, other than exits in ordinary use (i.e. main entrances), should be distinctively and conspicuously marked by emergency exit signage complying with the recommendations of BS 5499: Part 1, BS 5499: Part 4, and the Health and Safety (Safety sign and signals) Regulations 1996.

- **Emergency Lighting and Escape Signage for office demise**

Suitable lighting should be provided to enable the safe movement of persons along escape routes to a place of relative or ultimate safety. For a Type A building, Table 8 of BS9999 recommends that emergency escape lighting should be provided, in accordance with BS 5266-1, as follows:

1) Underground or windowless accommodation
2) Stairways in a central core or serving storey(s) more than 18 m above ground level
3) Internal corridors more than 30 m long
4) Open-plan areas of more than 60 m2

3. EXTERNAL SPREAD OF FIRE

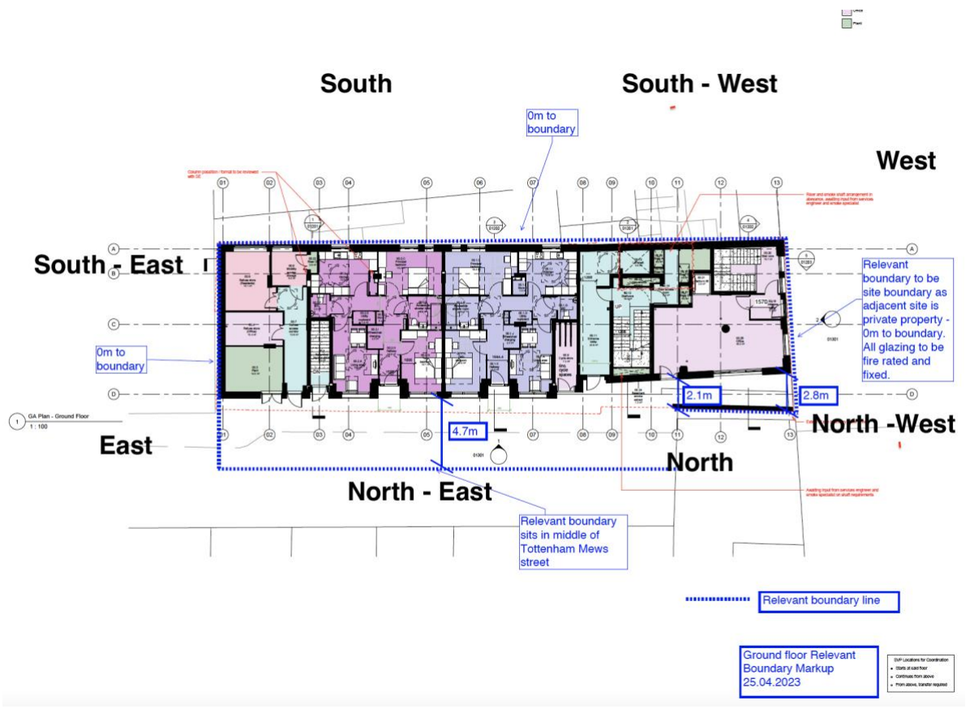
3.1 Functional Requirements

"The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use, and position of the building. 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."

Under the requirements of Building Regulations, it is necessary to construct buildings such that the potential for fire spread to other buildings is limited.

To ensure that the building is sufficiently remote from adjacent buildings (or the site boundaries) it is necessary to conduct a space separation analysis, which takes into account the maximum fire size (assumed to be confined to a single compartment), the nature of the external façade (dimensions and the provision of external fire resisting construction), and the distance to either the site boundary or adjacent buildings.

A full analysis has been undertaken to establish the maximum unprotected areas in accordance with BRE 187 for external fire spread. In this case, an assessment of each elevation will be required to be undertaken using the 'enclosing rectangle' method, detailed in BRE 187, to determine the permitted area of unprotected façade within each elevation, relative to the available boundary separation.



North – East Elevation – Residential Demise

For the North Elevation, the distance to the relevant boundary is 4.7m, which will allow for a total of 100% of unprotected glazed area on an enclosing rectangle of 8.5m (W) x 3.0m (H).

North Elevation – Office Demise

For the North Elevation, the distance to the relevant boundary is 2.10m, which will allow for a total of 59% of unprotected glazed area on an enclosing rectangle of 10.0m (W) x 3.0m (H).

West Elevation – Office Demise

For the West Elevation, the distance to the relevant boundary is 0m, which will allow for a total of 0% of unprotected glazed area on an enclosing rectangle of 9.0m (W) x 3.0m (H). Therefore, any glazed area provided on this elevation will have to be 60 minutes fire rated (resistance and insulation) and fixed shut. In addition, the external wall will be constructed as a party wall with a minimum fire performance (integrity and insulation) of a minimum of 60 minutes [fire performance to be from both sides, as the fire attack can be from within the building or from the exterior of the building].

East & South – East & South Elevations – Residential

For the East Elevation, the relevant boundary line is in the same location as the external wall, therefore, the East Elevation external wall will be constructed as a party wall with a minimum fire performance (integrity and insulation) of a minimum of 60 minutes [fire performance to be from both sides, as the fire attack can be from within the building or from the exterior of the building].

South - West Elevation – Residential and Office

For the South Elevation, the relevant boundary line is in the same location as the external wall, therefore, the East Elevation external wall will be constructed as a party wall with a minimum fire performance (integrity and insulation) of a minimum of 60 minutes [fire performance to be from both sides, as the fire attack can be from within the building or from the exterior of the building]. All glazed areas provided on this party wall will be fixed and provided with 60 minutes performance (integrity and insulation).

For the upper floors which are provided with an external deck that offsets from the boundary line, it is proposed that a dry automatic fire sprinklers system is provided in order to mitigate the risk of fire spread to the adjacent buildings. In addition some protection glazed fire rated screens have been provided for a length of 2m from the ends of the decks.

This solution is subject to Building Control's and the local Fire Brigade's agreement and approval.

3.2 Facade

3.2.1 Façade of the block of flats

The building height exceeds 11m (measured from the Ground Floor to the FFL of the top occupied floor), therefore it is considered a relevant building that would have to comply with Regulation 7.2 of Approved Document B.

The reaction to fire performance of external surface of walls will be specified, designed and installed in accordance with the requirements of Regulation 7.2 of Approved Document B. All of the façade materials are to be classified under Class A2-s1, d0 or Class A1 in accordance with EN 13501. This would be applicable to all of the façade build-up materials with the exception of the specific materials which are exempt by Regulation 7(3) from Approved Document B (ADB).

ADB Regulation 7(2)
Subject to paragraph (3), building work shall be carried out so that materials which become part of an external wall, or specified attachment, of a relevant building are of European Classification A2-s1, d0 or A1, classified in accordance with BS EN 13501-1:2007+A1:2009 entitled "Fire classification of construction products and building elements. Classification using test data from reaction to fire tests" (ISBN 978 0 580 59861 6) published by the British Standards Institution on 30th March 2007 and amended in November 2009.

ADB Regulation 7(3)
Paragraph (2) does not apply to—
(a) cavity trays when used between two leaves of masonry;
(b) any part of a roof (other than any part of a roof which falls within paragraph (iv) of regulation 2(6)) if that part is connected to an external wall;
(c) door frames and doors;
(d) electrical installations;
(e) insulation and water proofing materials used below ground level;
(f) intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part B of Schedule 1;
(g) membranes;
(h) seals, gaskets, fixings, sealants and backer rods;
(i) thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part L of Schedule 1; or
(j) window frames and glass.

3.3 Roof

Separation distance is the minimum distance from the roof, or part of the roof, to the relevant boundary (paragraph 11.4). Table 12.1 sets out separation distances by the type of roof covering and the size and use of the building. In addition, roof covering products (and/or materials) defined in Commission Decision 2000/553/EC of 6 September 2000, implementing Council Directive 89/106/EEC, can be considered to fulfil all of the requirements for the performance characteristic 'external fire performance' without the need for testing, provided that any national provisions on the design and execution of works are fulfilled, and can be used without restriction, and can be used with no restriction.

Table 12.1 Limitations on roof coverings

Designation[1] of covering of roof or part of roof	Distance from any point on relevant boundary			
	Less than 6m	At least 6m	At least 12m	At least 20m
B_{ROOF}(t4)	●	●	●	●
C_{ROOF}(t4)	○	●	●	●
D_{ROOF}(t4)	○	●[2][3]	●[2]	●
E_{ROOF}(t4)	○	●[2][3]	●[2]	●[2]
F_{ROOF}(t4)	○	○	○	●[2][3]

● Acceptable.
○ Not acceptable.

NOTES:

Separation distances do not apply to the boundary between roofs of a pair of semi-detached dwellinghouses and to enclosed/covered walkways. However, see Diagram 5.2 if the roof passes over the top of a compartment wall.

Polycarbonate and uPVC rooflights that achieve a class C-s3, d2 rating by test may be regarded as having a B_{ROOF}(t4) designation.

1. The designation of external roof surfaces is explained in Appendix B.
2. Not acceptable on any of the following buildings.
   a. Dwellinghouses in terraces of three or more dwellinghouses.
   b. Any other buildings with a cubic capacity of more than 1500m³.
3. Acceptable on buildings not listed in (1) if both of the following apply.
   a. Part of the roof has a maximum area of 3m² and is a minimum of 1500mm from any similar part.
   b. The roof between the parts is covered with a material rated class A2-s3, d2 or better.

NOTES:
Separation distances do not apply to the boundary between roofs of a pair of semi-detached dwellinghouses and to enclosed/covered walkways. However, see Diagram 5.2 if the roof passes over the top of a compartment wall.

Polycarbonate and uPVC rooflights that achieve a class C-s3, d2 rating by test may be regarded as having a Broof(t4) designation.

1. The designation of external roof surfaces is explained in Appendix B.
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a. Dwellinghouses in terraces of three or more dwellinghouses.
b. Any other buildings with a cubic capacity of more than 1500m'.
3. Acceptable on buildings not listed in (1) if both of the following apply.
a. Part of the roof has a maximum area of 3m^2 and is a minimum of 1500mm from any similar part.
b. The roof between the parts is covered with a material rated class A2-s3, d2 or better.

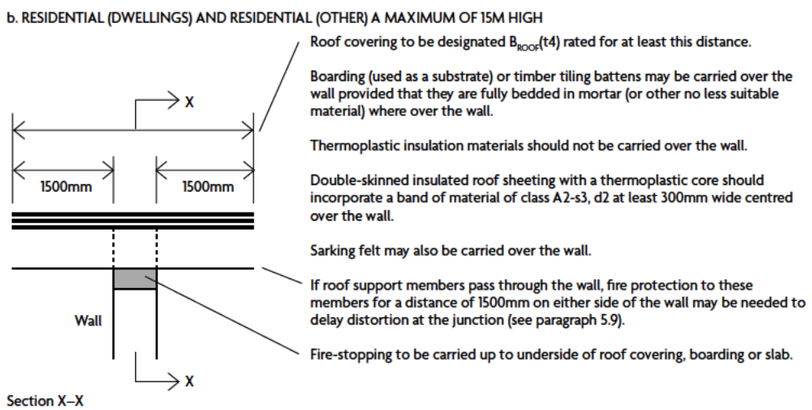


Diagram 5.2 of ADB

4. INTERNAL FIRE SPREAD (LININGS)

Functional Requirements

The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period.
Where reasonably necessary to inhibit the spread of fire within the building, measures shall be taken, to an extent appropriate to the size and intended use of the building, comprising sub-division of the building with fire-resisting construction.

4.1 Wall and Ceiling Linings

All wall and/or ceiling linings within the development will satisfy the following classifications given in Table 4.1 (below), when tested under either the National Classifications, in accordance with BS 476 or under the European classifications in accordance with BS EN 13501-1.

Location	National Class		European Class
	Walls	Ceilings	
Small rooms ≤4 m² (residential use) Small rooms ≤30 m² (non-residential use)	Class 3	Class 3	D-s3, d2
Circulation spaces	Class 0	Class 0	B-s3, d2
Other rooms	Class 1	Class 1	C-s3, d2

Table 4.1 - Limitations on wall and ceiling linings

The National classifications used are based on tests in BS 476: Fire tests on building materials and structures, namely Part 6: Method of test for fire propagation for products and Part 7: Method of test to determine the classification of the surface spread of flame of products. However, Part 4: Non-combustibility test for materials and Part 11: Method for assessing the heat emission from building products are also used as one method of meeting Class 0.

The European classifications are described in BS EN 13501-1, Fire classification of construction products and building elements, Part 1-Classification using data from reaction to fire tests. They are based on a combination of four European test methods, namely:

BS EN ISO 1182, Reaction to fire tests for building products – Non-combustibility test;
BS EN ISO 1716, Reaction to fire tests for building products – Determination of the gross calorific value;
BS EN 13823, Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item; and
BS EN ISO 11925-2, Reaction to fire tests for building products, Part 2-Ignitability when subjected to direct impingement of flame."

For the purposes of classification:

A wall is deemed to include:

- the surface of glazing (except glazing in doors)
- any part of a ceiling that slopes at an angle of more than 70°to the horizontal.

A wall is not deemed to include:

- doors and door frames
- window frames and frames in which glazing is fitted
- architraves, cover moulds, picture rails, skirtings, and similar narrow members
- fireplace surrounds, mantel shelves and fitted furniture

A Ceiling is deemed to include:

- the surface of the glazing
- any part of a wall that slopes at an angle of 70°or less to the horizontal

A Ceiling is not deemed to include:

- trap doors and their frames
- the frames of windows or roof lights and frames in which glazing is fitted
- architraves, cover moulds, picture rails, exposed beams, and similar narrow members

5. INTERNAL FIRE SPREAD (STRUCTURE)

Functional Requirements

The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period. A wall common to two or more buildings shall be designed and constructed so that it adequately resists the spread of fire between those buildings. 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. 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 Elements of Structure

For a Type C building that has a height of the top occupied storey not exceeding 18m, all structural frames, beams, columns, load bearing elements, and floor structures should be provided with 60 minutes fire resistance, in accordance with Tables 23 of BS9999 and Table 4 of BS 9991.

It is noted that, in accordance with BS9991, the structure of a roof, and structure that supports only a roof, does not generally require fire resistance, except where the roof forms part of an escape route, or functions as a floor (e.g. plant level), or is part of a portal frame structure where the roof and the supporting stanchions form a single structural element. In addition, any roof structure also supporting an external wall that is required to be fire resisting for the purposes of external fire spread should be provided with fire resistance.

5.2 Green and Blue Roofs

The guidance reviewed generally states that green roofs should be designed to provide the necessary resistance to the external spread of fire by the following measures:

- increasing the non-combustible content of the growing medium
- decreasing the organic content of the growing medium
- preventing the system from drying out.

Extensive roofs are not generally irrigated therefore the fire risk is mitigated by the specification of the build up and fire breaks, and by reducing the organic content.

The green roofs have to be studied and integrated within the building fire strategy design. Based on each case, a fire risk assessment will be made by the appointed fire consultant and they will propose the best suitable solutions.

The green roof build-up will be studied in detail once the build-up is submitted by the architectural team and a local fire risk assessment will be produced.

5.3 Compartmentation

Whilst Appendix B provides indicative compartmentation schematics, Table 5.2.1 and Table 5.2.2 below, provides a summary of the compartmentation and fire-resistance required throughout the development.

All the common areas will have a fire resistance of 60 minutes for all elements, as well as the partitions between flats.

The refuse store will be enclosed in 60 minutes fire rated construction (resistance & insulation) and it will be provided with 60 minutes fire rated doors.

Party walls between houses will be provided with 60 minutes of fire performance achieved from both sides.

The floor slab separating the office demise from the rest of the residential floors will be provided with 60 minutes of fire performance (integrity and insulation).

Table 5.2.1 – Compartmentation Requirements – Block of Flats

Area	Minimum fire performance (minutes)
Elements of structure	60
Compartment floors	60
Access decks floors	60
Means of escape stair	60
Each fire compartment (i.e. individual apartment)	60
Internal apartment's protected lobby	30
Party walls	60
UKPN Substation	240
Transformer, switchgear, battery rooms for low voltage	30
Refuse stores	60

5.4 Provisions of Fire Doors

Doors in fire-separating elements are one of the most important features of a fire protection strategy, and it is important to select a fire door that is suitable for its intended purpose.

The fire resistance for fire doors should be from either side, with the exception of doors to lift wells, where the fire resistance need only be from the landing side.

All fire doors, front doors to flats and communal doors to be self-closing, with the exception for cupboards or service risers, which should be kept locked shut.

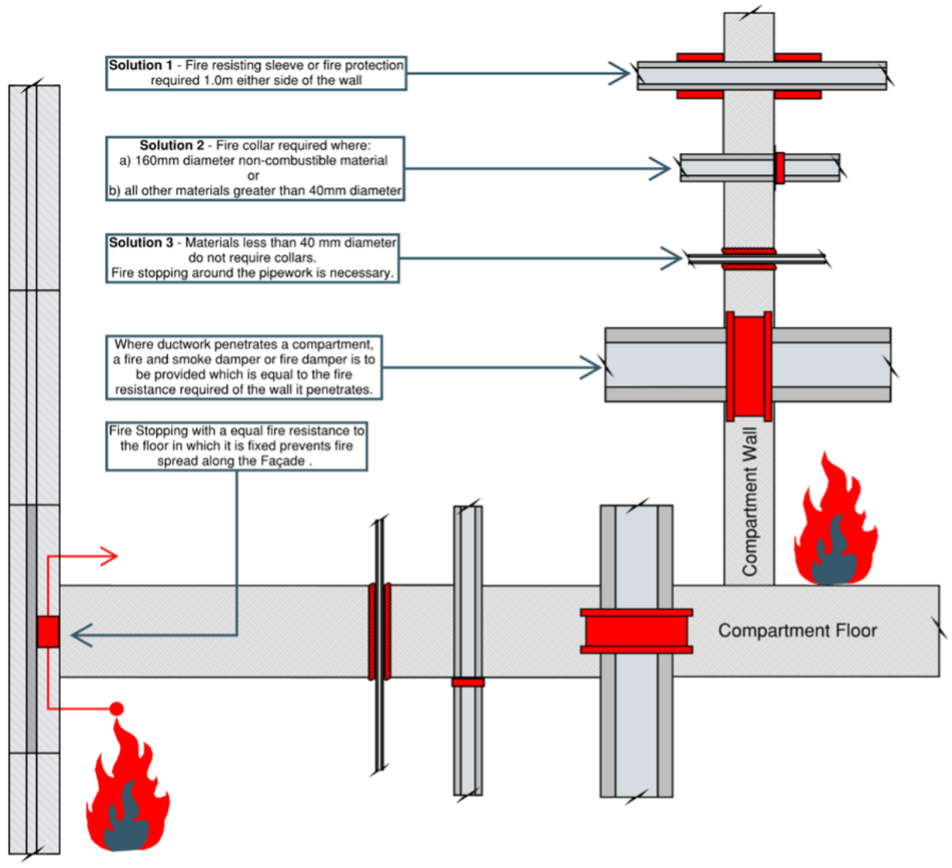
All fire doors should have the specified fire resistance shown on the adjacent drawings and on the provided door schedule by the architect. The fire doors have been specified in accordance with Approved Document B – Volume 1: Dwellings and BS 9991.

Table 5.3.2 – Fire Rated Doors Requirements

Fire rated partition fire performance (minutes)	Minimum fire performance of door (minutes & smoke
FR partition – 60 minutes (within main circulation / stairs)	FD30S
Main apartment's doors	FD30S
FR partition – 30 minutes (internal lobbies)	FD30
Refuse Store	FD60S
Plant Rooms	FD60S
Risers	FD60S

5.5 Cavity Barriers & Fire-stopping

Openings in any fire separating element (e.g. compartment walls, cavity barriers, protected corridor etc) should be protected with appropriate fire stopping or sealing to ensure that the fire resistance of the element is not compromised.
The provision of any such protection should meet the general recommendations of Clause 32.5.9 & 33 of BS9999.



Where appropriate, suitable provisions should be made to prevent the unseen spread of fire and smoke through cavities or concealed spaces (i.e. ceiling and floor voids) by the use of cavity barriers.

Where ductwork, or ductwork enclosures, pass through fire-resisting elements of construction, any gap should be adequately fire-stopped for the full thickness of the enclosure, so that the level of fire resistance of the joint is not less than that of the fire-resisting element.

The choice of fire-stopping method and material should take into account longitudinal movement of the ductwork caused by the effects of the fire.

Thermally-activated automatic fire dampers (e.g. fusible link) should be fitted to all ductwork where it passes though compartment walls and floors.

Furthermore, Section 33.4.2 of BS9999 makes the following recommendations with regards to ductwork systems:

- Ventilation ducts, and their associated plant, supplying or extracting air directly to or from a protected escape route, should not also serve other areas. A separate ventilation system should be provided for each protected stairway.
- Where a ductwork system serves more than one part of a compartmented or fire separated protected escape route, smoke detector operated fire dampers should be provided where ductwork enters each fire separated or smoke separated section of the escape route.
- The smoke detector operated fire dampers should be caused to close if smoke is detected.
- Any ductwork passing through an accommodation space should be fire-resisting (i.e. fire-resisting ductwork or ductwork enclosed in fire-resisting material).

Pipes that pass through a compartment wall or compartment floor (unless the pipe is in a protected shaft), or through a cavity barrier, should be either:
a) for pipes of any diameter, provided with a proprietary seal that has been tested in accordance with BS 476-20, BS 476-21 and BS 476-22 or BS EN 1366-3 and shown by test to maintain the fire resistance of the wall, floor or cavity barrier; or
b) for pipes with a restricted diameter, provided with fire-stopping around the pipe keeping the opening as small as possible. The nominal interior diameter of the pipe should be not more than the relevant dimensions given in Table 31. The diameters given in Table 31 for pipes of material b) used in situation 2) assume that the pipes are part of an above-ground drainage system and are enclosed as shown in Figure 34. If they are not, the smaller diameter given in situation 3) should be used.

Where more than two small (<40 mm) service penetrations occur within 40 mm. of each other, they should either be treated as a single penetration and a suitable proprietary seal should be used to protect the combined opening area as described in a) above, or each be individually fire-stopped with a suitable proprietary seal as described in a) above.

Special attention should be brought to the penetration of plastic SVP pipes through the roof level. If the roof will be provided with combustible insulation, any penetration through the roof substrate should be provided with fire rated lining / fire stopping such that fire spread through the roof substrate is prevented. The plastic SVP pipes are to be provided with the proprietary fire stopping method despite any roof areas that might not be fire rated.

6 FIRE STOPPING DETAILS

Functional Requirements

The concept of compartmentation means that buildings are divided up into manageable areas of risk to prevent the spread of smoke and fire, to allow occupants to escape and to provide access for fire fighters. Compartmentation only works if any imperfections in the building or breaches to walls or floors e.g. by services are adequately sealed. Such a process is generically known as fire-stopping and different types are required throughout buildings in a variety of locations including:

- *Penetration seals – where services pass through fire separating elements and/or compartment walls or floors*
- *Linear joint seals – between fire resisting elements of building construction e.g. the junction between a wall and a ceiling*
- *Small cavity barriers – at imperfections in the building process e.g. at the junctions of walls/floors with cladding, between separating walls and a roof, over and between leaves of masonry walls etc.*
- *Large cavity barriers – e.g. to subdivide large roof spaces, under floor voids etc.*
- *Open state cavity barriers – between elements of a building and e.g. rain screen cladding where the cavity barrier is open in the cold state to allow for the free movement of air for ventilation. In a fire situation, the cavity barrier closes preventing the spread of fire.*

Please note that all the proprietary fire stopping provided should be designed, installed and certified by a fire stopping specialist contractor as it is a CDP item (Contractors' Design Portion).

6.1 Penetration seals

6.1.1 Coated stone wool batts/boards

Coated stone wool batts can be used to fire-stop penetrations through compartment walls and floors and allow additional services to be readily installed as required. In certain circumstances, a structural support for the seal may be required – in accordance with the manufacturers' recommendations.

Coated stone wool batts can be installed as pre-formed shapes or as standard batts for tailoring to fit openings. Batts can be friction fitted to the clean and dust free sides of the opening and around the penetrating services. A 'fire resistant' sealant that has been tested with the batt as part of a system is generally applied to all joints and to the raw edges of the slab. Some systems may require secondary support. This will vary from manufacturer to manufacturer.

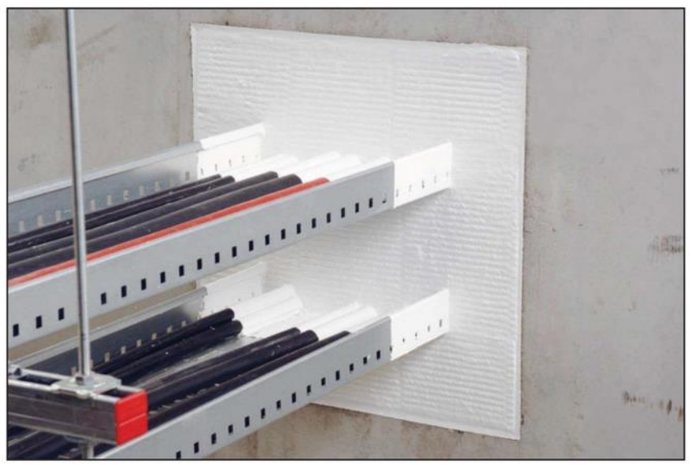


Figure 1 - Coated batt used for a vertical penetration seal

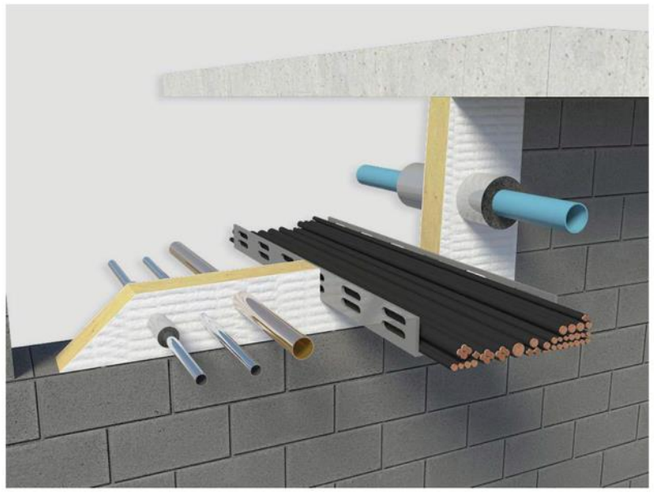


Figure 2 - Coated batt used for a vertical penetration seal

6.1.2 Sealant/mastic coatings

They may be used to seal around any penetrating services where testing indicates their suitability. They are also suitable when used in conjunction with coated batts/boards in all forms of fire-resistant construction, where openings are small, where penetrations are complex and where there is imperfection of fit between building elements. When used in linear joints where movement is expected, a sealant with the ability to accommodate the movement of the joint should be used so that a seal is maintained in service and during fire conditions. The movement capability should be assessed against ISO 11600 and fire resistance tested to EN 1366-4.

Use of mastic guns or trowels is common, although for floor penetrations some materials can be poured using temporary or permanent damming boards and in some cases spray applied on site. Dusty/friable surfaces may need additional treatment prior to the application of the sealant/mastic – refer to manufacturer's instructions.

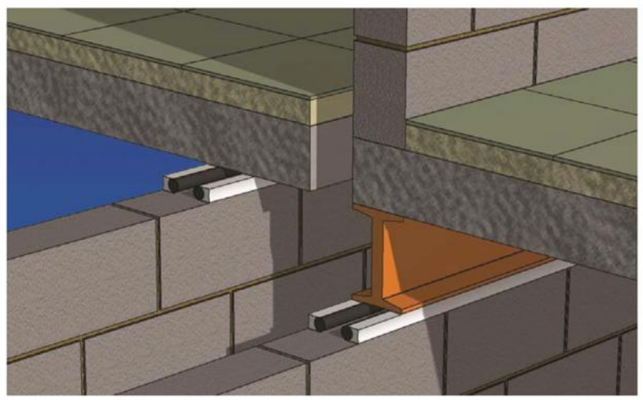


Figure 3 - Sealant/mastic used to seal joints between a masonry wall and steel beam and between a masonry wall and a concrete soffit

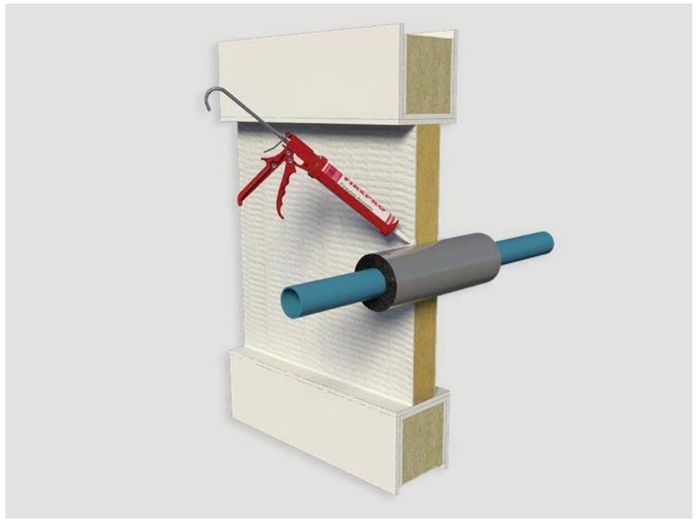


Figure 4 - Sealant for a vertical penetration seal

6.1.3 Pipe closures

Pipe closures are designed to preserve the integrity of a fire resistant compartment where various cross link plastic pipes (PEX), plastic pipes, plastic trunking, steel pipes with insulation or plastic pipes with insulation pass through floors or walls. Unlike metal or cable service penetrations, these service penetrations soften and collapse under heating, therefore some means of preventing the passage of fire is required. This is achieved by crushing the cross-section of the pipe or trunking.

There are variations in design of pipe closures. The three principal methods of pipe closure are pipe collars, pipe wraps and high pressure exerting sealants. All systems confine an intumescent compound which expands on exposure to fire, rapidly exerting pressure upon the pipe or, in some cases, insulation. The service penetrations, which will have softened due to the heat, collapse under this pressure creating a constriction. Some pipe closures incorporate a mechanical device which may or may not include an intumescent compound. Pipe collars incorporate an outer casing which acts as a restraint for the intumescent material, enabling the collar to be either surface fixed to the separating element or incorporated within it. Pipe wraps have no casing and hence must be located within the separating element, which acts as a restraint for the intumescent. High pressure exerting sealant is installed to a prescribed annular gap to a predetermined depth between the service penetration and the constructing element.

Pipe collars, pipe wraps and high pressure exerting sealants can be used where plastic pipes (PEX), plastic pipes, plastic trunking, steel pipes with insulation or plastic pipes with insulation pass through fire resistant elements such as floors or walls.

Figure 5 - Pipe closure used around plastic pipes passing through a wall

Figure 6 - Pipe collar used at soffit of concrete floor and against masonry walls

6.1.4 Plugs / Blocks

Plugs/blocks to fit around cables and pipes are formed from materials such as bonded vermiculite, mineral wool, gypsum or cementitious materials, polyurethane, modified rubber, etc. They can be rigid or flexible.

Some fire-stopping plugs/blocks are inherently fire resistant, some rely on an intumescent coating, and some are manufactured using intumescent materials. Fire-stopping plugs/blocks are available in a variety of shapes and sizes. They are generally supplied as rectangular blocks for rectangular penetrations or cylindrical/conical for circular penetrations. Pre-formed trapezoidal plugs/blocks are available for sealing openings below profiled metal decking.

Plugs/blocks can be used for a wide variety of fire-stopping requirements. They can be used individually in small penetrations or in multiple layers for larger openings.

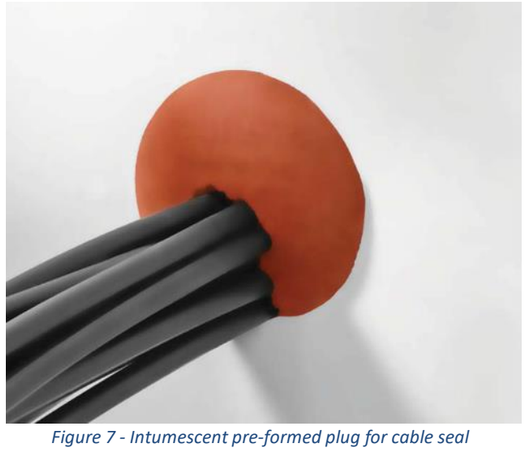


Figure 7 - Intumescent pre-formed plug for cable seal

Figure 8 - Intumescent blocks in a service penetration through a wall

6.1.5 Cables transits and sleeves

These are preformed firestopping units that can easily facilitate the removal, replacement and addition of cables at any future point. Some of these systems are made in such a way that they have explosion and blast resistance properties as well as high water table resistance.

In walls or floors where cables have to be moved, changed or replaced on a regular basis without disturbing or damaging the fire resistant properties of the fire-stop seal and therefore the building element. They are particularly invaluable in active working environments where shut downs to replace and reinstate traditional fire-stop would be inconvenient and disruptive.

Figure 9 - Examples of firestopping cable sleeve and transit

6.1.6 Duct and Damper penetration sealing system

The fire performance of fire resisting and smoke extraction ducts and fire or smoke control damper systems and their associated penetration seals is determined by fire tests particular to those products, not to EN 1366-3 (penetration seals fire test). These fire tests include a specified fire-stopping system and significant provisions for supporting the duct or damper being tested. These should not be replaced by other systems in practice, unless additional information justifies the change. Penetration sealing systems for cables and pipes are not suitable for ducts and dampers unless proven by test. The applicable fire tests are BS 476: Part 24 for fire resisting and smoke extraction duct and EN 1366, Fire resistance tests for service installations:

— Part 1: Ventilation ducts;
— Part 2: Fire dampers;
— Part 5: Service ducts and shafts
— Part 8: Smoke extraction ducts
— Part 9: Single compartment smoke extraction ducts
— Part 10: Smoke control dampers
— Part 12: Non-mechanical fire barriers

It should also be noted that to satisfy both criteria for fire resistance (integrity and insulation) ductwork needs to be insulated to prevent heat transmission through the fire-stop seal.

It is important that the dampers are appropriately supported and restrained back to the building element or adjacent structure through which it penetrates in a manner that maintains the support and restraint function in a fire condition. Dampers must also be in line with the building element unless the manufacturer has test data to the relevant part of EN 1366 that permits an ‘out of line’ installation.

Figure 10 - Fire damper fitted with expansion frame being sealed in floor opening with fire rated mortar

Mixed penetrations (ducts, dampers, pipes and cables in the same opening) should also be avoided wherever possible. It is known that heat from a duct penetration and movement due to expansion adversely affects the fire resistance of other services. The method of testing for ductwork is to a different standard than that for other service penetrations. Therefore, a mixed penetration cannot be validated by test in the strict sense of the term. In the event of a mixed penetration, advice and design of a suitable seal should be sought from a UKAS accredited laboratory.

7 FIRE SERVICE ACCESS AND FACILITIES

Functional Requirements

The building shall be designed and constructed so as to provide reasonable facilities to assist fire fighters in the protection of life. Reasonable provision shall be made within the site of the building to enable fire appliances to gain access to the building.

7.1 Fire Access

Fire service can access the site from the Tottenham Mews Street. The Fire vehicle reversing distances should be a maximum of 20m otherwise a turning provision is needed. The vehicle access to the property is required to have a clear width of at least 3.1m, whilst the road between kerbs is required to have a minimum width of 3.7m to comply with the guidance recommendations for fire-fighting vehicle access.

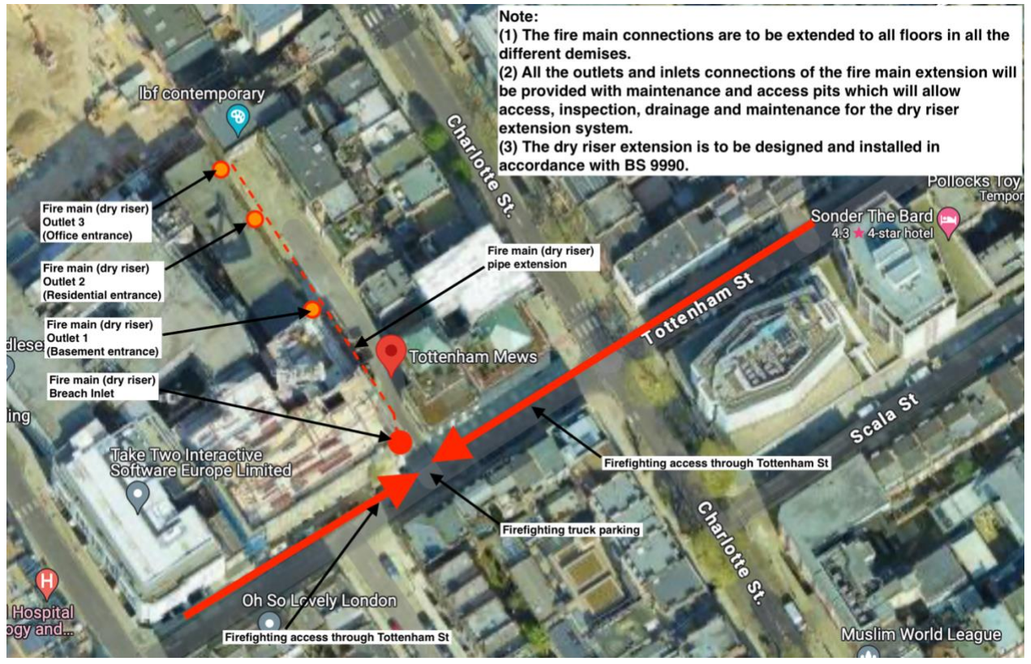
The route for fire vehicles needs to be hard-standing, capable of withstanding the carrying capacity of a fire vehicle. In London this would be 14 tonnes for a pump appliance and 23 tonnes for a high reach appliance. For the new terraced houses and block of flats building, the provided access for a high-reach pump appliance will be sufficient.

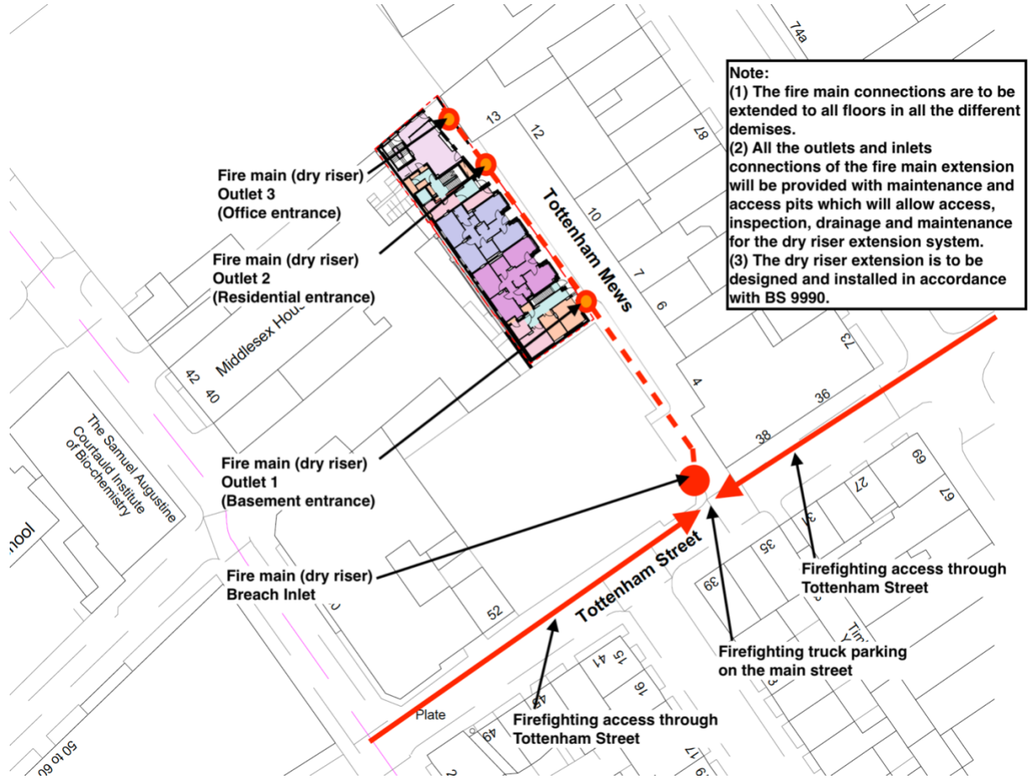
Table 20 **Example of measurements for a typical vehicle access route**

Appliance type	Min. width of road between kerbs	Min. width of gateways	Min. turning circle between kerbs	Min. turning circle between walls	Min. clearance height	Min. carrying capacity
	m	m	m	m	m	t
Pump	3.7	3.1	16.8	19.2	3.7	12.5
High-reach [A)]	3.7	3.1	26.0	29.0	4.0	17.0

[A)] Because the weight of high-reach appliances is distributed over a number of axles, their infrequent use of a carriageway or route designed to 12.5 t is not likely to cause damage. It would therefore be reasonable to design the road base to 12.5 t, although structures such as bridges should have the full 17 t capacity.

As the access to the building is not provided with turning facilities and the access road is longer than 20m, the firefighting tender truck will not be able to drive to the building. Therefore, it is proposed that a dry riser extension will be provided to facilitate the fire intervention of the Fire Brigade. The extension of the dry riser will be provided with a breach inlet on Tottenham Street and one outlet will be extended to the office demise (for both Ground Floor and Basement levels) and one outlet will be extended to the residential stair core, which will have an outlet at every floor including the Ground Floor and Basement levels.





7.2 Ventilation – residential block

The residential block has a total height greater than 11m, but does not exceed 18m, therefore, the protected lobby which makes access from the staircase to the apartments, will be provided with smoke control ventilation.

The smoke control ventilation can be provided as a natural smoke shaft system, a mechanical smoke exhaust system or a pressure differential system.

Natural smoke shafts situated above ground

The natural smoke shafts situated above ground should be designed and installed in accordance with BS 9991, as follows:

a) The smoke shaft should be fully open to the external air at the top and closed at the base.
b) The opening at the top of the smoke shaft should be located at least 0.5 m above any surrounding structures that fall within a 2 m radius on a horizontal plane so that it is not subject to adverse wind effects (i.e. it should always have negative wind pressure coefficients).
c) The shaft should extend a minimum length of 2.5 m above the ceiling of the highest storey which is served by the shaft.
d) The cross-sectional area (free area) of the smoke shaft should be at least 1.5 m2, with a minimum dimension of 0.85 m in any direction.
e) The lobby or corridor vent, the opening at the head of the shaft and all internal locations (such as safety grilles) within the shaft should have a free area of at least 1.0 m2.
f) The top of the lobby or corridor vent should be located as close to the ceiling of the lobby or corridor as is practicable, and should be at least as high as the top of the door connecting the lobby or corridor to the stairwell.
g) The lobby or corridor vents, in the closed position, should have a minimum fire and smoke resistance performance of 30 min and integrity (leakage) no greater than 360 m3/h/m2 when tested in accordance with BS EN 1366-2.
h) The smoke shaft should be constructed either of non-combustible materials conforming to BS 476-4 or of any material which, when tested in accordance with BS 476-11, does not flame or cause any rise in the temperature on either the centre of the specimen or the furnace thermocouples. The smoke shaft should run vertically from top to bottom with no more than 4 m of the shaft at an inclined angle (max 30°).
i) No services other than those relating to the smoke shaft should be contained within the smoke shaft.
j) The smoke shaft should be located at the remote end of the corridor away from the staircase.

Mechanical smoke ventilation systems

Where a mechanical smoke ventilation system uses a shaft, it should be in accordance with points a), f), g), i) and j) outlined above.

A mechanical smoke ventilation system should demonstrate conditions in the lobby or corridor and stairs that are equivalent to or better than the natural ventilation system that it replaces.

NOTE 1 This is usually shown by a comparative computational fluid dynamics analysis.

The design of the mechanical smoke ventilation system should limit pressure differentials so that door opening forces do not exceed 100 N at the door handle when the system is in operation.

A secondary power supply should be provided to the fans and all actuators and controls.

For the proposed design intent, it is proposed to provide AOV's at the top of the main protected staircase. The AOV should have a minimum free area of $1m^2$.

7.3 Ventilation – Basement Level

A combination of natural smoke outlets and a mechanical smoke ventilation system is proposed for the basement level that is 3.15m deep.

The outlets will connect directly to open air and be distributed along the east side of the building. They will provide a combined clear cross-sectional area of at least 2.5% of the area of each floor they serve.

All plant rooms and ancillary accommodation will be provided with natural smoke ventilation outlets designed and installed in accordance with the recommendations of BS 9999 and BS 9991.

Concerns have been raised by the design team in relation to offering natural smoke control for the basement level. Therefore, it is to be noted that all the other rooms from the basement (including the corridor) will then have to be provided with a mechanical smoke control system which will achieve 10ACH for each zone / fire compartment.

For the office, a mechanical smoke ventilation system is proposed.

In accordance with BS 9999, A system of powered smoke and heat ventilation may be provided as an alternative to natural venting, to remove smoke and heat from basements, provided that the basement storey(s) are fitted with a sprinkler system.

The sprinkler system should be in accordance with BS EN 12845 (new systems) or BS 5306-2 (existing systems) [it is not necessary in this particular case to install sprinklers on the storeys other than the basement(s) unless they are needed for other reasons].
If a powered extract system is used, it should:
a) provide ten air changes per hour;
b) be capable of handling gas temperatures of 300 °C for not less than 60 min;
c) come into operation automatically either on activation of the sprinkler system or by an automatic fire detection system conforming to BS 5839-1:2013 (at least L3 standard).
NOTE For further guidance refer to BS EN 12101-3.

In addition:
1) replacement air should be provided and open automatically, using the same activation method as that selected in 27.2.3c);
2) the system should have an independent power supply which would operate in the event of failure of the main supply;
3) the ductwork should be a fire-resisting duct system (Method 2 or Method 3; see 32.5.2) maintaining at least 75% of the cross-sectional area of the duct.
The fire resistance should be not less than 60 min or equivalent to the fire resistance rating of any compartment boundary through which it passes, whichever is the greater;
4) all wiring associated with the fans should be in accordance with BS 8519.

7.4 Automatic Fire Sprinklers

The block of flats is proposed to be provided with an automatic fire sprinklers system in order to comply with the requirements imposed by ADB 2020 Addendum for residential buildings with a floor 11m above ground, even thought the height of the building does not exceed 11m.

The sprinkler system will be installed in accordance with BS 9251:2021.

A minimum of category 3 automatic sprinkler system will be required to be provided to the entire development serving the residential demise and the ancillary accommodation.

For the office demise, a commercial sprinkler system will be provided in accordance with BS 12845.

An Ordinary Hazard1 (OHI) category is proposed for the office demise in accordance with BS 12845.

It is likely that the office sprinkler system may be fed directly off the town main subject to a Thames Water application and adequate readings of flow and pressure.

If the town main provides inadequate flow or pressure, however, the following measures would be required:
- Inadequate pressure – A pump could be installed on the main with the permission of Thames Water;
- Inadequate flow rate – Pumps and tank (capacity needed: 55m3 minus the volume of water provided by the town main in 60 minutes (to a minimum of 10m3)) installed in accordance with BS EN 12845.

7.5 Dry Riser

To provide adequate hose coverage, a fire main will be required to be provided in the core of the residential development.

A dry riser extension will be required to cover the residential demise, the ancillary accommodation and the office demise, with multiple outlets at at the main entrances, as well as internal outlets at every floor.

All areas of the building should be within 45 m from an FRS vehicle parking position or within 45 m of a dry riser outlet in a protected stair. To achieve this requirement, a dry riser will be installed in the protected stair. The breach inlet for the dry riser extension will be fitted with an inlet point directly visible and within 18 m from the parking position on the street.

A dry riser inlet should be provided close to the face of the residential building and a dry riser outlet should be provided on every floor in the protected stair. All areas in the apartments are within hose cover limits of 60m. The architectural layouts have been measured and the hose lengths are below 45m including the balconies.

The dry riser (fire main) will be designed and installed in accordance with BS 9990 as a CDP (Contractor's Design Portion) item.

7.6 Hydrants

Hydrants will be required in the vicinity of the building to support firefighting operations. Section 51.2 of BS 9991 recommends that a fire hydrant should be provided to within 90 m of the fire main inlet.

The location and functionality on an existing hydrant needs to be confirmed by the contractors team.

7.7 Secure information boxes

A secure information box provides a secure facility to store information about a building for use by the fire service during an incident.

Blocks of flats (purpose group 1(a)) with a top storey more than 11m above ground level should be provided with a secure information box.

NOTE: Consideration should also be given to other buildings with large, complex or uncommon layouts where the provision of a secure information box may be beneficial.

The box should meet all of the following conditions.

a. Sized to accommodate all necessary information.

b. Easily located and identified by firefighters.

c. Secured to resist unauthorised access but readily accessible by firefighters.

d. Protected from the weather.

Best practice guidance can be found in Sections 2 to 4 of the Code of Practice for the Provision of Premises Information Boxes in Residential Buildings published by the Fire Industry Association (FIA).

APPENDIX A – RISK PROFILES

INTRODUCTION

As previously discussed, it is proposed that, in order to satisfy the Building Regulations the guidance of BS 9999 *Code of practice for fire safety in the design, management and use of buildings* and BS9991: *Code of practice for fire safety in the design, management and use of residential buildings,* shall be used.

BS9999 and BS 9991 utilise a risk based approach, which is designed to allow a bespoke fire "Risk Profile" to be assigned to the building. This approach also takes into account additional fire safety features, (both passive and active) that are to be incorporated into the building.

RISK PROFILES

In order to determine the level of protection for a building using BS9991, a risk profile is created. A risk profile consists of two parts:

1. Occupancy Characteristic, and,
2. Fire Growth Rate.

Occupancy Characteristic

The occupancy factor assigned to a building is determined on a combination of whether the occupants are familiar or unfamiliar with the building and whether they are awake or asleep. Occupancy characteristics are summarised in Table A.1 below.

Table A.1 – Occupancy characteristics

Occupancy Characteristic	Description
A	Occupants who are awake and familiar with the building
B	Occupants who are awake and unfamiliar with the building
C	Occupants who are likely to be asleep
D	Occupants receiving medical care
E	Occupants in transit

Fire Growth Rate

The fire growth rate is an estimated rate at which a fire within the accommodation would develop. It should be noted that the growth rate assigned is not necessarily a reflection of the fire load, but more of the type of fire load present.

Table A.2 – Fire growth rate

Category	Fire Growth Rate
1	Slow
2	Medium
3	Fast
4	Ultra-fast

Overall Risk Profiles

The final risk profile assigned to a building is a combination of both the occupancy characteristic and the fire growth factor.

Residential Accommodation

It is considered that the residential occupants will be likely to be asleep however and familiar with the building; hence an occupancy characteristic of 'C' has been assigned.

Residential accommodation is typically classed as a 'medium' fire growth rate. Therefore, the residential upper floors are to be classified with a C2 risk profile in accordance with BS 9999 and BS 9991.

Due to the provision with automatic fire sprinklers, the risk profile will be upgraded to C1.

Office Accommodation

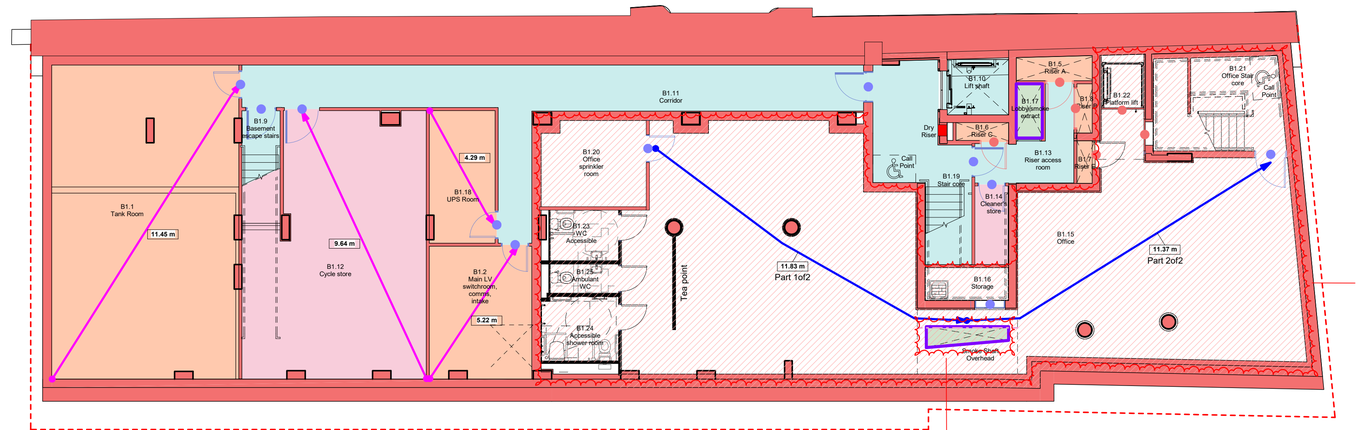
It is considered that the residential occupants will be likely to be awake and familiar with the building; hence an occupancy characteristic of 'A' has been assigned.

Residential accommodation is typically classed as a 'medium' fire growth rate. Therefore, the residential upper floors are to be classified with a A2 risk profile in accordance with BS 9999 and BS 9991.

Due to the provision with automatic fire sprinklers, the risk profile will be upgraded to A1.

APPENDIX B – COMPARTMENTATION & MEANS OF ESCAPE SCHEMATICS

APPENDIX C – EXTERNAL FIRE SPREAD CALCULATIONS



1 Fire Diagram - Basement Floor
1 : 100

C02
Abeyance Item L

C02
Abeyance Item J

Awaiting revised report further to receipt of LFB comments

Awaiting confirmation from Fire Engineer

Department Legend

- Circulation
- Communal
- Office
- Plant

ITEMS / AREAS IN ABEYANCE :
A/B. Access deck balustrade and screens
C. Cleaning and Maintenance strategy
D. Bedford Passage + Ext. Landscaping
E. Junction with UCLH (design and levels)
F. Ground Floor North Elevation
G. ~~L05 Canopy and extents of Blue Roof~~
H. Internal blockwork thickness
i. External wall build-ups to RC shear walls
J. Office (finishes / specification)
K. L05 slab level + terrace threshold detail
L. Mechanical Ventilation shaft and AOV
M. Awaiting NMA decision
N. Waste Management strategy
O. Fire stopping between plant and terrace

General Notes:

To be read in conjunction with Architect's, Structural, and MEP Engineer's drawn and specified information.

Proposals shown subject to review and development through specialist subcontractor design development process.

Requirements are based on Magnus Opifex's Fire Strategy Stage 4 Report dated 230523, revision 01. Please refer to report and drawings for full strategy.

Key - Fire Requirements

Walls

- 60 min. fire compartmentation
- 30 min. fire compartmentation
- N/A

Doors

- FR60S
- FR30S
- FR60
- FR30

Distances

- XXXX — Min. Distance (from boundary, or between two unprotected areas from two demises)
- Final Exit
- Smoke Shaft

Travel Distances

- Within a Flat: <9m [permitted]
- Office Accomodation: <29.9m single direction [permitted]
- Plant: <XXm TBC by Fire Engineer

Revisions

Rev. no.	Date	Description
C01	09/08/2023	For Comment
C02	07/12/2023	For Information (GAs)

1:100 0m 1m 2m 5m

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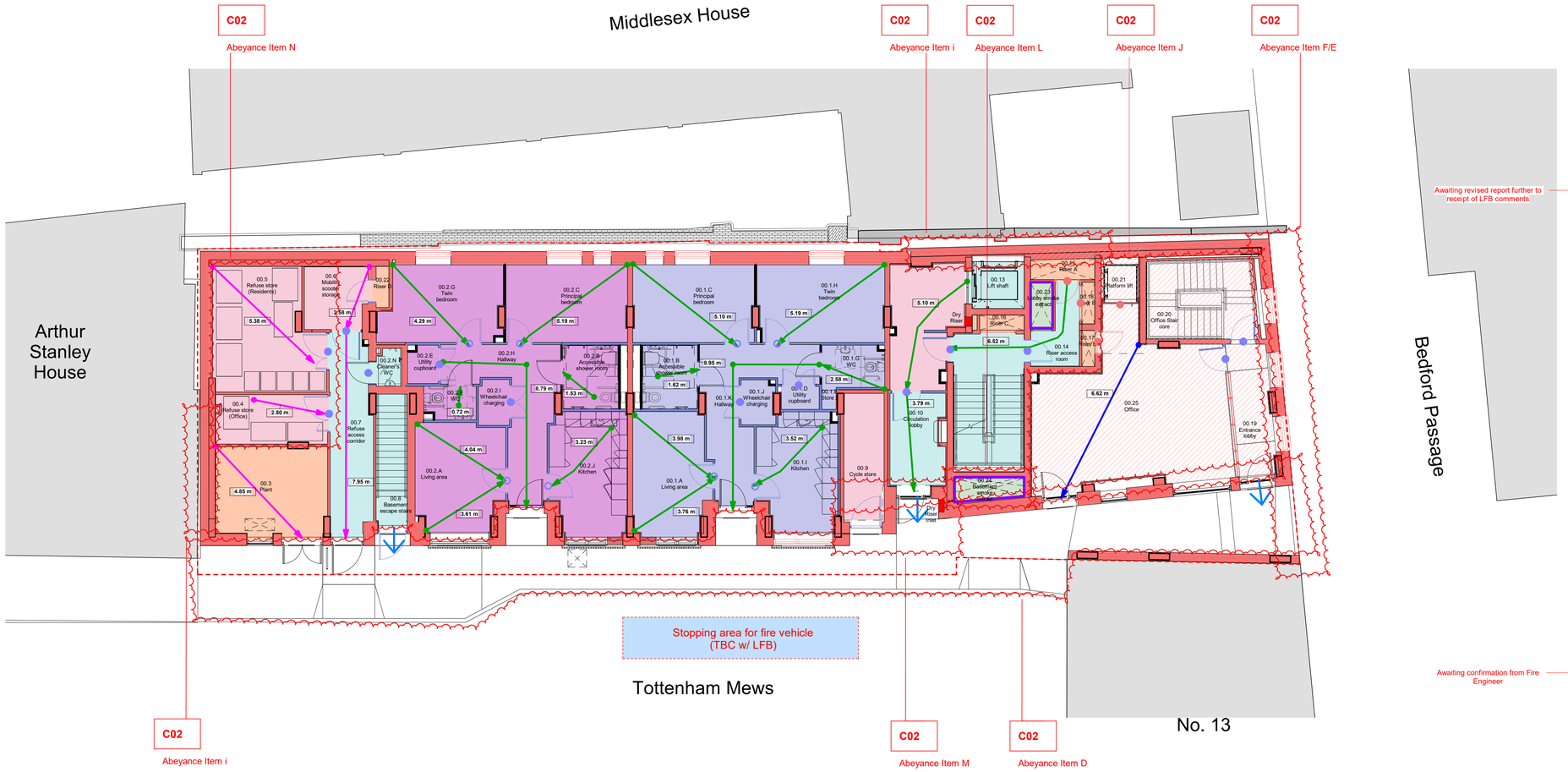
Drawing Number	Rev.	Status
2960-CVA-TM-B1-DR-A-11101	C02	

14-19 Tottenham Mews

Fire Diagram Basement Floor

Drawn by:	MS	Checked by:	RC	Date:
Scale:	1 : 100	Size:	A1	07/12/2023



1 Fire Diagram - Ground Floor

1 : 100

ITEMS / AREAS IN ABEYANCE :
A/B. Access deck balustrade and screens
C. Cleaning and Maintenance strategy
D. Bedford Passage + Ext. Landscaping
E. Junction with UCLH (design and levels)
F. Ground Floor North Elevation
G. ~~L05 Canopy and extents of Blue Roof~~
H. Internal blockwork thickness
i. External wall build-ups to RC shear walls
J. Office (finishes / specification)
K. L05 slab level + terrace threshold detail
L. Mechanical Ventilation shaft and AOV
M. Awaiting NMA decision
N. Waste Management strategy
O. Fire stopping between plant and terrace

Department Legend

- Circulation
- Communal
- Flat 00.1 (2b4p)
- Flat 00.2 (2b4p)
- Office
- Plant

General Notes:

To be read in conjunction with Architect's, Structural, and MEP Engineer's drawn and specified information.

Proposals shown subject to review and development through specialist subcontractor design development process.

Requirements are based on Magnus Opifex's Fire Strategy Stage 4 Report dated 230523, revision 01. Please refer to report and drawings for full strategy.

Key - Fire Requirements

Walls

- 60 min. fire compartmentation
- 30 min. fire compartmentation
- N/A

Doors

- FR60S
- FR30S
- FR60
- FR30

Distances

- XXXX — Min. Distance (from boundary, or between two unprotected areas from two demises)
- Final Exit
- Smoke Shaft

Travel Distances

- Within a Flat: <9m [permitted]
- Office Accomodation: <29.9m single direction [permitted]
- Plant: <XXm TBC by Fire Engineer

Revisions

Rev. no.	Date	Description
C01	09/08/2023	For Comment
C02	07/12/2023	For Information (GAs)

1:100 0m 1m 2m 5m

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14-19 Tottenham Mews

Fire Diagram Ground Floor

Drawn by:	MS	Checked by:	RC	Date:
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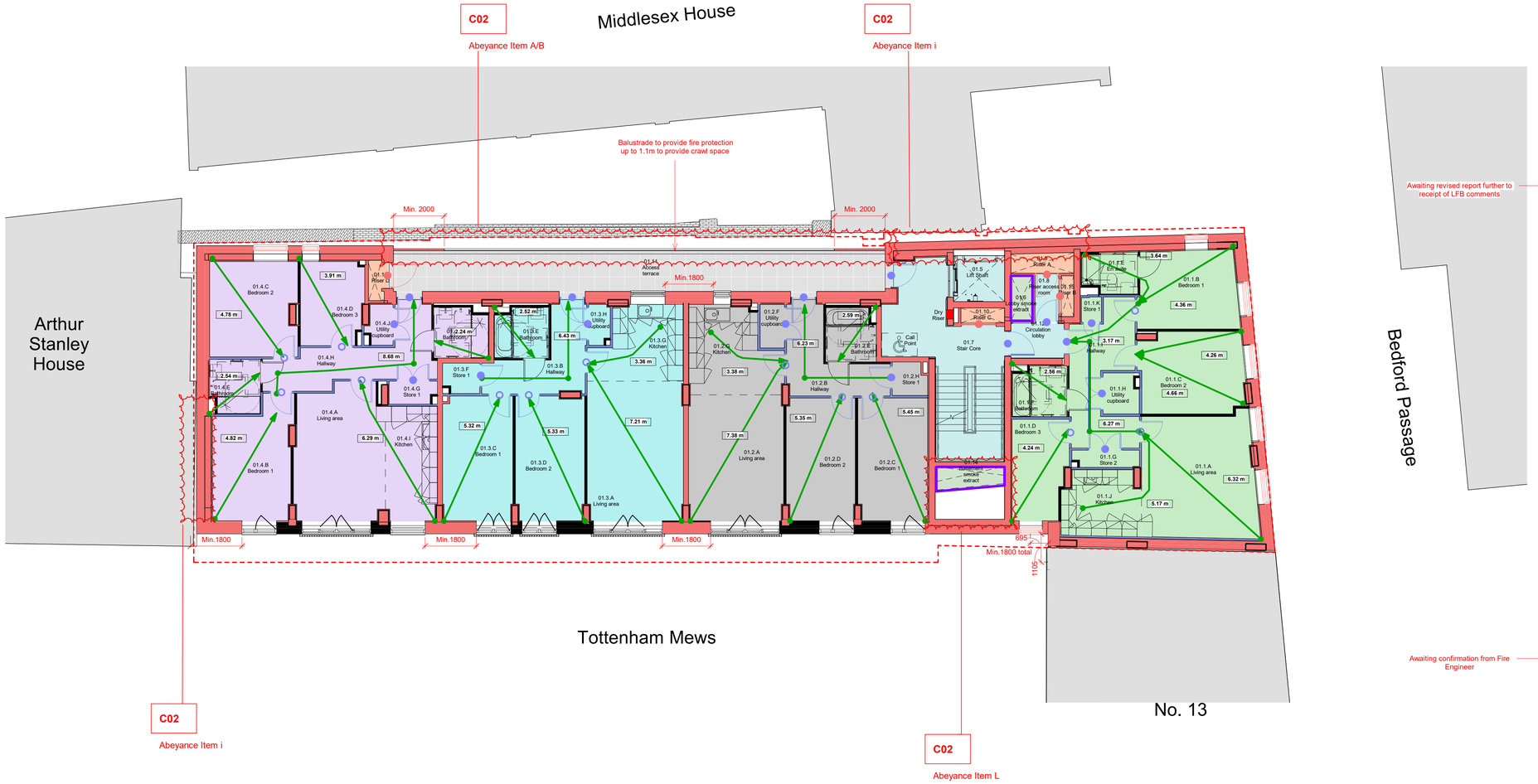

1 Fire Diagram - First Floor

1 : 100

ITEMS / AREAS IN ABEYANCE :
A/B. Access deck balustrade and screens
C. Cleaning and Maintenance strategy
D. Bedford Passage + Ext. Landscaping
E. Junction with UCLH (design and levels)
F. Ground Floor North Elevation
G. ~~L05 Canopy and extents of Blue Roof~~
H. Internal blockwork thickness
i. External wall build-ups to RC shear walls
J. Office (finishes / specification)
K. L05 slab level + terrace threshold detail
L. Mechanical Ventilation shaft and AOV
M. Awaiting NMA decision
N. Waste Management strategy
O. Fire stopping between plant and terrace

Department Legend

- Circulation
- External communal
- Flat 01.1 (3b5p)
- Flat 01.2 (2b4p)
- Flat 01.3 (2b4p)
- Flat 01.4 (3b5p)
- Plant

General Notes:

To be read in conjunction with Architect's, Structural, and MEP Engineer's drawn and specified information.

Proposals shown subject to review and development through specialist subcontractor design development process.

Requirements are based on Magnus Opifex's Fire Strategy Stage 4 Report dated 230523, revision 01. Please refer to report and drawings for full strategy.

Key - Fire Requirements

Walls

- 60 min. fire compartmentation
- 30 min. fire compartmentation
- N/A

Doors

- FR60S
- FR30S
- FR60
- FR30

Distances

- XXXX — Min. Distance (from boundary, or between two unprotected areas from two demises)
- Final Exit
- Smoke Shaft

Travel Distances

- Within a Flat: <9m [permitted]
- Office Accomodation: <29.9m single direction [permitted]
- Plant: <XXm TBC by Fire Engineer

Revisions

Rev. no.	Date	Description
C01	09/08/2023	For Comment
C02	07/12/2023	For Information (GAs)

1:100 0m 1m 2m 5m

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14-19 Tottenham Mews

Fire Diagram First Floor

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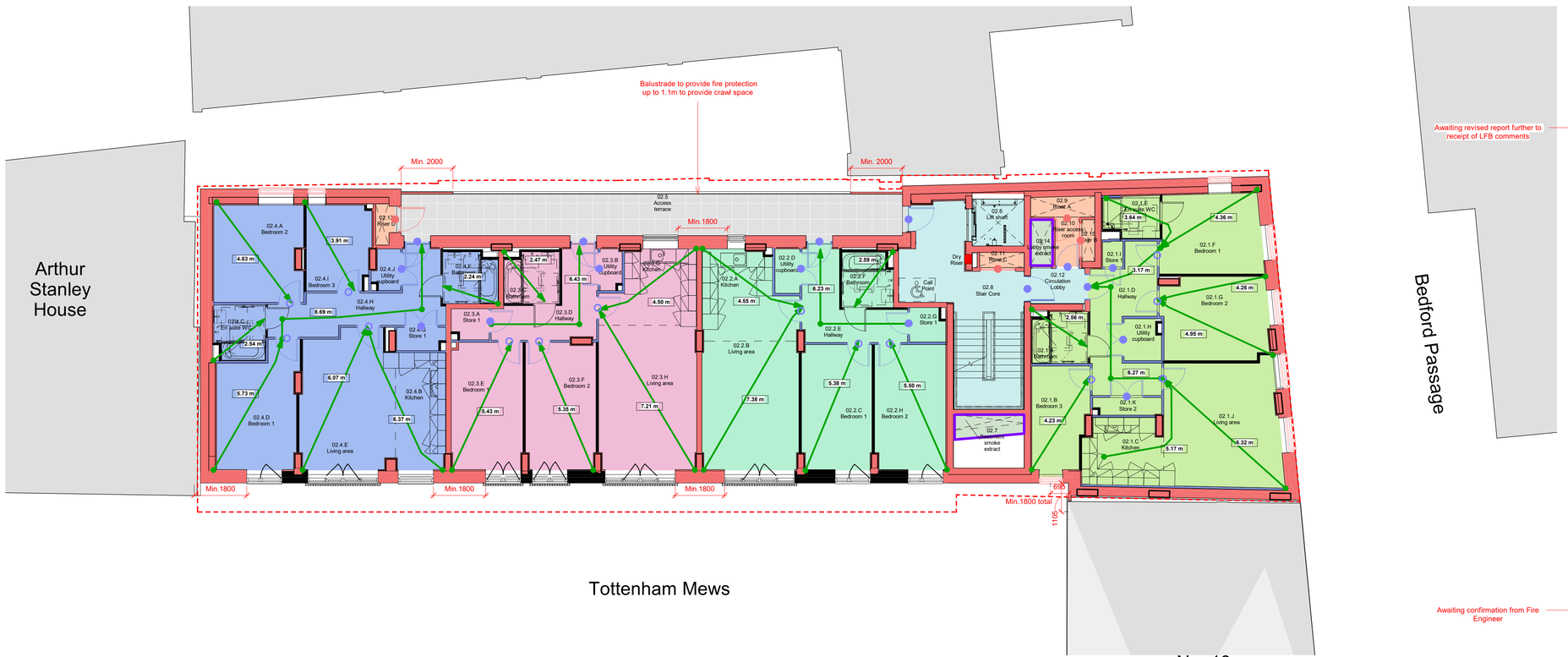

Awaiting revised report further to receipt of LFB comments

Awaiting confirmation from Fire Engineer

1 Fire Diagram - Second Floor

1 : 100

Department Legend

- Circulation
- External communal
- Flat 02.1 (3b5p)
- Flat 02.2 (2b4p)
- Flat 02.3 (2b4p)
- Flat 02.4 (3b5p)
- Plant

ITEMS / AREAS IN ABEYANCE :

A/B. Access deck balustrade and screens
C. Cleaning and Maintenance strategy
D. Bedford Passage + Ext. Landscaping
E. Junction with UCLH (design and levels)
F. Ground Floor North Elevation
G. ~~L05 Canopy and extents of Blue Roof~~
H. Internal blockwork thickness
i. External wall build-ups to RC shear walls
J. Office (finishes / specification)
K. L05 slab level + terrace threshold detail
L. Mechanical Ventilation shaft and AOV
M. Awaiting NMA decision
N. Waste Management strategy
O. Fire stopping between plant and terrace

General Notes:

To be read in conjunction with Architect's, Structural, and MEP Engineer's drawn and specified information.

Proposals shown subject to review and development through specialist subcontractor design development process.

Requirements are based on Magnus Opifex's Fire Strategy Stage 4 Report dated 230523, revision 01. Please refer to report and drawings for full strategy.

Key - Fire Requirements

Walls

- 60 min. fire compartmentation
- 30 min. fire compartmentation
- N/A

Doors

- FR60S
- FR30S
- FR60
- FR30

Distances

- XXXX — Min. Distance (from boundary, or between two unprotected areas from two demises)
- Final Exit
- Smoke Shaft

Travel Distances

- Within a Flat: <9m [permitted]
- Office Accomodation: <29.9m single direction [permitted]
- Plant <XXm TBC by Fire Engineer

Revisions

Rev. no.	Date	Description
C01	09/08/2023	For Comment
C02	07/12/2023	For Information (GAs)

1:100 0m 1m 2m 5m

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Drawing Number	Rev.	Status
2960-CVA-TM-02-DR-A-11104	C02	

14-19 Tottenham Mews

Fire Diagram Second Floor

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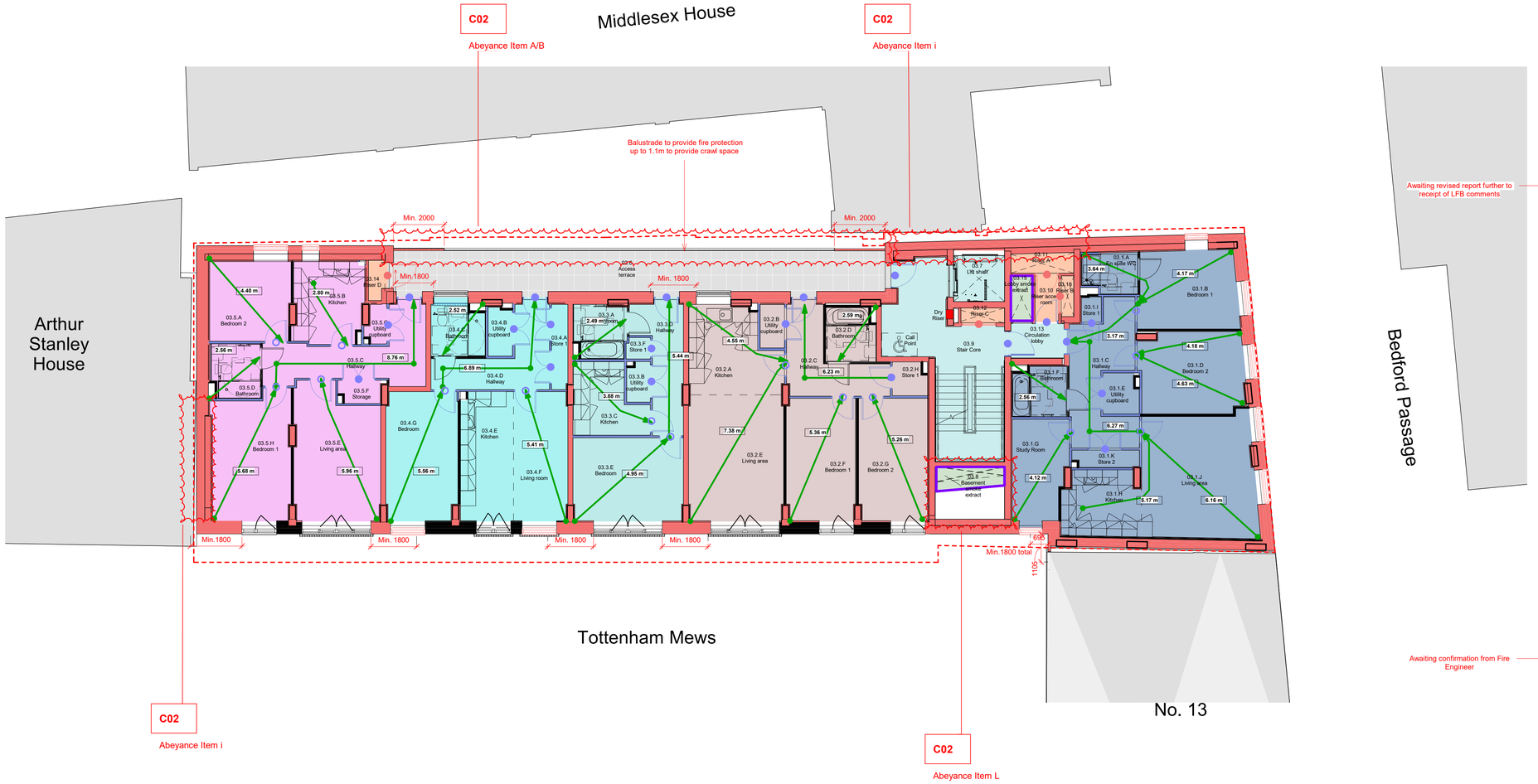

1 Fire Diagram - Third Floor
1 : 100

Department Legend

- Circulation
- External communal
- Flat 03.1 (2b4p)
- Flat 03.2 (2b4p)
- Flat 03.3 (1b1p)
- Flat 03.4 (1b2p)
- Flat 03.5 (2b3p)
- Plant

ITEMS / AREAS IN ABEYANCE :
A/B. Access deck balustrade and screens
C. Cleaning and Maintenance strategy
D. Bedford Passage + Ext. Landscaping
E. Junction with UCLH (design and levels)
F. Ground Floor North Elevation
G. ~~L05 Canopy and extents of Blue Roof~~
H. Internal blockwork thickness
i. External wall build-ups to RC shear walls
J. Office (finishes / specification)
K. L05 slab level + terrace threshold detail
L. Mechanical Ventilation shaft and AOV
M. Awaiting NMA decision
N. Waste Management strategy
O. Fire stopping between plant and terrace

General Notes:

To be read in conjunction with Architect's, Structural, and MEP Engineer's drawn and specified information.

Proposals shown subject to review and development through specialist subcontractor design development process.

Requirements are based on Magnus Opifex's Fire Strategy Stage 4 Report dated 230523, revision 01. Please refer to report and drawings for full strategy.

Key - Fire Requirements

Walls

- 60 min. fire compartmentation
- 30 min. fire compartmentation
- N/A

Doors

- FR60S
- FR30S
- FR60
- FR30

Distances

- XXXX — Min. Distance (from boundary, or between two unprotected areas from two demises)
- Final Exit
- Smoke Shaft

Travel Distances

- Within a Flat: <9m [permitted]
- Office Accomodation: <29.9m single direction [permitted]
- Plant <XXm TBC by Fire Engineer

Revisions

Rev. no.	Date	Description
C01	09/08/2023	For Comment
C02	07/12/2023	For Information (GAs)

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Drawing Number	Rev.	Status
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14-19 Tottenham Mews

Fire Diagram Third Floor

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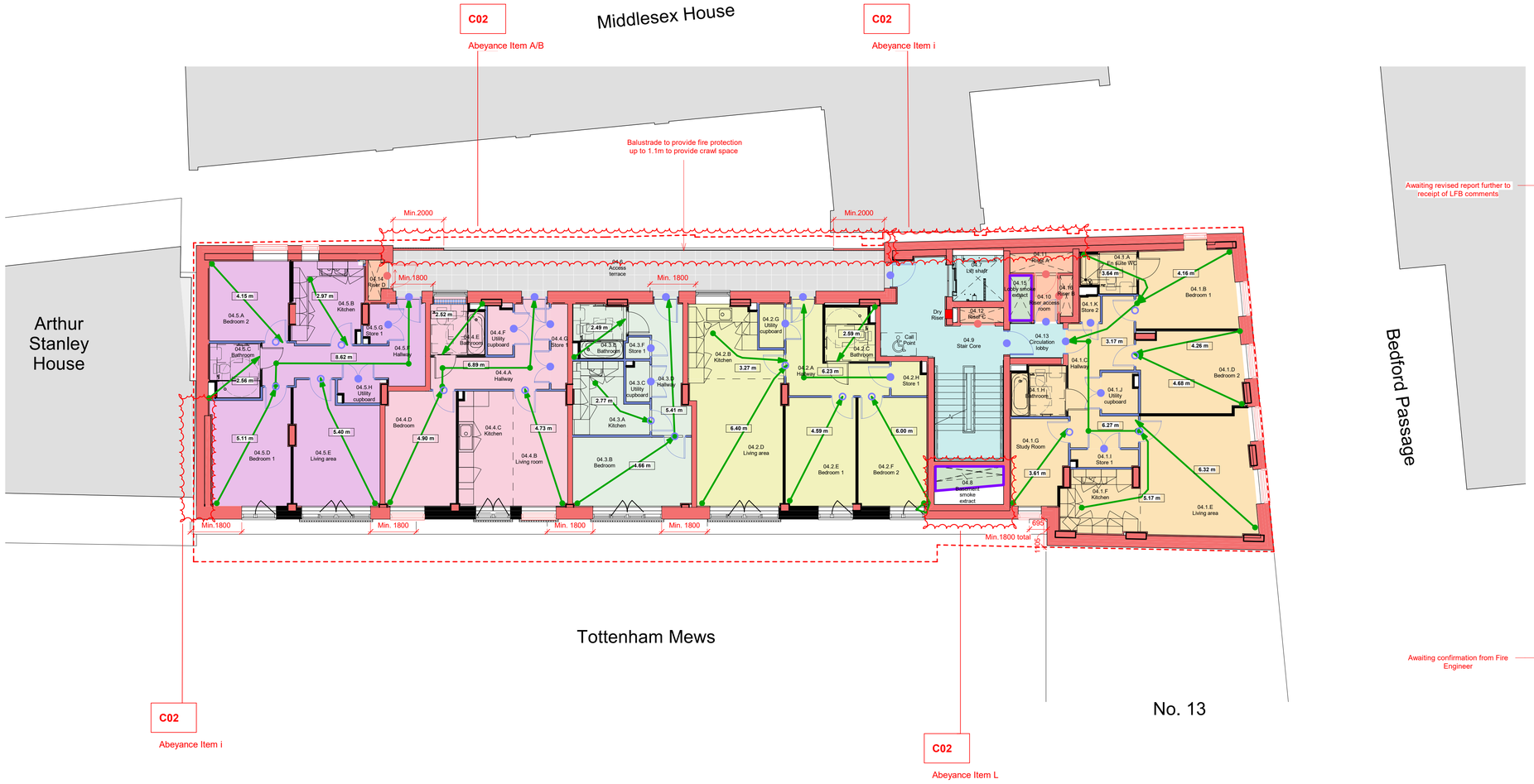

1 Fire Diagram - Fourth Floor

1 : 100

ITEMS / AREAS IN ABEYANCE :
A/B. Access deck balustrade and screens
C. Cleaning and Maintenance strategy
D. Bedford Passage + Ext. Landscaping
E. Junction with UCLH (design and levels)
F. Ground Floor North Elevation
G. ~~L05 Canopy and extents of Blue Roof~~
H. Internal blockwork thickness
i. External wall build-ups to RC shear walls
J. Office (finishes / specification)
K. L05 slab level + terrace threshold detail
L. Mechanical Ventilation shaft and AOV
M. Awaiting NMA decision
N. Waste Management strategy
O. Fire stopping between plant and terrace

Department Legend

- Circulation
- External communal
- Flat 04.1 (2b4p)
- Flat 04.2 (2b3p)
- Flat 04.3 (1b1p)
- Flat 04.4 (1b2p)
- Flat 04.5 (2b3p)
- Plant

General Notes:

To be read in conjunction with Architect's, Structural, and MEP Engineer's drawn and specified information.

Proposals shown subject to review and development through specialist subcontractor design development process.

Requirements are based on Magnus Opifex's Fire Strategy Stage 4 Report dated 230523, revision 01. Please refer to report and drawings for full strategy.

Key - Fire Requirements

Walls

- 60 min. fire compartmentation
- 30 min. fire compartmentation
- N/A

Doors

- FR60S
- FR30S
- FR60
- FR30

Distances

- XXXX — Min. Distance (from boundary, or between two unprotected areas from two demises)
- Final Exit
- Smoke Shaft

Travel Distances

- Within a Flat: <9m [permitted]
- Office Accomodation: <29.9m single direction [permitted]
- Plant: <XXm TBC by Fire Engineer

Revisions

Rev. no.	Date	Description
C01	09/08/2023	For Comment
C02	07/12/2023	For Information (GAs)

1:100 0m 1m 2m 5m

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Fire Diagram Fourth Floor

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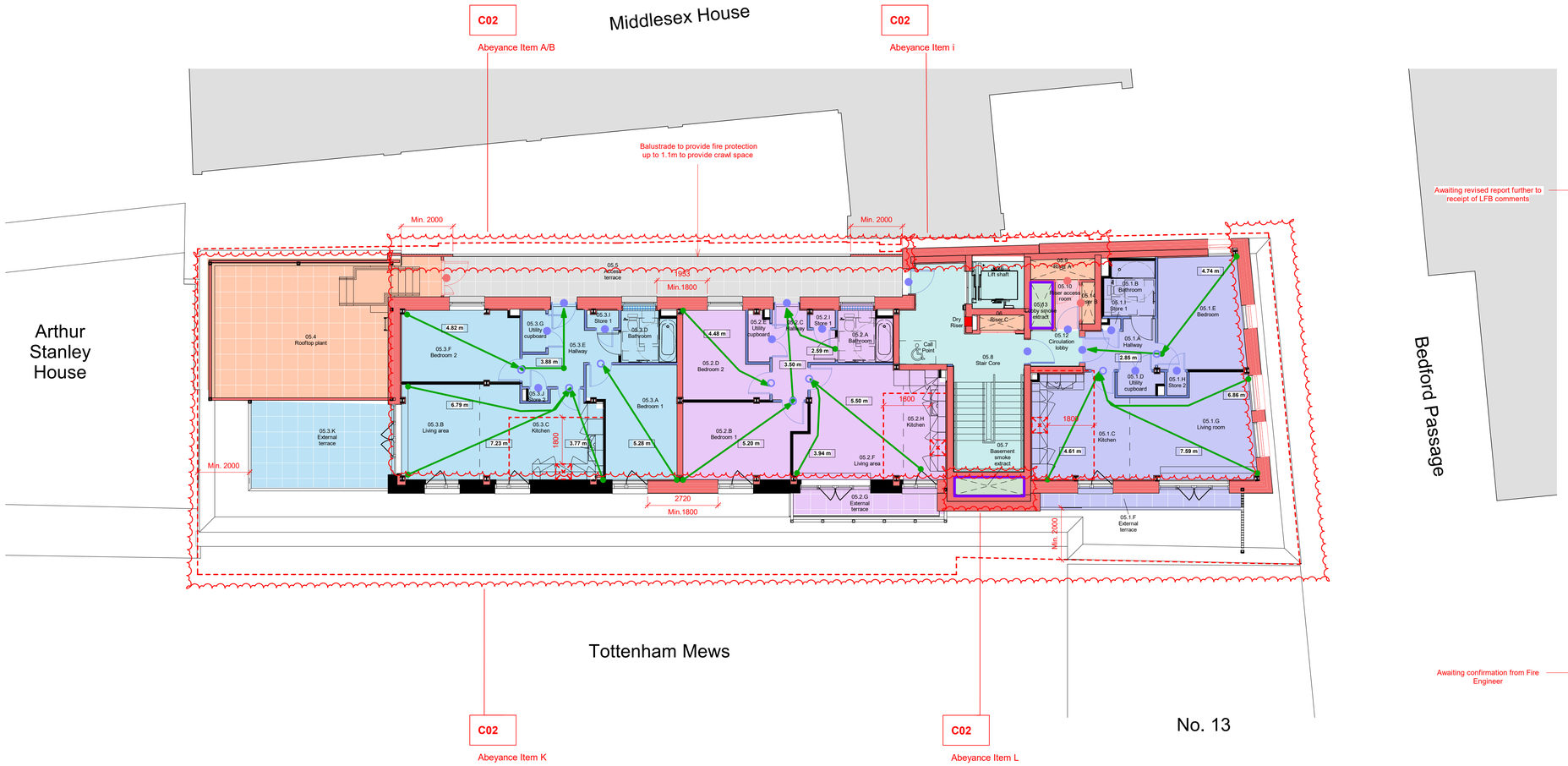

1 Fire Diagram - Fifth Floor

1 : 100

Department Legend

- Circulation
- Communal
- External communal
- Flat 05.1 (1b2p)
- Flat 05.2 (2b3p)
- Flat 05.3 (2b4p)
- Plant

ITEMS / AREAS IN ABEYANCE :
A/B. Access deck balustrade and screens
C. Cleaning and Maintenance strategy
D. Bedford Passage + Ext. Landscaping
E. Junction with UCLH (design and levels)
F. Ground Floor North Elevation
G. ~~L05 Canopy and extents of Blue Roof~~
H. Internal blockwork thickness
i. External wall build-ups to RC shear walls
J. Office (finishes / specification)
K. L05 slab level + terrace threshold detail
L. Mechanical Ventilation shaft and AOV
M. Awaiting NMA decision
N. Waste Management strategy
O. Fire stopping between plant and terrace

General Notes:

To be read in conjunction with Architect's, Structural, and MEP Engineer's drawn and specified information.

Proposals shown subject to review and development through specialist subcontractor design development process.

Requirements are based on Magnus Opifex's Fire Strategy Stage 4 Report dated 230523, revision 01. Please refer to report and drawings for full strategy.

Key - Fire Requirements

Walls

- 60 min. fire compartmentation
- 30 min. fire compartmentation
- N/A

Doors

- FR60S
- FR30S
- FR60
- FR30

Distances

- XXXX — Min. Distance (from boundary, or between two unprotected areas from two demises)
- Final Exit
- Smoke Shaft

Travel Distances

- Within a Flat: <9m [permitted]
- Office Accomodation: <29.9m single direction [permitted]
- Plant: <XXm TBC by Fire Engineer

Revisions

Rev. no.	Date	Description
C01	09/08/2023	For Comment
C02	07/12/2023	For Information (GAs)

1:100 0m 1m 2m 5m

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Drawing Number	Rev.	Status
2960-CVA-TM-05-DR-A-11107	C02	

14-19 Tottenham Mews

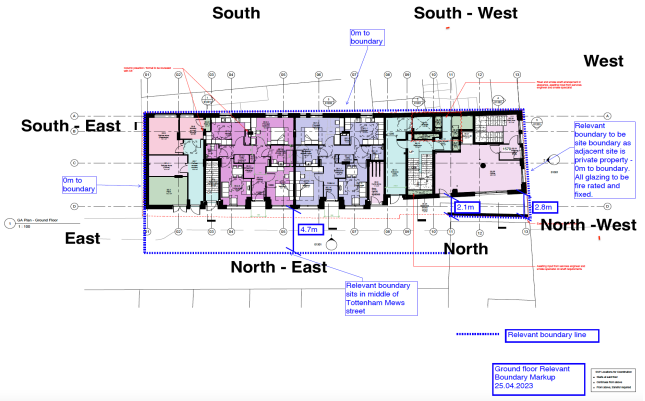
Fire Diagram Fifth Floor

Drawn by:	MS	Checked by:	RC	Date:
Scale:	1 : 100	Size:	A1	07/12/2023

Project name	Tottenham Mews
Project number	2022285
Date	May-23

Magnus Opifex Ltd

Unprotected Areas Calculations



Calculating method - BRE 187 (2.2.5)

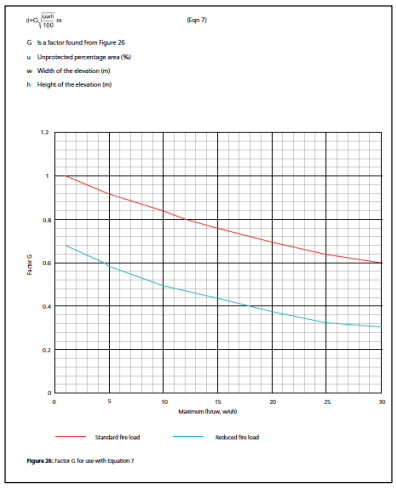
North East Elevantion - enclosing rectangles 8.5m (L) x 3m (H)

Enclosing rectangle - calculated method		
1st Floor		
w=	8.5	m
h=	3	m
u=	100	%
G=	1	(Figure 26 BRE 187)

$$d = G\sqrt{\frac{u \times w \times h}{100}}$$ m

d = 5.05 m

0.02833333



Due to the fact that this development accommodates residential premises and offices at the calculated floors, the distance can be halved

=> d = 2.52 m

Actual d= 4.70 m

=> the distance is in compliance with the requirements

==> The floors must be provided with fire separation in order to allow for the amount of glazing proposed

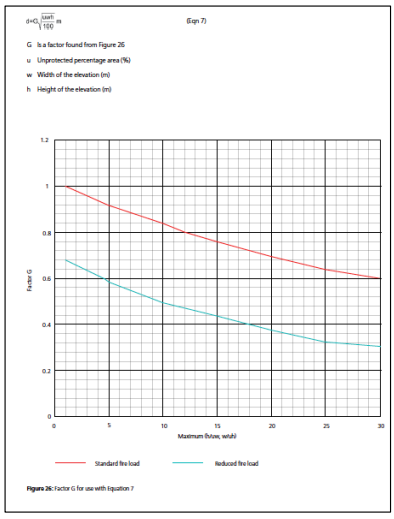
North Elevantion - enclosing rectangles 10m (L) x 3m (H) - office

Enclosing rectangle - calculated method		
1st Floor		
w=	10	m
h=	3	m
u=	59	%
G=	1	(Figure 26 BRE 187)

$$d = G\sqrt{\frac{u \times w \times h}{100}}$$ m

d = 4.21 m

0.05649718



Due to the fact that this development accommodates residential premises and offices at the calculated floors, the distance can be halved

=> d = 2.10 m

Actual d= 2.10 m

=> the distance is in compliance with the requirements

==> The floors must be provided with fire separation in order to allow for the amount of glazing proposed

West Elevantion - enclosing rectangles 9m (L) x 3m (H) - office

Enclosing rectangle - calculated method		
1st Floor		
w=	9	m
h=	3	m
u=	90	%
G=	1	(Figure 26 BRE 187)

$$d = G\sqrt{\frac{u \times w \times h}{100}}$$ m

d =	4.93	m

0.03333333

Due to the fact that this development accommodates residential premises and offices at the calculated floors, the distance can be halved

=>

d =	2.46	m

Actual d=	3.35	m

=> the distance is in compliance with the requirements

==> The floors must be provided with fire separation in order to allow for the amount of glazing proposed

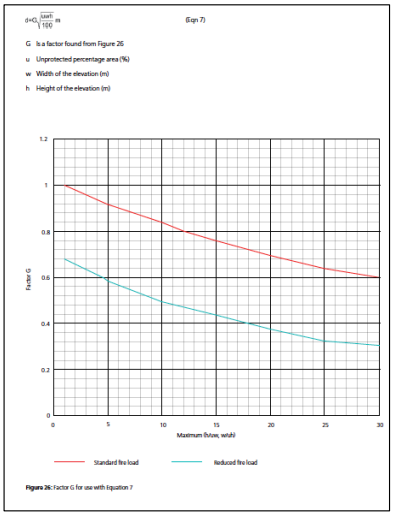
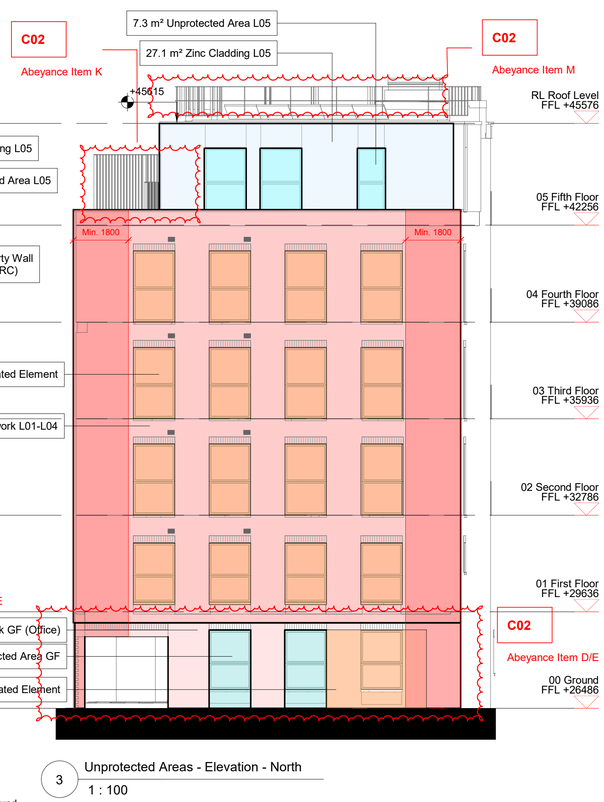
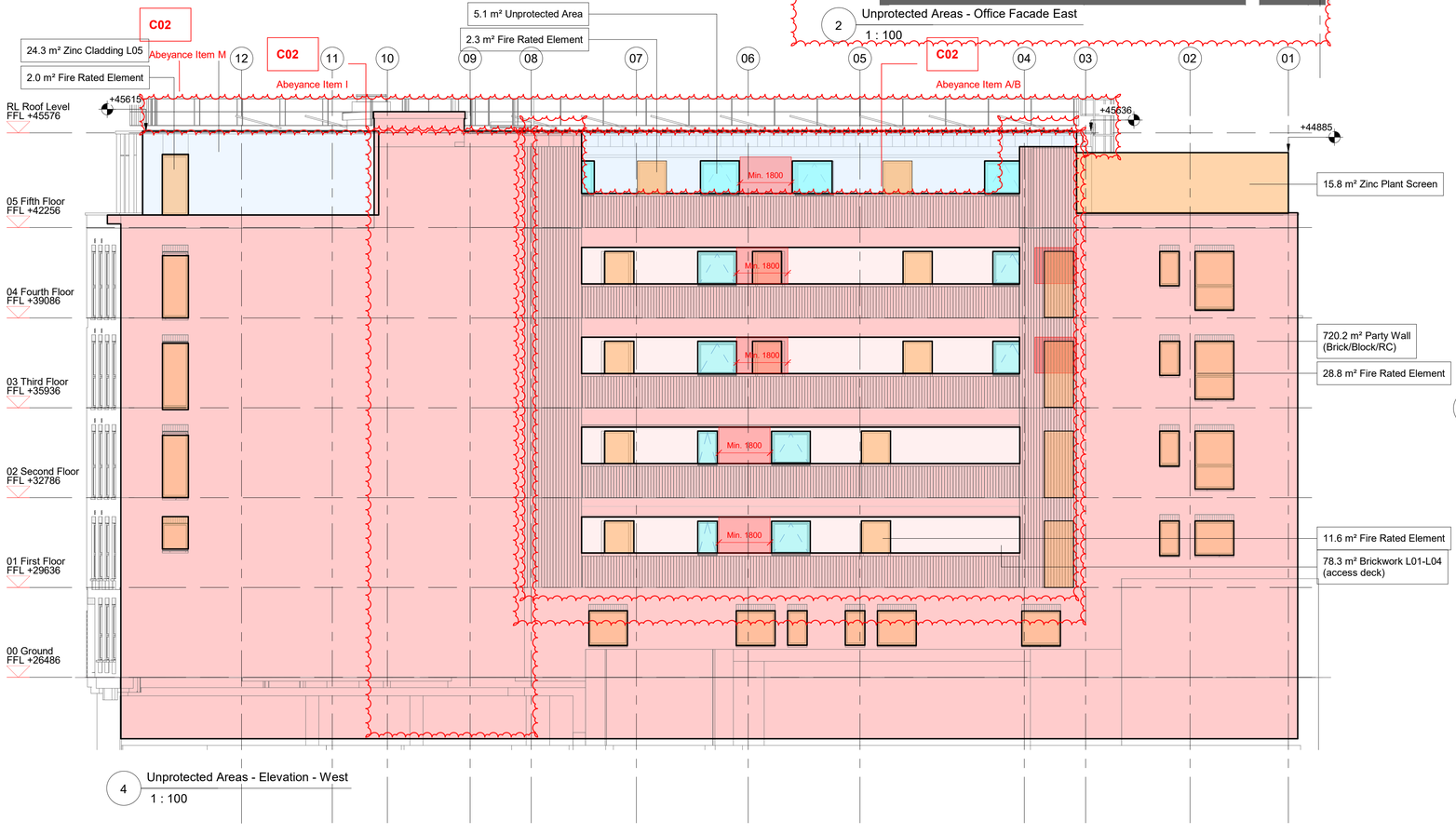
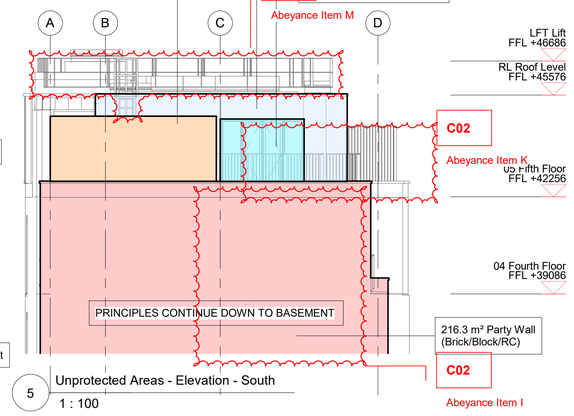


Figure 26: Factor G for use with Equation 7







Uprotected Area Schedule

Facade	Comments	Distance from Red Line Boundary	Total Facade Area m²	Unprotected Area m²	Permitted Unprotected Area	Unprotected Area %
East	Brickwork L04	4.7m	103.1	32.1	100	31
East	Brickwork GF (Resi)	4.7m	70.8	43.7	100	62
East	Brickwork L01-L03	4.7m	343.9	123.4	100	36
East	Brickwork GF (Office)	2.1m	40.8	15.6	100	38
East	Party Wall (Brick/Block/RC)	<1m	140.6	0.0	0	0
East	Fire Rated Plant Screen	<1m	19.3	0.0	0	0
East	Zinc Cladding L05	>4.7m	105.6	24.7	100	23
North	Brickwork L01-L04	>2.1m	169.3	42.6	59	25
North	Brickwork GF (Office)	2.1m	26.9	15.2	59	56
North	Zinc Cladding L05	>2.1m	29.8	7.4	59	25
South	Party Wall (Brick/Block/RC)	<1m TBC	215	0.0	0	0
South	Zinc Plant Screen	<1m TBC	14.6	0.0	0	0
South	Zinc Cladding L05	>7m TBC	15.7	4.9	TBC	31
West	Party Wall (Brick/Block/RC)	<1m	561.3	0.0	0	0
West	Brickwork L01-L04 (access deck)	1.5m	207.2	23.1	100	11
West	Zinc Cladding L05	<1m	95.2	0.0	0	0
West	Zinc Cladding L05 (access deck)	1.5m	69	12.4	100	18

ITEMS / AREAS IN ABEYANCE :
A/B. Access deck balustrade and screens
C. Cleaning and Maintenance strategy
D. Bedford Passage + Ext. Landscaping
E. Junction with UCLH (design and levels)
F. Ground Floor North Elevation
G. ~~L05 Canopy and extents of Blue Roof~~
H. Internal blockwork thickness
i. External wall build-ups to RC shear walls
J. Office (finishes / specification)
K. L05 slab level + terrace threshold detail
L. Mechanical Ventilation shaft and AOV
M. Awaiting NMA decision
N. Waste Management strategy
O. Fire stopping between plant and terrace

General Notes:

To be read in conjunction with Architect's, Structural, and MEP Engineer's drawn and specified information.

Proposals shown subject to review and development through specialist subcontractor design development process.

Awaiting revised report further to receipt of LFB comments

Requirements are based on Magnus Opifex's Fire Strategy Stage 4 Report dated 230523, revision 01. Please refer to report and drawings for full strategy.

Key

- **Protected Area (Solid/FR/Non Combustible)** EG. Brickwork, RC
- **Protected Area (Solid/FR/Non Combustible)** EG. Zinc Cladding
- **Fire Rated Element** EG. FR Windows, Doors
- **Min. Fire Rated Area** EG. Walls / Windows
- **Unprotected Area** EG. Windows, Doors, Curtain Walling, Cladding
- **Fire Rated Screen** TBC

Revisions

Rev. no.	Date	Description
C01	09/08/2023	For Comment
C02	07/12/2023	For Information (GAs)

1:100 0m 1m 2m 5m

COTTRELL & VERMEULEN ARCHITECTURE
1B Iliffe Street
London SE17 3LJ
0207 708 2567

Do not scale from this drawing
Confirm all dimensions on site

Drawing Number	Rev.	Status
2960-CVA-TM-ZZ-DR-A-11110	C02	

14-19 Tottenham Mews

Fire Diagram Unprotected Areas To Elevations

Drawn by:	SH	Checked by:	RC	Date:
Scale:	1 : 100	Size:	A1	07/12/2023