



Premier House

Fire Strategy Report

RIBA Stage 3 Submission

4 August 2022

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1 Executive Summary

Project

Premier House is to form part of the Renaissance project, with plans to provide three buildings as part of a comprehensive masterplan for the site. The project will entail the refurbishment of an existing hotel building, demolition of Premier House and the creation of a new 5 storey office-led building, and construction of a new high rise residential development.

The element of the project to which this application relates is the construction of a 5-storey office-led development at the site of former Premier House office building (following demolition of the existing structure with the exception of structural elements that tie in with the Renaissance Hotel) comprising new office space (L01 – L04) with ground floor reception area and commercial units x 4 (retail/ food and beverage), amendments to existing servicing arrangements including new service yard entrance, new rooftop amenity space for use by the occupiers of levels 1-4, new roof top plant, new public realm and landscaping and supporting infrastructure and ancillary facilities including changing and shower facilities, refuse store, plant areas and cycle store within lower ground level.

Fire Engineering Brief

The fire safety design must comply with the functional requirements of Part B of Schedule 1 to The Building Regulations 2010¹.

BS 9999² has been used as the basis of assessment for compliance with Part B of The Building Regulations for the building. Where the design does not readily comply with these recommendations, alternative solutions have been adopted and detailed to demonstrate compliance with the functional requirements in these areas. Any additional requirements such as property protection, business continuity or insurer's requirements are not considered herein.

Alternative Solutions

Several design aspects require alternative solutions due to the constraints of the building and site. All items will need to be discussed and agreed in principle with the approving authorities subject to formal consultation. The alternative solutions are summarised below:

1. A mechanical smoke ventilation system is being provided to the lower ground level which does not rely on sprinkler provision. See Section 5.4.
2. Due to the proximity of Premier House to the neighbouring hotel, a portion of the façade is to offer 90 minutes fire resistance. See 6.1.12 and Figure 11 for more details.
3. Stairs 01 and 02 discharge into the shared service yard at lower ground level. Although the stairs are provided with lobby protection at each level, one has been discounted as Stair 01 can also discharge through the ground floor reception, if required. See Section 4.3.1 for more details.
4. No firefighting shaft is proposed although the building height exceeds 18m. All office accommodation is located on floors lower than 18m – this results in a building height of 15.4m. The reasoning as to why the building height is over 18m is due to the provision of an accessible roof terrace – which is only accessible to the building users – being provided on Level 05 and therefore the risk is not proportionate to the required provisions. To support firefighting arrangements, both stairs are to be provided with a dry fire main which will have outlets provided to all levels including the roof.

¹ Statutory Instruments, '2010 No. 2215 Building and Buildings, England and Wales, The Building (Approved Inspectors etc.) Regulations 2010'.

² BS 9999, 'Code of practice for fire safety in the design, management and use of buildings', 2017

2 Introduction

Design Fire Consultants (DFC) have been appointed by Property Alliance Group (PAG) to provide Fire Engineering advice in relation to the Premier House office development which is part of the Renaissance project in Manchester.

This document describes the Fire Strategy for the building, commensurate with a RIBA Stage 3 level of information. The intent of this report is to enable coordination with the design team and to support initial consultation with Building Control.

2.1 Project Description

Premier House is to form part of the Renaissance project, with plans to provide three buildings as part of a comprehensive masterplan for the site. The project will entail the refurbishment of an existing hotel building, demolition of Premier House and the creation of a new 5 storey office-led building, and construction of a new high rise residential development.

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The approximate net internal area of Premier House is 4,950m², with a top occupied storey height of 20.8m when measured to the underside of Level 05 – Roof Terrace from the fire service access level.

Figure 1: Premier House occupancy split



2.2 Legislative and Client Requirements

The fire safety design must achieve the minimum standard required by Part B of Schedule 1 to the Building Regulations 2010³ (hereafter referred to as Part B).

Any further client requirements, insurer requirements or operator requirements have not been communicated to DFC and are therefore not considered as part of the fire strategy.

2.3 Basis of Design

BS 9999 provides contemporary fire safety guidance that is appropriate for the assessment of fire safety performance in buildings; as such, BS 9999 has been used as the basis of design for Premier House.

The building has been split into separate occupancy zones, all of which are assigned a unique occupancy profile, which determines the means of escape requirements associated with those risk profiles.

It is important to note that even though the building has been split into separate occupancy zones for the purposes of assessment, means of escape and fire safety have been considered as a whole, including the ways in which the different occupancies interact with one another.

2.4 Approvals Status

This RIBA Stage 3 report outlines the basis of fire safety design for the site.

It is envisaged that informal discussions will be undertaken with Building Control at RIBA Stage 3 (using this report as a basis), with formal consultation to take place at RIBA Stage 4.

³ Statutory Instruments, '2010 No. 2214 Building and Buildings, England and Wales, The Building Regulations 2010' (as amended)

3 Building Use and Occupant Load

3.1 Building Use

The upper floors of the building (L01 – L04) are to be used as office accommodation; the ground floor is to be split between the office reception and the independent retail units. The lower ground floor consists of back of house spaces, office amenity and building plant, such as electrical switch room, boiler room and generator. Level 05 is a roof terrace for office occupants and contains building plant (external).

3.2 Zoning

BS 9999 recommends that a risk profile should be established for the building in order to determine the appropriate means of escape and design features. The risk profile directly reflects the occupancy characteristics for the site as well as the possible fire growth rate, these elements are then combined to form an overall risk profile rating.

The upper levels, comprising of office accommodation, satisfy an A2 risk profile for occupants who are awake and familiar with the building with an inherent medium fire growth rate as detailed in BS 9999. The ground floor is divided between office tenants-only access and independent retail units. As the units are for retail, this results in more onerous requirements compared to an office occupancy. As a result, this floor is therefore split between an A2 and B3 profile, respectively.

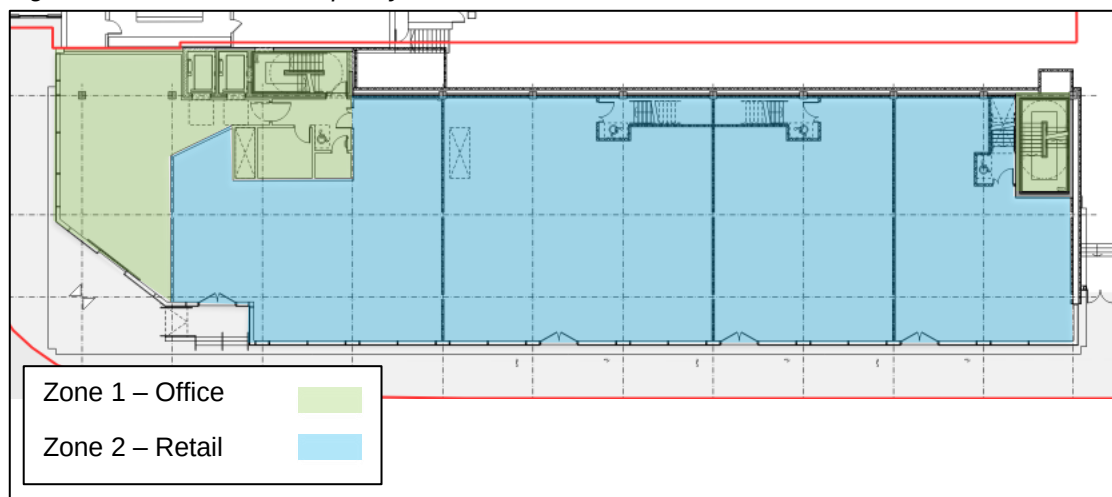
See Appendix A for the breakdown and quantification of risk profiles.

Each zone and the areas associated with each zone are outlined in Table 1.

Table 1: Identification of occupancy zones

Zone	Occupancy & Risk Profile	Areas
1	Office (Risk Profile A2)	Ground floor / lower ground floor (including reception, cycle store and changing)
		Levels L01 – L04 (Office)
		L05 (Roof Terrace)
2	Retail Units (Risk Profile B3)	Ground floor independent retail units
3	Plant/ Back of House (Risk Profile A3)	Lower ground floor plant room, LV switch room, generator and refuse store.
		Roof plant

Figure 2: Ground floor occupancy zones



3.3 Design Occupant Load

The design occupant load is summarised in Table 2. Floor space factors in BS 9999 are adopted for the office and mixed use (retail) areas to give an estimation on how many persons can be provided in certain areas. Due to existing conditions in places, the occupancies detailed below will be restricted further.

Table 2: Design occupant load

Floor	Area(s)	Approx. Floor Area	Floor Space Factor	Occupancy
Levels 01-04	Office	835m ²	6m ² / person	128 (per storey)***
Ground	Unit A	180m ²	2m ² / person	60*
	Unit B	230m ²	2m ² / person	60*
	Unit C	150m ²	2m ² / person	60*
	Unit D	130m ²	2m ² / person	60*
	Main Entrance / Reception	100m ²	6m ² / person	22
	Reception Office	9m ²	6m ² / person	1
Lower Ground	Cycle store, lockers & changing rooms	114m ²	10m ² / person	14
	Refuse Store, Electrical Switch Room, Generator and Boiler Room	142m ²	30m ² / person	5
Roof (Level 05)	Plant	250m ²	30m ² / person	8
	Roof Terrace	110m ²	N/A	163**
Above Ground Floor Total Occupancy				512
Total Building Occupancy (including ground floor retail unit tenancies)				802

Notes:

* Due to the means of escape provisions these occupancies are currently restricted to 60 people.

** Roof terrace is only to be occupied by office staff and therefore the total capacity of the terrace is not included in addition to the building capacity.

*** Due to the existing clear width of Stair 01 this occupant load is restricted. See Section 4.3 for more details.

4 Means of Escape

4.1 Evacuation Regime

4.1.1 Office Areas

The office areas of Premier House (including the Roof Terrace at Level 05) will operate a simultaneous evacuation strategy, whereby an incident detected anywhere in the building will initiate full evacuation of the building.

4.1.2 Commercial units

The commercial units (Units B, C & D) on ground floor will be responsible for developing their respective evacuation strategies. However, upon detection within a single commercial unit, it is anticipated that only the unit of fire origin will evacuate. The remaining zones of the building will, however, be alerted via their respective panels and systems.

Unit A is provided with access to the office areas and therefore the alarms of these two zones are to be linked.

4.2 Horizontal Means of Escape

Exit and travel distance provisions are to comply with the minimum requirements outlined in Table 3.

Table 3: Horizontal escape provisions

	Number of Occupants	
	≤ 60 persons	> 60 & ≤ 600 persons
Number of Exits	≥ 1 *	≥ 2
Door Swing	Either against or in the direction of escape	In the direction of escape
Travel Distance (Single Direction)	Zone 1 (Office): ≤ 25.3m ** Zone 2 (Retail Units A, B, C & D): ≤ 16m Zone 3 (Plant/ BOH): ≤ 18m	
Travel Distance (Alternative Directions)	Zone 1: ≤ 63.25m ** Zone 2: ≤ 40m Zone 3: ≤ 45m	
Exit Width	Zone 1: > 850mm and ≥ 3.06mm/person *** Zone 2: > 850mm and ≥ 6.0mm/person Zone 3: > 850mm and ≥ 4.6mm/person	
Stair width/(s)	Zone 1: 1200mm Zone 2: 1200mm	

Notes

* A single exit is acceptable providing that the single direction distance is within the stated recommendations, otherwise more than 1 exit will be necessary.

** Including 15% increase in travel distance due to enhanced level of automatic detection (minimum level of detection for an A2 profile is a Manual System)

*** Including 15% reduction in exit width due to enhanced level of automatic detection

4.2.1 Inner Rooms

An inner room is a room whereby escape is only possible by passing through another room (i.e. the access room). An inner room is at risk if a fire starts in the access room.

Inner room arrangements are deemed acceptable based on the following:

- The occupant number does not exceed 60 persons.
- The inner room is entered directly from the access room.
- The escape route from the inner room does not pass through more than one access room.
- The travel distance from any one point in the inner room to the exits from the access room does not exceed the distances for a single direction stated in Table 3.
- The access room is not a place of special fire hazard.
- The access room is in the control of the same occupier.
- The access room is fitted with an automatic fire detection and alarm system to immediately warn occupants of the inner room if a fire starts in the access room.

4.2.2 Horizontal Exit Capacity

The horizontal exit capacities for the office levels and retail units are outlined in Table 4 and demonstrates that the proposed exits sufficiently serve the associated occupant loads.

For the office levels an exit width of 3.06mm per person has been adopted as the buildings proposed fire detection and alarm system (L2) is identified as an enhanced measure in accordance with BS 9999.

Therefore in accordance with Section 16.6.1 of BS 9999, any door serving the office which is less than 1050mm can afford a capacity of 163 persons – if it swings in the direction of escape.

Table 4: Horizontal exit capacity

Floor	Exits Provided	Exits Available (after discounting one exit)	Maximum Exit Capacity (per storey)	Design Occupant Load (per storey) (Table 2)
Roof Terrace	2	1 x 850mm	139***	128
Level 01- 04	3	2 x 850mm****	223****	139
Retail Unit A	2	1 x 850mm	60**	90
Retail Unit B	2	1 x 850mm	60**	115
Retail Unit C	2	1 x 850mm	60**	75
Retail Unit D	2	1 x 850mm	60**	65
LGF	1	One exit available (850mm)	60*	19

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Notes:

- * Limited to 60 people due to one exit being available
- ** Limited to 60 people as remaining exit swings against the flow of escape
- *** Transient area so occupancy would be made up of occupants from the lower levels. Occupancy therefore restricted by the maximum capacity.
- **** One exit into the lift lobby swings against the direction of escape so exit capacity restricted to 60 people via that exit door.

To prevent the retail units from being limited to 60 people and therefore achieve their Design Occupant Load the main entrance doors to the unit must either:

- Swing in the direction of escape or;
- Power open upon activation of the unit's fire detection system.

4.3 Vertical Escape

Premier House is provided with two stairs, each of which has a clear width of 1200mm from Ground to Level 04. Stair 01 is existing and therefore the clear width cannot be increased.

As the roof terrace is not open to the public it is considered to contain a transient occupancy where the roof terrace occupancy would be made up from the floors below.

The upward portion of the stair from lower ground to ground must offer a minimum clear width of 1200mm to support simultaneous evacuation of the lower ground level. This is required in the event of a fire within the service yard.

Retail Units A, B, C & D are provided with individual stairs which offer a minimum clear width of 1000mm.

4.3.1 Stair Capacity

4.3.1.1 Office Stair Capacity

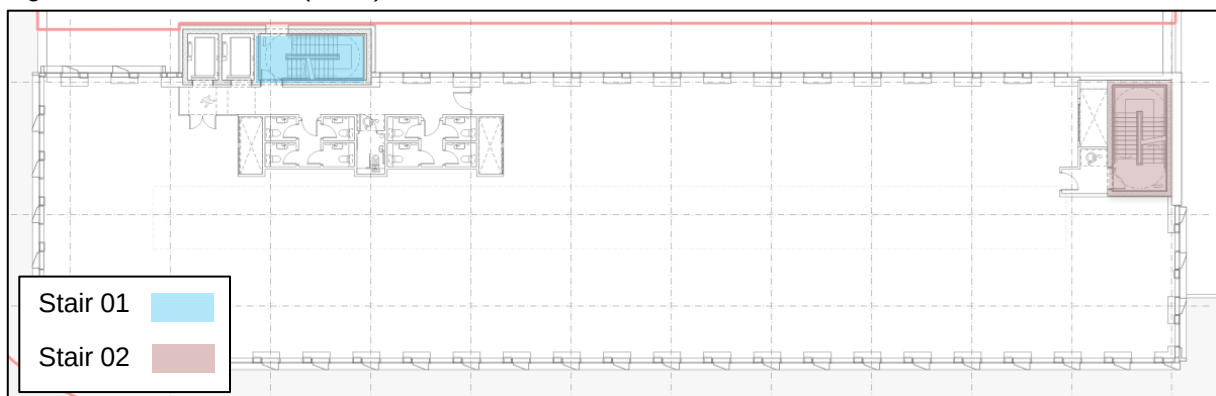
The office floors of the building are served by two stairs. One stair will be maintained from the existing building whereas the second stair will be included as part of the construction works.

These stairs serve the following floors:

Stair 01 (Existing): Lower Ground, Ground, Level 01, Level 02, Level 03 and Level 04 (Total 6 storeys)

Stair 02 (New): Level 01, Level 02, Level 03 and Level 04 (Total 4 storeys)

Figure 3: Premier House (office) stair identification



The exit capacity of Stair 01 for the upper floors is based on BS 9999 recommendations for offices (Risk Profile A2) of 2.2mm/ person for 6 storeys. Although due to the enhanced level of automatic fire

Premier House

detection, this can be reduced by 15% to 1.87mm/ person. Therefore, has a total maximum capacity of 642 people.

The exit capacity of Stair 02 for the upper floors is based on BS 9999 recommendations for offices (Risk Profile A2) of 2.75mm/ person for 4 storeys. Although, due to the enhanced level of automatic fire detection, this can be reduced by 15% to 2.34mm/ person. Stair 02 has a total maximum capacity of 513 people.

Each of the escape stairs are accessed on each level via a protected lobby; each protected lobby must remain fire sterile as it forms part of the main escape route for occupants. However as both stairs could be compromised by a fire within the hotel service yard, a stair is to be discounted – See Figure 4 for the stair discharge route.

Each of the stair final exits are to offer the same clear width as the stair they serve (1200mm).

Therefore, there is vertical capacity for the building for a total of 513 people.

The design occupancy for the floors served is a total of 556 people, based on a 1:6m² floor space factor, which cannot be catered for due to the existing clear width restrictions on Stair 01.

Therefore, the occupancy for the upper floors are to be restricted to a maximum of 513 people. This equates to 128 people per floor rather than 139 persons and results in a 1:6.5m² floor space factor.

The rooftop plant space and terrace area are provided with access to two protected stairs. The roof terrace is to only be accessible by occupants of the office areas and therefore it is acceptable to consider that if the terrace is fully occupied the lower levels would not be at capacity.

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4.3.1.2 Retail Units (A, B, C & D) Stair Capacity

Retail units A, B, C and D have been provided with alternative escape stairs. These stair capacities will be based on a 7.00mm/person.

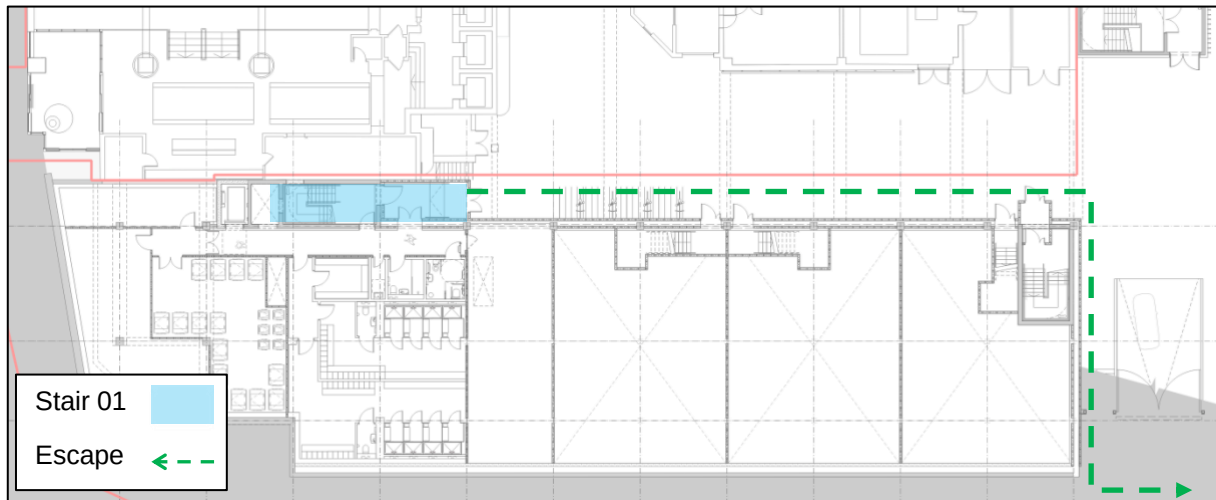
To support the design occupant load, detailed in Table 2, each of the stairs should offer a minimum clear width of 1000mm (1m). This stair can accommodate a maximum of 143 people.

See Section 4.4 for the requirements for the stairs to be provided with places of refuge for mobility impaired occupants.

4.3.1.3 Stair Discharge

Stair 01 can either discharge through the reception area on ground floor or through the service yard at lower ground floor.

Figure 4: Stair 01 discharge route (lower ground)



Stair 02 discharges at lower ground level via the proposed entrance to the hotel service yard and does not serve any additional accommodation at this level or ground. The service yard is covered but is provided with a high level of openings throughout to provide adequate ventilation and sprinkler protection.

In the event that a fire occurs within the service yard, it is proposed to provide an alert system and therefore Premier House would not evacuate but a warning link is provided to alert management of Premier House of an incident. However, if required, an alternate discharge route can be achieved by the ground floor reception space. This will require Premier House management to direct occupants through the main entrance at ground floor.

Occupants will also be able to discharge via the lift lobby and main entrance. In the event of a fire in the ground floor main reception, bi-directional signage will be provided on the full landing of Stair 01 at ground level which will direct occupants towards the lower ground exit.

Merging Flow

There is no potential for a merging flow in Stair 01 of occupants at Lower Ground in the event of a fire within reception as the lower ground is provided with a separate exit direct to the service yard escape route. However, in the event of a fire within the service yard, occupants from the lower ground levels will be required to evacuate via the ground floor and therefore a merging flow occurs in accordance with Figure 6 of BS 9999.

$$W_{FE} = BX + 0.75S_{up}$$

Where:

W_{FE} is the width of the final exit (mm)

B is the number of people served by the stair from below the final exit (19 people)

X is the minimum door width per person (3.06mm/ person)

S_{up} is the stair width for the upward portion of the stair (1200mm)

$$W_{FE} = (19 \times 3.06) + (0.75 \times 1200)$$

$$W_{FE} = 958\text{mm}$$

The final exit door at ground level is required to as a minimum match the clear width of the stair it serves, so therefore satisfies the requirement of this merging flow scenario.

It is currently proposed that the final exit is a sliding door. The requirements set out in Section 6.2.3 of this Fire Strategy should be adopted when using a sliding door on an escape route.

4.4 Occupants Requiring Assistance

A minimum of one wheelchair refuge space (1400mm x 900mm) is to be provided to each protected stair, at each upper level. The refuges will be located in the protected lobbies. They should be located such that they do not obstruct or reduce the escape width of the stair.

As the retail units are provided with an alternative means of escape via an escape stair, a place of refuge should also be provided or fit out of the unit to ensure single direction travel distances are not exceeded in line with Table 2.

Each refuge will be provided with a two-way communication device, mounted within the refuge area, connected to the main reception desk as outlined in Section 6.4.2.

4.4.1 Evacuation Management

When the building is operational it will require an evacuation plan to cater for any mobility impaired occupants within the building. This plan will need to consider the evacuation of mobility impaired visitors as well as developing a personal emergency evacuation plan (PEEP) for mobility impaired employees.

The plan should ensure that reliance is not placed upon the fire service for the evacuation of mobility impaired occupants.

Further guidance on planning an evacuation plan for mobility impaired occupants has been provided by the government and can be downloaded free of charge from:

<http://www.communities.gov.uk/publications/fire/firesafetyassessmentmeans>

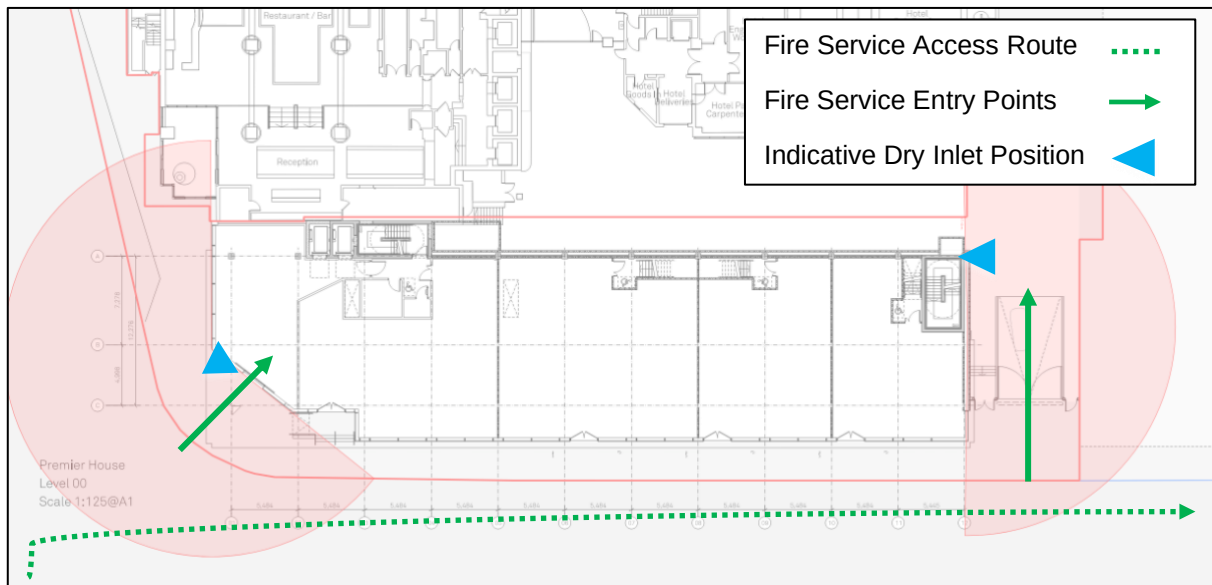
The evacuation management plan should be cross-referenced between landlord and tenant management procedures and reviewed regularly.

5 Firefighting Access and Facilities

5.1 Site Access

Figure 5 below shows the Fire Service access route, entry points and provisional dry riser inlet positions. The dry riser inlet positions are to be within 18m of a pumping appliance parking position.

Figure 5: Fire service access site masterplan (Premier House)



Site access roads are to comprise of the following for Fire Service pump appliances:

- Minimum road width = 3.7m (between curbs) and 3.1m (gates)
- Minimum turning circle = 16.8m (between curbs) 19.2m (between walls)
- Minimum clearance height = 3.7m
- Minimum carrying capacity = 12.5 tonnes

5.2 Internal Firefighting Access

Whilst Level 05 is approximately 19m above the lowest ground level it is not proposed to provide the building with a firefighting shaft as the risk of level 05 is not proportionate due to the roof (Level 05) only being counted as a storey, due to the presence of a communal roof terrace. If the roof terrace is removed the building height would be under 18m.

To facilitate internal firefighting, a dry fire main shall be installed within each staircase in accordance with BS 9990:2015⁴ and BS 5041-2:1987⁵, with outlets on each floor's respective floor landing within the stair.

Each proposed landing (LG – L05) has sufficient space for firefighting operations and there is no obstruction to the opening of doors due to the location of the outlets.

The inlets are positioned as follows:

- The inlet connection points are visible from the parking position of the Fire Service appliance.

⁴ BS 9990, 'Non automatic fire-fighting systems in buildings', 2015

⁵ BS 5041-2, 'Fire hydrant systems equipment – Specification for landing valves for dry risers, 1987

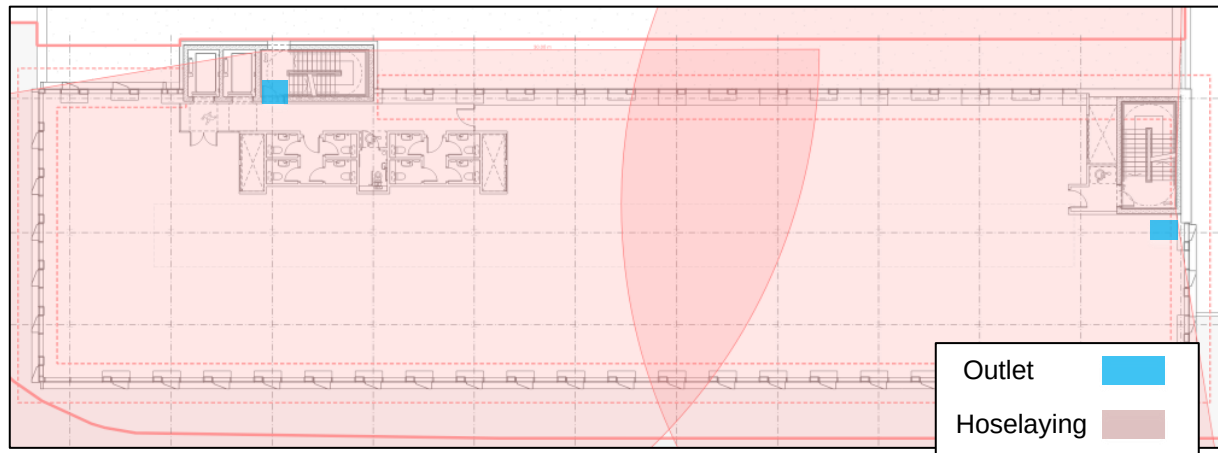
Premier House

- Access has been provided for a pumping appliance to within 18m of the inlet connection points.

Access should be afforded to the Stair 02 inlet at all times. Therefore the service gate is to be provided with suitable fire service access controls.

All points on level L01 to L05 (Roof) should be within 45m of the dry riser outlets (30m when the internal layout is not known). See Figure 6. Care must be taken with fit out to ensure that the 45m is not exceeded.

Figure 6: Hose laying distances



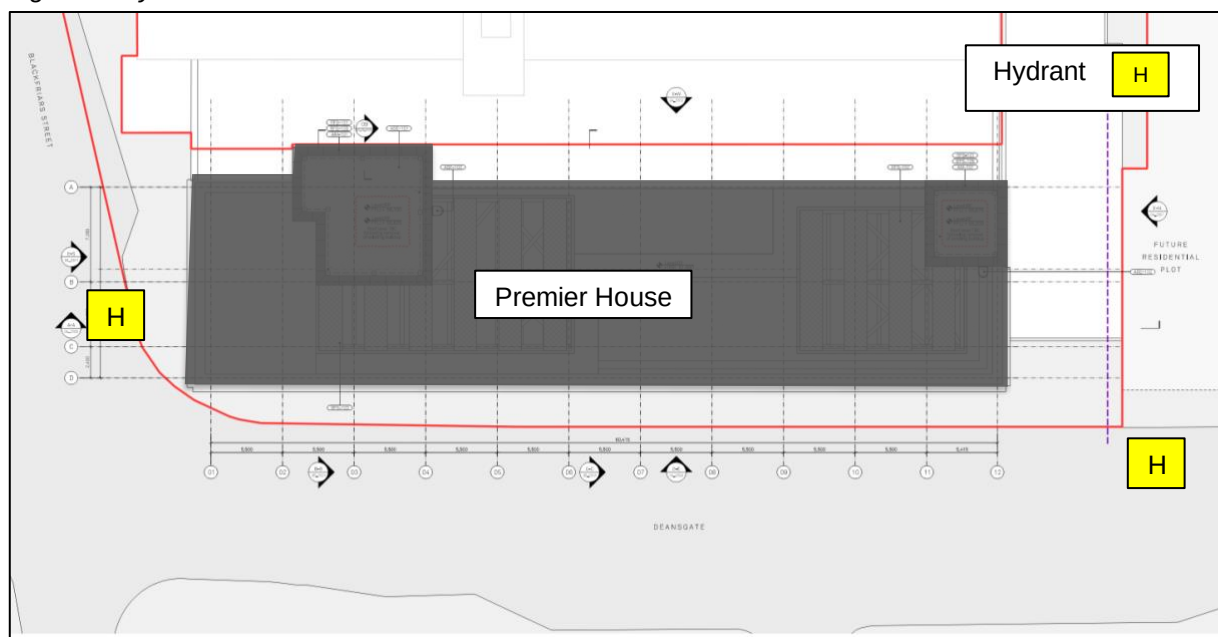
The ground floor retail units (A-D) will allow access for fire service from Deansgate and support a maximum hose laying distance of 45m.

5.3 Hydrants

Hydrants are located within 90m of the dry fire main inlets. The existing locations are detailed as per Figure 7.

The existing hydrants performance is to be confirmed by the M+E engineer to be suitable.

Figure 7: Hydrant locations



5.4 Basement Smoke Ventilation System

Premier House

The lower ground level is to be provided with a smoke ventilation system in accordance with BS 9999:2017, due to the floor area being greater than 200m². Smoke venting is required for basements to assist with fire fighting operations in what could be an unventilated space otherwise.

BS 9999 recommends that basement vent can be either a natural or mechanical system. A natural system is not possible due to the landlocked nature of the basement areas and so a mechanical system is proposed. Where mechanical systems are used BS 9999 recommends that a sprinkler system is also installed to control smoke temperatures and enable mechanical smoke vents to continue to operate.

In this proposed design a sprinkler system is not proposed due to the limited size of basement areas and hazards associated with the accommodation. This is appropriate due to the following:

- The individual compartments within the basement do not exceed 200m². The largest compartment is a 125m² changing room which contains limited fire load. Therefore any attending fire crew would have a contained fire which is in a compartment less than the typically allowed 200m².
- The gross floor area of the whole basement is 341m². Of this area 64m² are plant rooms such as the generator and switch room where the provision of water onto electrical plant is not appropriate. Therefore the provision of sprinklers would not be recommended so therefore should be omitted.
- The rooms such as changing rooms, drying room and accessible toilets have a low fire load and can be well managed by on site management by routine inspections.
- The fire service is provided with two access routes to the lower ground level. This is an added benefit over a standard approach, for basement firefighting, where firefighting operations would not have access direct from open air in a typical basement arrangement and therefore would have to descend into a smoke-filled basement level. Therefore the proposed entrances are:
 - a. Main entry point via Stair 01. This route provides the fire service access to the lower ground by the main stair which is lobby protected.
 - b. Access can be achieved direct from outside via the service yard. Providing this alternative route will not only allow the attending fire service the ability to manually clear smoke but also not have to descend into a smoke filled below ground level. Therefore, more akin to a standard floor where external access can be provided.

6 Fire Protection Features & Systems

6.1 Structure & Fabric

6.1.1 Internal Wall & Ceiling Linings

All internal wall and ceiling linings are to meet the classifications outlined in Table 5.

Table 5: Minimum performance requirements for internal wall and ceiling linings

Location	European Class**
Escape corridors, circulation routes & escape stairs	B-s3, d2
Rooms with an area $\geq 30\text{m}^2$	C-s3, d2
Rooms with an area $\leq 30\text{m}^2$	D-s3, d2

Notes

* Tested in accordance with BS EN 13501-1⁶

6.1.1.1 Permitted Variations

Where any parts of the wall in rooms may have a poorer performance than that specified in Table 5, but not poorer than Class D-s3, d2; provided that the total area of those parts in any one room does not exceed half of the floor area and subject to a maximum of 60m^2 .

6.1.2 Fire Resistance Performance Requirements

Where fire resistance standards are quoted in this document, they are to be in accordance with BS EN 1363-1⁷ or BS476-20⁸, and the following nomenclature has been used:

- R – loadbearing capacity
- E – integrity
- I – insulation

Unless otherwise stated:

- Loadbearing elements are required to achieve loadbearing capacity,
- Separating elements (e.g. compartmentation) are required to achieve integrity and insulation, and
- Elements that are both loadbearing and separating are required to achieve loadbearing capacity, integrity and insulation.

⁶ BS EN 13501-1, 'BS EN 13501-1:2018, 'Fire classification of construction products and building elements. Classification using data from reaction to fire tests', 2009

⁷ BS EN 1363-1, 'Fire resistance tests. General Requirements', 2020

⁸ BS 476-20, 'Fire tests on building materials and structures. Method for determination of fire resistance of elements of construction (general principles)', 1987

6.1.3 Elements of Structure

All elements of structure (such as structural frames, beams, columns, loadbearing walls, floors and galleries), must achieve a fire resistance standard of at least 90 minutes, when tested in accordance with BS 476-21⁹ and BS EN 1363-1. Refer to BS 9999 paragraph 30.1.1 for items that are not considered elements of structure. It is understood that the roof (or parts of the roof e.g., Level 05) function as a floor in this building and therefore elements supporting it will require protection.

All floors are to be constructed as compartment floors achieving 90 minutes fire resistance (REI).

See Section 6.1.11 for more details on how the compartment floors are to integrate with the proposed curtain walling system.

Protection to elements of structure must be applied to all exposed faces (including instances where this structure is located on external walls), unless otherwise demonstrated as not required.

There is scope to carry out a structural assessment so that the building can achieve 60 minutes fire resistance. This assessment, if desired, can be carried out during RIBA Stage 4.

6.1.4 Compartmentation

Table 6 defines the fire resisting standard for the construction of the separating elements around enclosures (i.e., compartmentation) and should be read in conjunction with the fire strategy drawings provided in Appendix C.

Table 6: Compartmentation required within the building

Area	Enclosure Fire Resistance Requirements (REI)
Generator	120 minutes
All floors (including roof level (L05))	90 minutes
Escape stairs *	90 minutes
Between retail units and reception	90 minutes
Passenger and goods lift shaft	90 minutes
Risers	90 minutes
Refuse stores **	90 minutes
High risk plant rooms (e.g. HV Switch room)	60 minutes
Protected lobbies	30 minutes
Electrical switch room	90 minutes
Boiler Room	90 minutes
Cycle Store	30 minutes

⁹ BS 476-21, 'Fire tests on building materials and structures. Method for determination of fire resistance of loadbearing elements of construction', 1987

Premier House

Area	Enclosure Fire Resistance Requirements (REI)
Party wall between the office and hotel (Level LG, G & 01)	120 minutes
Façade adjacent the Hotel (see Figure 11)	90 minutes
Changing Rooms	30 minutes
External Wall (See Section 6.1.12)	90 minutes (15 minutes insulation)

Notes

- * Including associated discharge corridors leading occupants to an ultimate place of safety.
- ** Refuse stores to be provided with permanent ventilation direct to external air (see Section 6.3.1).

6.1.5 Supporting Elements

Where one element of structure supports or gives stability to another, or to an element of compartmentation, the fire resistance of the supporting element should be no less than the minimum period of fire resistance of the other element (whether loadbearing or not).

6.1.6 Fire Doors

All door assemblies (leaves, frames, and hardware) within separating elements must achieve the same fire resistance standard as that of the element within which it is fitted.

However, it is acceptable for doors in the following separating elements to achieve lesser fire resistance standards as stated in Table 7.

Table 7: Fire resistance requirements for doors in separating elements

Door Location	Fire Resistance Requirement
Escape stairs	FD60S (self-closing)
Protected Lobbies	FD30S (self-closing)
Lift doors	FD60
Doors to service risers where riser is located within protected lobby/ escape route	FD60S
Doors to service risers	FD60
Enclosing high risk plant rooms and refuse storeroom	FD60
Enclosing low risk plant rooms and storage rooms	FD30
Electric Switch room	FD60S (self-closing)*
Boiler Room	FD60S (self-closing)*

Door Location	Fire Resistance Requirement
Cycle Store	FD30S (self-closing)*
Changing Rooms	FD30
Refuse Store	FD60S (self-closing)*
BOH Corridor	FD30S (self-closing)*

Notes

* As door is located on a dead-end corridor

Fire door assemblies must be tested to achieve the required performance from both sides of the door, in accordance with BS 476-22¹⁰ or BS EN 1634-1¹¹. Fire doors denoted with the suffix 'S' require 'smoke seals'.

Where cold smoke seals are required, they must comply with BS 476-31¹² or BS EN 1634-3¹³.

6.1.7 Protection of Penetrations & Fire Stopping

Penetrations through fire resisting walls or floors should be fire-stopped and all pipes, ducts, conduits or cables passing through a compartment wall/floor fire-stopped as necessary.

6.1.7.1 Performance of Fire Stopping Materials

Proprietary fire stopping and sealing systems must achieve the appropriate level of fire performance (see Table 6) when tested in accordance with BS 476-22¹⁴, BS EN 1366-3¹⁵ or BS EN 13501-2¹⁶.

To maintain the physical integrity of fire-stopping, it should be reinforced with non-combustible materials or materials of limited combustibility in the following conditions:

- Where the gap is greater than 100mm; and,
- Where non-rigid or flexible materials are used.

6.1.7.2 Pipes

The following pipes of a restricted diameter must be provided with fire stopping around the pipe only:

- Non-combustible material with a melting point of 800°C (cast iron, copper or steel) having a nominal internal diameter of ≤160mm.
- Any other material having a nominal internal diameter of ≤40mm.

¹⁰ BS 476-22, 'Fire tests on building materials and structures. Method for determination of fire resistance of non-loadbearing elements of construction', 1987

¹¹ BS EN 1634-1, 'Fire resistance tests for doors, shutters and openable windows', 2014 + A1:2018

¹² BS 476-31.1, 'Methods for measuring smoke penetration through doorsets and shutter assemblies – Method of measurement under ambient temperature conditions', 1983

¹³ BS EN 1634-3, 'Fire resistance tests for doors, shutters and openable windows – Smoke control tests for door and shutter assemblies', 2004.

¹⁴ BS 476-22, 'Fire tests on building materials and structures. Method for determination of fire resistance of non-loadbearing elements of construction', 1987

¹⁵ BS EN 1366-3, 'Fire resistance tests for service installations. Penetration seals', 2009

¹⁶ BS EN 13501-2 + A1, 'Classification using data from fire resistance tests, excluding ventilation services' 2009

All other penetrations through fire resisting construction (excluding ventilation/air handling, see below) must be adequately fire stopped using either a suitable proprietary product, or a sleeve where appropriate, to maintain the period of fire resistance.

6.1.7.3 Ductwork Systems

Ductwork systems provide a route for smoke and heat transmission. This risk is to be mitigated by ensuring measures below are incorporated;

- Ventilation ducts, and their associated plant supplying or extracting air directly to or from protected escape routes, must not also serve other areas of the building.
- A separate ventilation system must be provided for each protected stairway.
- Ductwork passing through fire resisting separating elements must be either fire rated ductwork, enclosed within fire resisting construction, or provided with fire dampers located at the junction of the compartment floor or wall.
- Where ductwork passes through any fire resisting construction of a protected escape route and serves the space, all dampers must be fire and smoke dampers that are actuated by smoke detector-controlled automatic release mechanisms in addition to being actuated by thermally actuated devices.
- Any ductwork passing through a protected stairway, lobby or corridor without an opening into that area must be fire-resisting, i.e., the ductwork must be protected using fire-resisting enclosures or fire-resisting ductwork.
- Any ductwork passing through accommodation spaces which it does not serve, must be fire-resisting, i.e., the ductwork must be protected using fire-resisting enclosures or fire-resisting ductwork.
- Where ductwork serves more than one apartment, smoke detector operated fire and smoke dampers should be provided where the ductwork enters each dwelling.

6.1.8 Concealed Spaces (Cavities)

Cavity barriers should be provided:

- In floor and ceiling voids (including raised access floors and suspended ceilings)
- In line with fire resisting elements (see Section 6.1.4)

All concealed spaces and cavities will be subdivided with imperforate cavity barriers, as follows:

- To subdivide any cavity such that the maximum cavity dimension does not exceed 20m in any direction where the cavity linings achieve either Class 1 or Class 0, otherwise the dimension should not exceed 10m in any direction, and,
- To close the edges of cavities, including around openings.

Cavity barriers should be constructed from materials achieving at least 30-minutes integrity and 15-minutes insulation.

6.1.8.1 Junctions and Compartment Walls

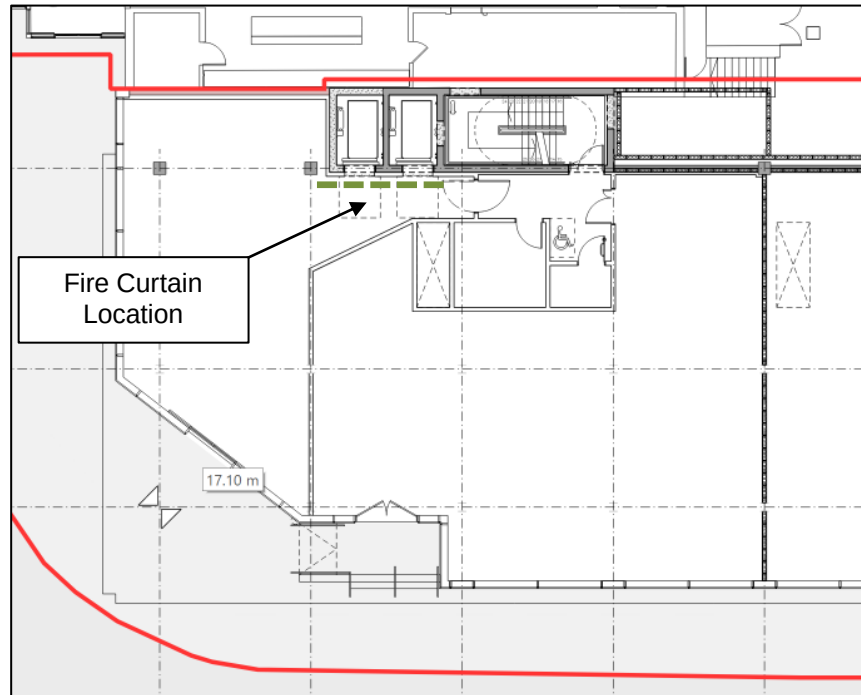
Cavity barriers must be provided to close the edges of cavities, including around openings. Cavity barriers must also be provided as follows:

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

6.1.9 Fire and Smoke Curtains

A fire and smoke curtain shall be provided to separate the ground floor main reception space from the lift shafts. This is to avoid fire and smoke from a fire at this level spreading into the protected lobbies on the upper levels.

Figure 8: Fire and smoke curtain Provision



The curtain shall be designed and installed in accordance with BS 8524-1¹⁷, BS 8524-2¹⁸ and the following:

- Maintain integrity and radiation (EW) fire resistance of no less than 30 minutes.
- Have emergency retract controls on both sides.
- Smoke seals and a combined effective assembly leakage rate not exceeding 3m³/m/h when subject to a pressure of 25Pa.
- Descend upon local detection within the reception space only.

6.1.10 Fire Spread Performance of External Walls

As the height of the building to the topmost occupied storey exceeds 18m the materials used to construct external walls, and attachments to them, and how they are assembled, must not contribute to the rate of fire spread up the outside of the building.

Therefore, any insulation product, filler material (such as the core materials of metal composite panels, sandwich panels and window spandrel panels but not including gaskets, sealants and similar) etc. used in the construction of the external wall shall be class A2-s3, d2, or better, in accordance with BS EN 13501-1¹⁹

¹⁷ BS 8524-1, 'Active fire curtain barrier assemblies. Specification', 2013

¹⁸ BS 8524-2, 'Active fire curtain barrier assemblies. Code of practice for the application, installation and maintenance', 2013.

¹⁹ BS EN 13501-1:2018, 'Fire classification of construction products and building elements. Classification using data from reaction to fire tests', 2018

It is proposed that the external wall is constructed as glazed curtain walling on the North, East and South facades. The West Façade is to be constructed of masonry

6.1.11 Fire Stopping with External Walls

The proposed external wall system for the North, East and South elevation is to be curtain walling with a 'zero spandrel' detail provided by the architect.

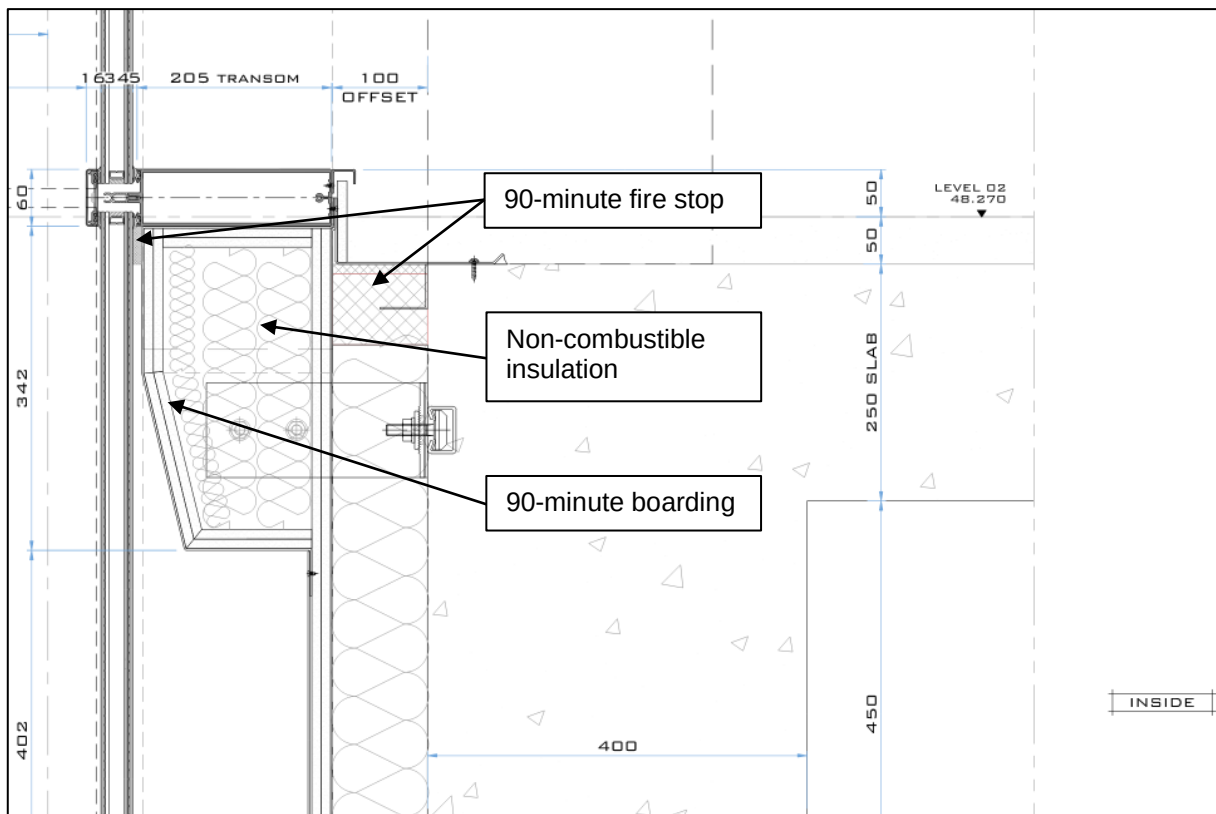
As the junctions between a fire compartment floor and the external wall arrangement can provide a route for fire and smoke spread a suitable fire stop detail is to be implemented.

To mitigate the risk of fire spread between floors, the floor construction should be extended to meet with the inside face of the external wall curtain wall system. Where this is not possible, the cavity must be filled with a suitable fire stopping product to maintain the fire resistance of the floor.

This proposed zero spandrel detail requires a judgement on the impact of a non-compliant detail in the overall fire strategy. The proposed justification is as follows:

- The life safety of occupants would not be placed at higher risk as the building is provided with an L2 fire detection and alarm system and therefore occupants would not need an excessive amount of time to evacuate.
- The areas where curtain walling is proposed face onto public highways so there is no risk of fire spread to adjacent properties.
- The proposed detail is robust and would be able to restrict the spread of fire and smoke in the early stages and supports the life safety requirements of Part B.

Figure 9: Indicative zero spandrel detail

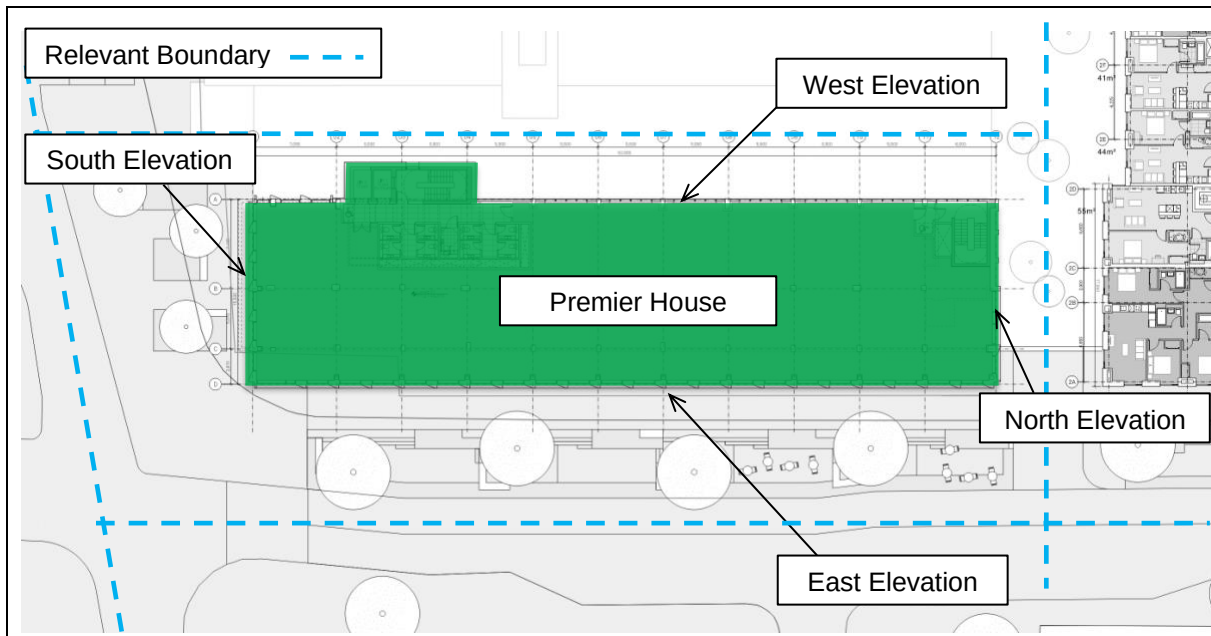


6.1.12 Space Separation (Façade Fire Resistance Requirements)

A detailed analysis of external fire spread, and space separation, can be found in Appendix B. The assessment was produced to demonstrate the allowable unprotected areas allowed per each façade to achieve the Building Regulation B4(1) requirement to limit fire spread to adjacent buildings.

Figure 10 below shows the relevant boundaries associated with Premier House.

Figure 10: Premier House site boundaries



For the assessment, the relevant boundaries are taken as:

- North Elevation – notional boundary between Premier House and the Residential Building (approx. 4.3m)
- East Elevation – centre of Deansgate Road (approx. 12.2m)
- South Elevation – midpoint of Blackfriars Street (approx. 13m)
- West Elevation (Levels 01 and 02) – notional boundary between Premier House and Tree House Hotel (approx. 3.25m)

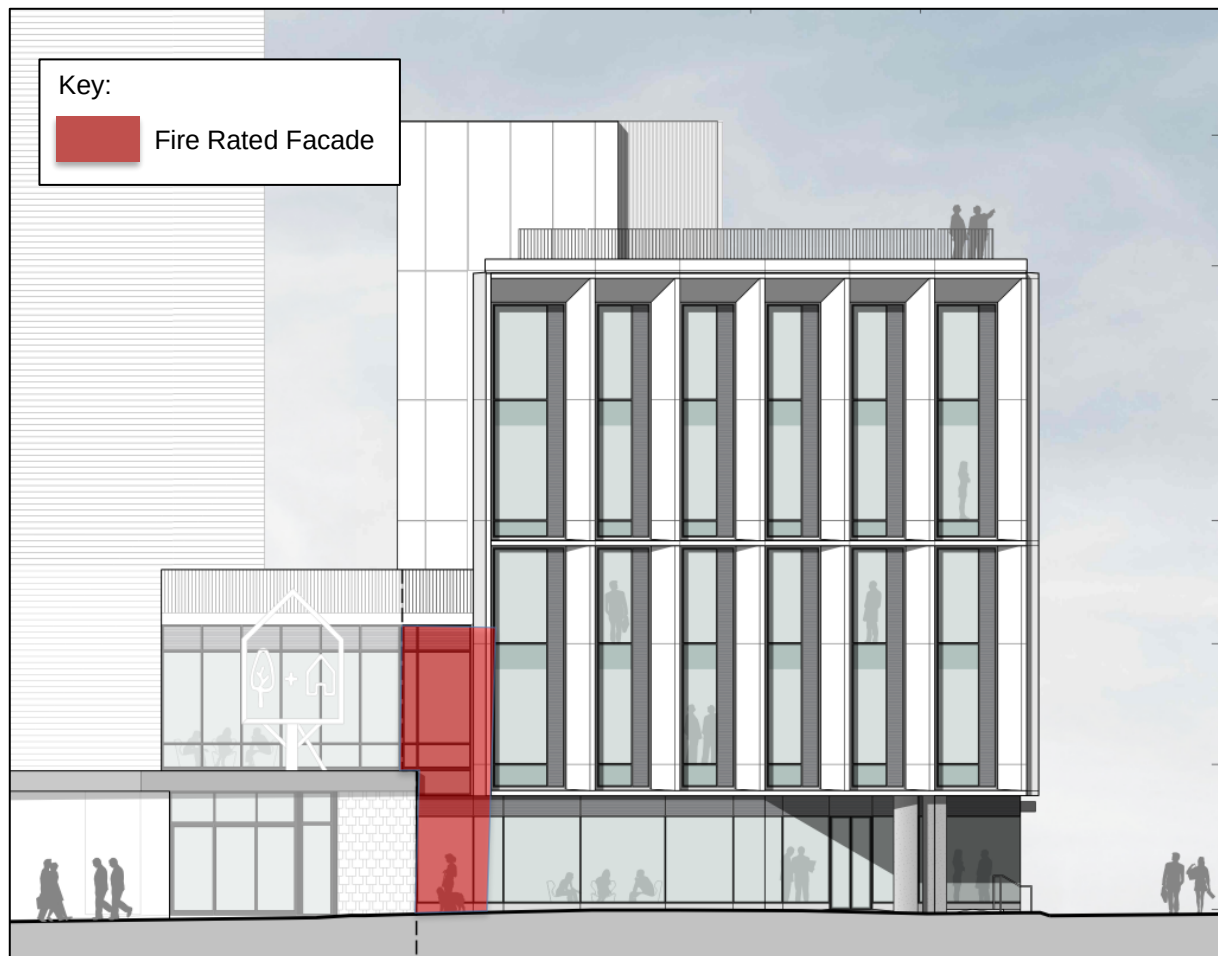
The use of the ground floor, and the associated uniform protection, is still under consideration with the design team. However, all units face onto public highways and therefore can afford fully unprotected facades.

The upper floors of Premier House are to be office accommodation only. The only elevation which requires protection on the upper floors is the West Elevation per the following:

- Level 01 is allowed 66% of unprotected areas which equates to a maximum of 72.2m² of non-fire rated construction.
- Levels 02, 03 and 04 are allowed 54% of unprotected area per floor which equates to a maximum of 72.3m² of non-fire rated construction.

Due to the proximity to the hotel building, a 2.5m section of the southern elevation is required to be fire rated to 90 minutes (integrity + insulation). This is due to the proposed hotel entrance canopy projecting in close proximity to this section of glazing.

Figure 11: Area of facade requiring fire rating



6.1.13 Roof Coverings

The surfaces of all roof levels shall meet the required fire performance when tested to BS-476-3²⁰. The required surface performance is as following:

- As the boundary distance is less than 6m the covering should achieve AA, AB or AC when tested to BS 476-3 or $B_{\text{roof}}(t_4)$ when classified to BS EN 13501-5²¹;

A 1500mm wide strip on either side of each compartment wall or international fire separation is to have a roof covering of designation of AA, AB, AC (or $B_{\text{ROOF}}(t_4)$) in accordance with BS EN 13501-5 on a substrate or deck of a material of limited combustibility. Alternatively, the compartment wall/ internal separation should extend up through the roof for a height of at least 375mm above the top surface of the adjoining roof covering.

²⁰ BS 476-3, Fire tests on building materials and structures. Classification and method of test for external fire exposure to roofs', 2004

²¹ BS EN 13501-5, 'Fire classification of construction products and building elements. Classification using data from external fire exposure to roofs tests' 2016

6.2 Construction of Escape Routes

6.2.1 Minimum Clear Width

Both stairs within the building serve as escape stairs and will provide a clear width of 1200mm.

Stair 01 should offer a minimum clear width of 1200mm from lower ground to ground to support evacuation from the lower level.

Handrails will not protrude more than 100mm into the stair and therefore are not considered a reduction to the clear width to the stair.

All horizontal exit widths should be in accordance with Table 3 when measured between the frame and door ironmongery.

Final exits from the stairs should offer the following clear width:

- Stair 01: 1200mm at ground floor and lower ground.
- Stair 02: 1200mm.

6.2.2 Service Distribution in Lobbies and Corridors

Services passing through (and/ or entering) protected lobbies and protected corridors should meet the following requirements:

- Flame spread rating of any pipe system should be Class B-s3, d2 or better.
- Any electrical wiring should be laid in metal trays or in metal conduit.
- No electrical connections are to be located within the protected lobby/ corridor, apart from those required to serve the lobby/ corridor (e.g. lighting, signage etc).
- The surface linings of the walls and ceilings should be Class B-s3, d3 or better, including linings of any ceiling voids or cavities if provided. All supports and fixings to or within the ceiling should be of non-combustibility.

If the above requirements cannot be achieved, a risk assessment should be undertaken to determine the appropriate measures required, which may be enclosing services within a ceiling with a fire rating of 60-minutes from above.

6.2.3 Doors on Escape Routes

The building should be designed and equipped so that in an emergency, the occupants of the building can make their way to a place of relative or ultimate safety.

The fastening of any door used as an exit during a fire, which is to be locked during normal operation, will comprise of panic hardware in accordance with BS EN 1125²². The hardware will be located on the side approached by escaping persons.

The ground floor office reception is to be served by a sliding door. In the event of a fire in the reception, the fire and smoke curtain would descend to protect the upper levels and therefore occupants within the reception would need to escape via the sliding door. This door should be provided in accordance with BS EN 16005²³ and BS 7036-0²⁴, provided that either:

²² BS EN 1125, 'Building hardware. Panic exit devices operated by a horizontal bar, for use on escape routes. Requirements and test methods', 2008

²³ BS EN 16005:2012. Power Operated pedestrian doorsets. Safety in use. Requirements and test methods

²⁴ BS 7036-0:2014. Power operated pedestrian doorsets. Safety in use. Code of practice for risk assessment and risk reduction

- They are arranged to fail safely in the open position or be easily openable in an emergency; or
- Outward opening hinged doors, of an appropriate width and fastened in accordance with 15.6.2 of BS 9999, are provided immediately adjacent to such doors or turnstiles

power-operated or manually operated sliding doors, except those designed to fail open on loss of power or that can break open from any position throughout their operating parameters in accordance with BS 7273-4²⁵.

6.2.4 Escape Signage

Escape signage must be provided within all areas in accordance with BS ISO 3864: Part 1²⁶ and BS 5499: Part 4²⁷.

The ground floor level of Stair 01 is to be provided with bidirectional signage informing occupants that they can either escape at ground level or carry on to lower ground level to escape.

Bi-directional signage is to be provided at the ground floor landing of Stair 01. Therefore if a fire occurs within the main reception space at ground floor occupants would be directed towards the final exit which leads into the service yard. All other evacuation scenarios will require egress through the main reception and therefore if a fire occurs in the service yard, occupants would escape as per their normal evacuation procedures.

6.3 Ventilation Systems

6.3.1 Refuse Store & Protected Lobby

The refuse store lobby will be provided with permanent natural ventilation via a 0.2m² vent directly to the outside.

6.3.2 Day to Day Building Ventilation

Day to day building ventilation and air conditioning that may circulate smoke during a fire should be shut down upon detection of smoke.

Extract ductwork systems serving the following appliances or parts of a building (where applicable) should be entirely independent of each other and of any other ventilation ductwork serving other parts of the building:

- Kitchens
- Deep fat fryers
- Boiler chambers
- Areas containing oil-immersed electrical plant.

6.3.3 Basement Ventilation

A system of powered smoke and heat ventilation is to be provided as an alternative to natural venting, to remove smoke and heat from the lower ground floor. This system should:

- Provide ten air changes per hour.
- Be capable of handling gas temperatures of 300 °C for not less than 60 min.

²⁵ BS 7273-4:2015+A1:2021 Code of practice for the operation of fire protection measures. Actuation of release mechanisms for doors

²⁶ BS ISO 3864: Part 1 'Graphical symbols — Safety colours and safety signs Design principles for safety signs and safety markings', 2011

²⁷ BS 5499-4, 'Code of practice for escape route signing', 2013.

- 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).

In addition:

- Replacement air should be provided and open automatically, using the same activation method as the ventilation system.
- The system should have an independent power supply which would operate in the event of failure of the main supply.
- The ductwork should be a fire-resisting duct system (Method 2 or Method 3; see 32.5.2 of BS 9999) 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.
- All wiring associated with the fans should be in accordance with BS 8519²⁸.

The justification to why this system does not need to rely on the provision of sprinklers is detailed in Section 5.4 of this Fire Strategy.

6.4 Electrical Systems

6.4.1 Automatic Fire Detection & Alarm

An addressable, Category L2, automatic fire detection and alarm system will be provided throughout the office areas of the building, in accordance with BS 5839-1²⁹.

Automatic fire detection coverage is required in the following areas:

- All escape routes and rooms that open onto escape routes
- Ancillary areas including the cycle store, reception office and plant rooms.

An acknowledgment period is to be introduced into the detection system to allow for false alarms. This is normally consisting of a 60-240 second period where management can investigate a smoke detector activator – the time period is subject to risk assessment and agreement with the AHJs. If a second smoke detector, heat detector or manual call point is activated then the acknowledgement period is redundant, and the building will enter full evacuation mode.

Upon activation of the alarm, the building will operate a simultaneous evacuation regime in accordance with Section 4.1, whereby the office areas of the building are to evacuate. Sounders are to be provided throughout all accommodation. A staged alarm may be incorporated in order to minimise nuisance alarms.

It is recommended that the fire alarm panel is located in the main reception area of the building, within sight of the main entrance.

The roof terrace should be provided with adequate sounders and flashing beacons which are linked to the buildings fire alarm system.

The retail units will be provided with standalone fire alarm and detection systems and therefore would evacuate upon local detection only. A link should be provided from Unit A to the office demises' panel as the two areas share a stair for means of escape.

²⁸ BS 8519:2020. Selection and installation of fire-resistant power and control cable systems for life safety, fire-fighting and other critical applications. Code of practice

²⁹ BS 5839-1, 'Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises', 2017

6.4.2 Two-Way Communication System

A two-way communication system will be provided within the building to allow occupants within the refuge areas to communicate with those managing the evacuation. The system will be designed as a Type B outstation in accordance with BS 5839-9³⁰ and will provide communication to the fire alarm panel located in the main reception.

6.4.3 Secondary Power Supply

To reduce the risk of the loss of electrical supply to life safety systems, secondary power supplies should be provided and may consist of battery backup for individual systems (if permitted by the relevant standards). Relevant systems include:

- Fire detection and alarm system
- Ground floor fire/smoke curtains
- Emergency lighting
- Bi-directional Signage
- Two-way communication systems
- Fire and smoke dampers

6.4.4 Emergency Lighting of Escape Routes

Emergency lighting will be provided to all escape routes in accordance with BS 5266-1³¹, and any other relevant parts of BS 5266 necessary for the chosen system.

6.4.5 Electrically Powered Doors/Locks on Escape Routes

Electrically powered locks to doors on escape routes must return to the unlocked position on each of the following:

- On operation of the fire alarm system, and
- On activation of a manual door release unit (green break-glass box), and
- On loss of power or system error.

6.4.6 Bi-Directional Signage

Bi-directional signage is required to be placed at the ground floor landing of Stair 01. This should be linked to the detectors within the service yard.

Therefore in the event of a fire within the service yard, the sign would direct possible escaping occupants via the ground floor and not the lower ground by showing a flashing green arrow directing occupants towards reception.

This sign should also support the directing of occupants to lower ground if a fire occurs at ground floor in the reception/ café space.

Examples of proposed signage to be located at the ground floor main landing and the lower ground stair final exit are provided in Figure 13 .

³⁰ BS 5839-9, 'Fire detection and fire alarm systems for buildings. Code of practice for the design, installation, commissioning and maintenance of emergency voice communication systems', 2011

³¹ BS 5266-1, 'Code of practice for the emergency lighting of premises', 2016

Figure 12: Bi-direction signage location

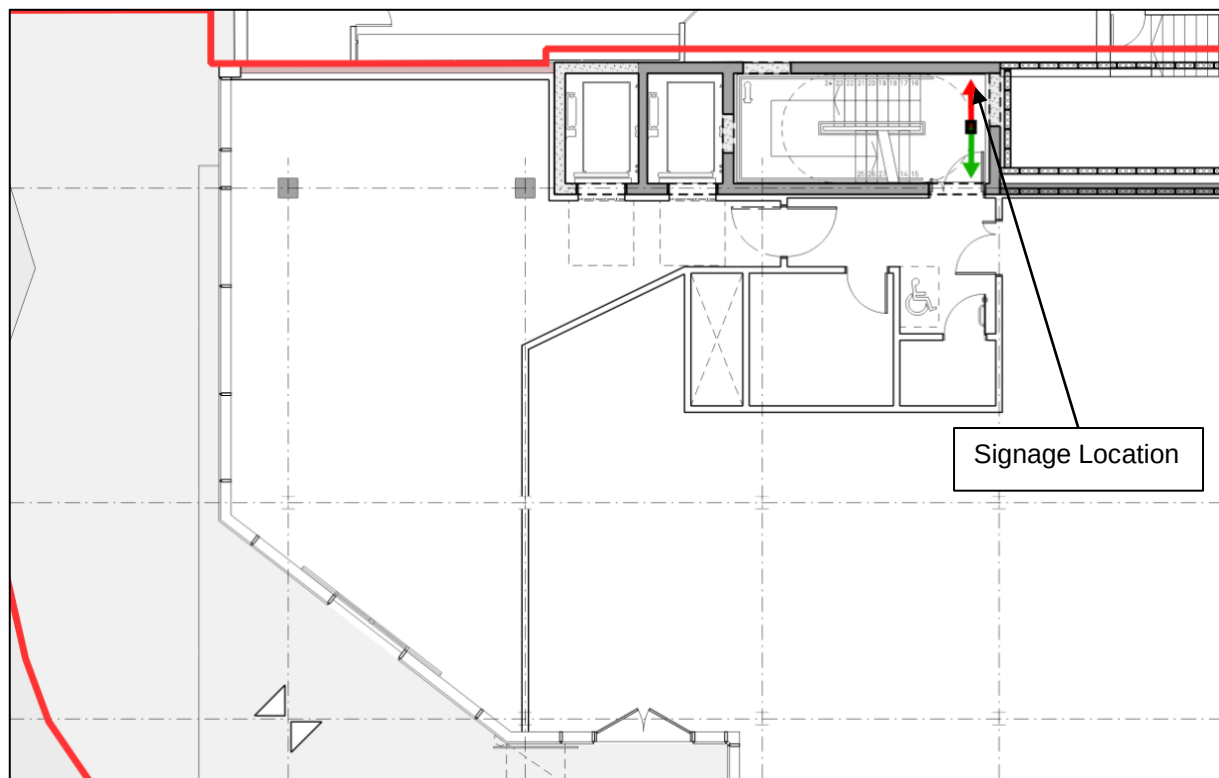
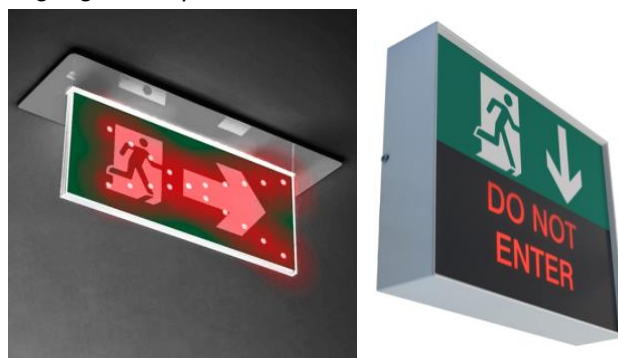


Figure 13: Bi-directional signage example



7 Further Work/ Fire Safety Design Implementation

The fire safety design (as documented in this report) has been developed to enable RIBA Stage 3 sign off from the client. This document will also be submitted to Building Control and the Fire and Rescue Service with the intention of gaining in principle Part B approval for its content. This strategy has been produced to support a detailed RIBA stage 3 design which will contain all necessary calculations and information to submit for Part B approval.

Once all works are completed, Building Control will issue a completion certificate, and once the building is handed over, the Responsible Person(s) must comply with their duties under the Regulatory Reform (Fire Safety) Order 2005. In order to get to this position, the following needs to be conducted.

1. The Design Team must incorporate the fire safety design as specified in the approved RIBA Stage 3 Fire Safety Strategy into their Designs and Specifications.
2. The Contractor must ensure that the Developed Designs are implemented and that any changes are tracked and agreed as appropriate with the Building Control authorities.
3. The relevant fire safety information must be given to the Responsible Person(s) on completion of the works.
4. The responsible person(s) must take responsibility for ongoing health and safety within the completed building.

7.1 Fire Safety Information

Regulation 38 of the Building Regulations requires that fire safety information must be given to the responsible person at the completion of the works. As a minimum this must include:

- The Fire Safety Strategy;
- Assumptions regarding the management of the building. In this instance this includes a requirement to provide assisted evacuation as appropriate from refuges spaces within the stairs;
- The evacuation strategy / regime and high-level cause and effect;
- Escape routes and muster points;
- Details of compartmentation, cavity barriers, fire doors, fire stopping and opening protectives;
- Smoke detector heads, alarm call points, alarm panels, emergency communication systems, fire safety signage, emergency lighting, fire extinguishers; and,
- As-built plans showing the above.

7.2 Fire Safety Management

The Regulatory Reform (Fire Safety) Order 2005 requires the responsible person to take responsibility for ongoing health and safety within the completed building.

Typically, this requires them to develop and implement a fire safety management plan, conduct a preliminary risk assessment upon or prior to building occupation and undertake regular fire risk assessments.

This report and associated fire strategy drawings can be used as part of the preliminary fire risk assessment. DFC have not held preliminary meetings with the proposed operators. This should be undertaken during RIBA Stage 4, if possible, to ensure the aligns with the operational intent.

As part of the fire strategy for the building, a Level 2 Management regime should be adopted as a minimum. This includes the following principles:

- Reactive to the impact of proposed changes to the risk profile, identifies alternative protection and management measures required and ensures implementation.
- Responsibility for the management of fire safety may be divided over a number of different individuals, departments or even companies, and the implementation of changes may require approval of those not directly responsible for management of fire safety within the premises.
- Staffing level specific to the building considering the use of the building and nature of the occupants. Includes sufficient trained personnel to ensure all less able-bodied occupants are assisted out of the building effectively in an emergency.
- Ensures sufficient staff numbers are trained in fire safety and evacuation procedures. Contingency for sickness or holiday is not required as a minimum.
- Work control is developed reactively with clear lines of responsibility with a permit system and logging and audit processes.
- Communications ensure that those involved are informed of relevant fire safety information. Contingency for systems failure is not required as a minimum.
- Fire safety systems are monitored, and equipment is functional at all times when the building is in use. Alternative procedures for times when systems and equipment are unavailable are determined reactively.
- Liaison with the fire authority is proactive, including notification of the fire authority to changes in Risk Profile and other key factors. Routine meetings are not required as a minimum.
- Contingency planning takes account of a narrow range of possible emergency incidents.
- The above reflects a well-managed building, and further guidance can be found in Section 4 of BS 9999.
- A joint management system is to be provided for the shared service yard arrangement. This should consider the use of a shared detection system and fire risk management of the service yard area.

Appendix A – Determination of the BS 9999 Risk Profile

The Fire Strategy for the building is based upon the guidance in BS 9999, which identifies risk profiles based on the occupancy type and consideration of fire growth (i.e. materials within the building).

A.1 Risk Profile – Zone 1 (Office Accommodation)

Zone 1 comprises of office accommodation on the upper floors (L01 – L04) and a portion of the ground floor.

The Occupancy Characteristic (Table 2 of BS 9999) is considered to be 'A', i.e. occupants who are awake and familiar with the premises.

Table 3 of BS 9999 highlights the following example fire growth rate:

Fire Growth Rate of 2: office, lounges and seating areas.

The combination of the Occupant Characteristics and Fire Growth Rate, results in the Risk Profile for the space. Consequently, the Risk Profile considered appropriate for Zone 1 is 'A2'.

A.2 Risk Profile – Zone 2 (Retail)

In Zone 2, the general public have access to four retail spaces at the ground floor, without the need to clear security to the upper floors.

The Occupancy Characteristic (Table 2 of BS 9999) is considered to be 'B', i.e. occupants who are awake and unfamiliar with the premises.

Table 3 of BS 9999 highlights the following example fire growth rate:

Fire Growth Rate of 3: Stacked combustibles, workshops, factories and small storage.

The combination of the Occupant Characteristics and Fire Growth Rate, results in the Risk Profile for the space. Consequently, the Risk Profile considered appropriate for Zone 2 is 'B3'.

A.3 Risk Profile – Zone 3 (Plant / Back of House)

Zone 3 comprises of the back of house/ plant spaces situated on the lower ground and ground floor.

The Occupancy Characteristic (Table 2 of BS 9999) is considered to be 'A', i.e. occupants who are awake and familiar with the premises.

Table 3 of BS 9999 highlights the following example fire growth rate:

Fire Growth Rate of 3: Stacked combustibles, workshops, factories and small storage.

The combination of the Occupant Characteristics and Fire Growth Rate, results in the Risk Profile for the space. Consequently, the Risk Profile considered appropriate for Zone 3 is 'A3'.

Appendix B – External Fire Spread Calculations

Elevations used for this assessment are as follows:

B.1 North Elevation



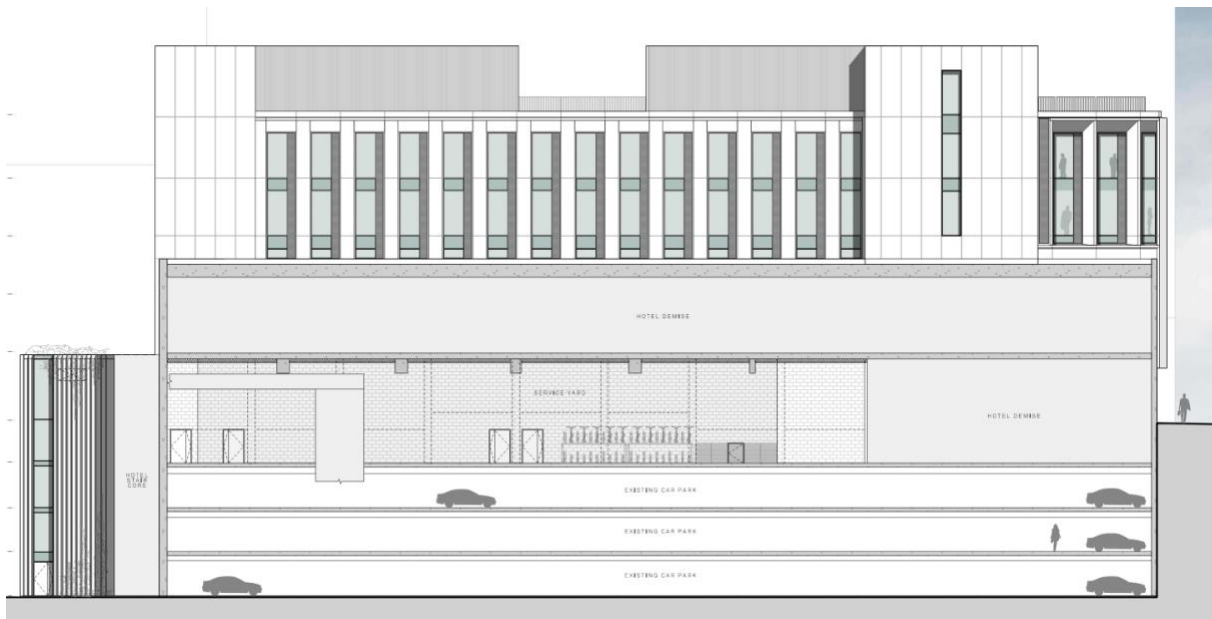
B.2 East Elevation



B.3 South Elevation



B.4 West Elevation:



B.5 Ground Floor Unprotected Area Calculations

Table 8 - Ground Floor Unprotected Areas

Area	Elevation	Use	Façade Dimensions	Boundary Distance	Allowable Unprotected Area %
Reception	East	Office	22.2m x 4.12m	12.2m	100% (91.5m ²)
Unit A	East	Retail	16.5m x 4.12m	12.2m	100% (68m ²)
Unit B	East	Retail	11m x 4.12m	12.2m	100% (45.3m ²)
Unit C	East	Retail	10.9m x 4.12m	12.2m	100% (44.9m ²)

B.6 Level 01 Unprotected Area Calculations

Table 9 – Level 01 Unprotected Areas

Facade	Use	Façade Dimensions	Boundary Distance	Allowable Unprotected Area %
North	Office	8.2m x 5m	4.3m	100% (41m ²)
East	Office	62.7m x 5m	12.2m	100% (313.5m ²)
South	Office	15m x 5m	13m	100% (75m ²)
West	Office	Party Wall with Hotel		

B.7 Level 02,03 and 04 Unprotected Area Calculations*Table 10 - Level 02, 03 and 04 Unprotected Areas*

Facade	Use	Façade Dimensions	Boundary Distance	Allowable Unprotected Area %
North	Office	8.2m x 3.62m	4.3m	100% (29.7m ²)
East	Office	62.7m x 3.62m	12.2m	100% (227m ²)
South	Office	15m x 3.62m	13m	100% (54.3m ²)
West	Office	37m x 3.62m	3.25m	54% (77.3m ²)

Appendix C – Indicative Fire Strategy Plans

Fire Strategy Key

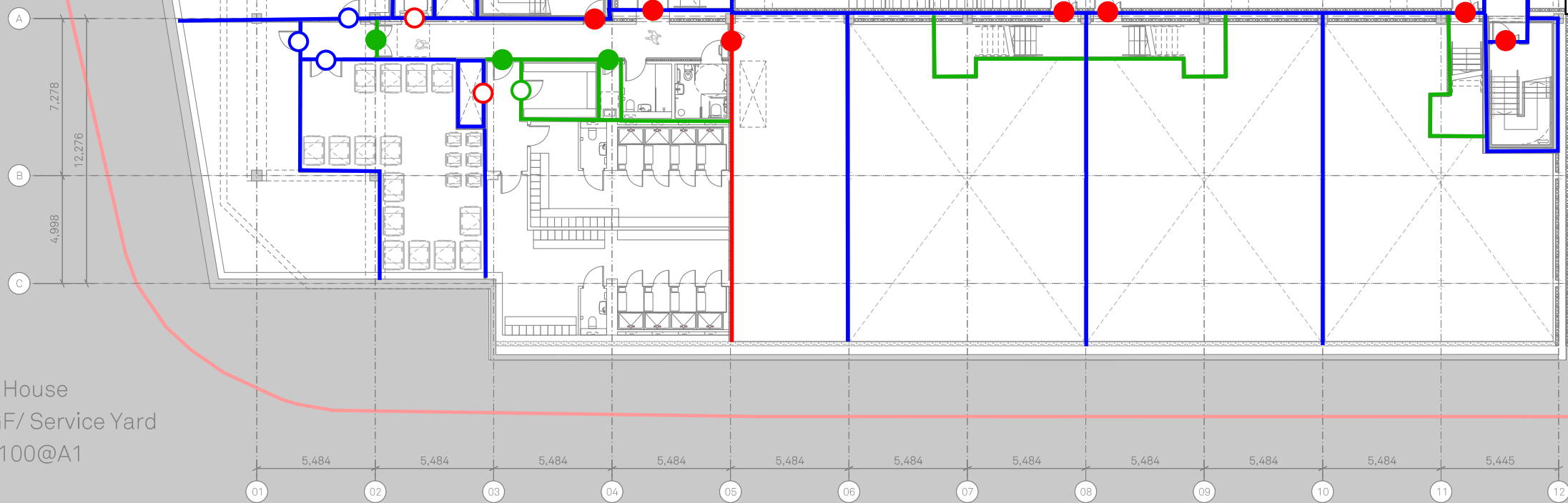
Fire Resisting Compartmentation

- 240 minutes
- 120 minutes
- 90 minutes
- 60 minutes
- 30 minutes

Fire Doors

- FD240S / FD240
- FD120S / FD120
- FD90S / FD90
- FD60S / FD60
- FD30S / FD30
- FD20S / FD20

Premier House
Level LGF/ Service Yard
Scale 1:100@A1



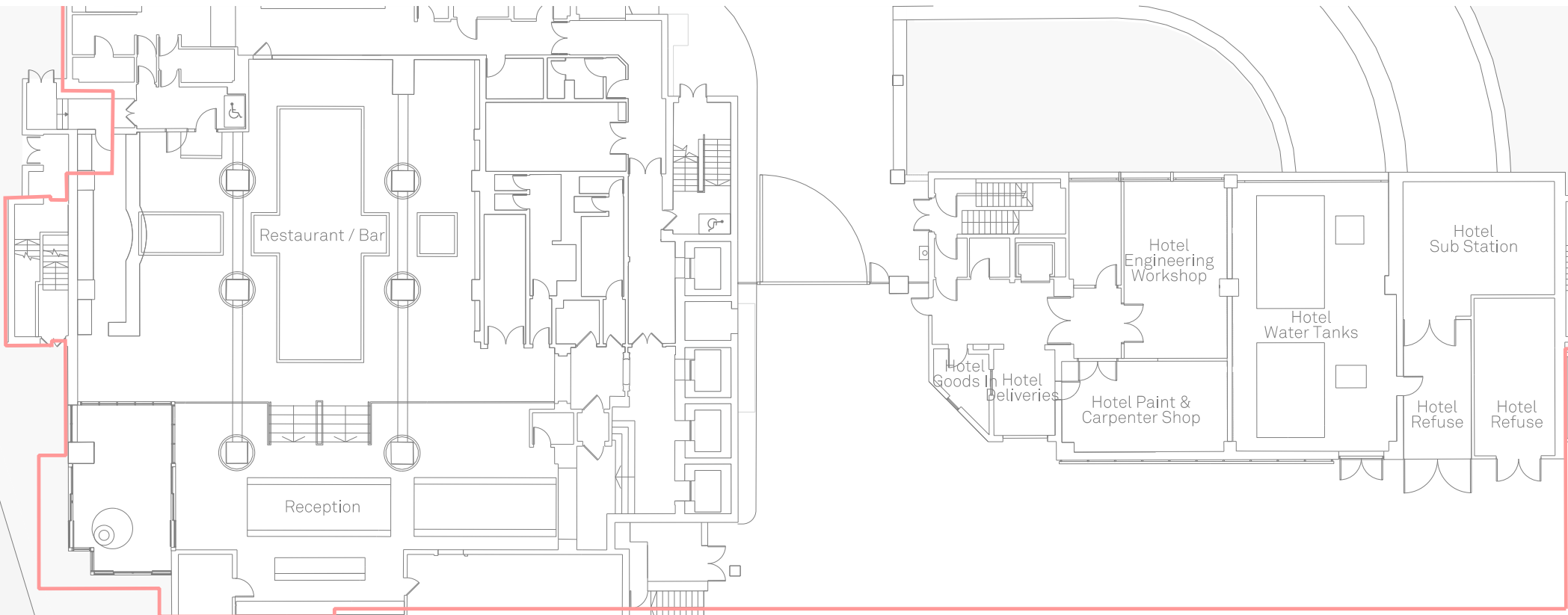
Fire Strategy Key

Fire Resisting Compartmentation

- 240 minutes
- 120 minutes
- 90 minutes
- 60 minutes
- 30 minutes

Fire Doors

- FD240S / FD240
- FD120S / FD120
- FD90S / FD90
- FD60S / FD60
- FD30S / FD30
- FD20S / FD20



A 7,278
B 12,276
C 4,998

Premier House
Level 00
Scale 1:125@A1

01 5,484 02 5,484 03 5,484 04 5,484 05 5,484 06 5,484 07 5,484 08 5,484 09 5,484 10 5,484 11 5,445 12

Fire Strategy Key

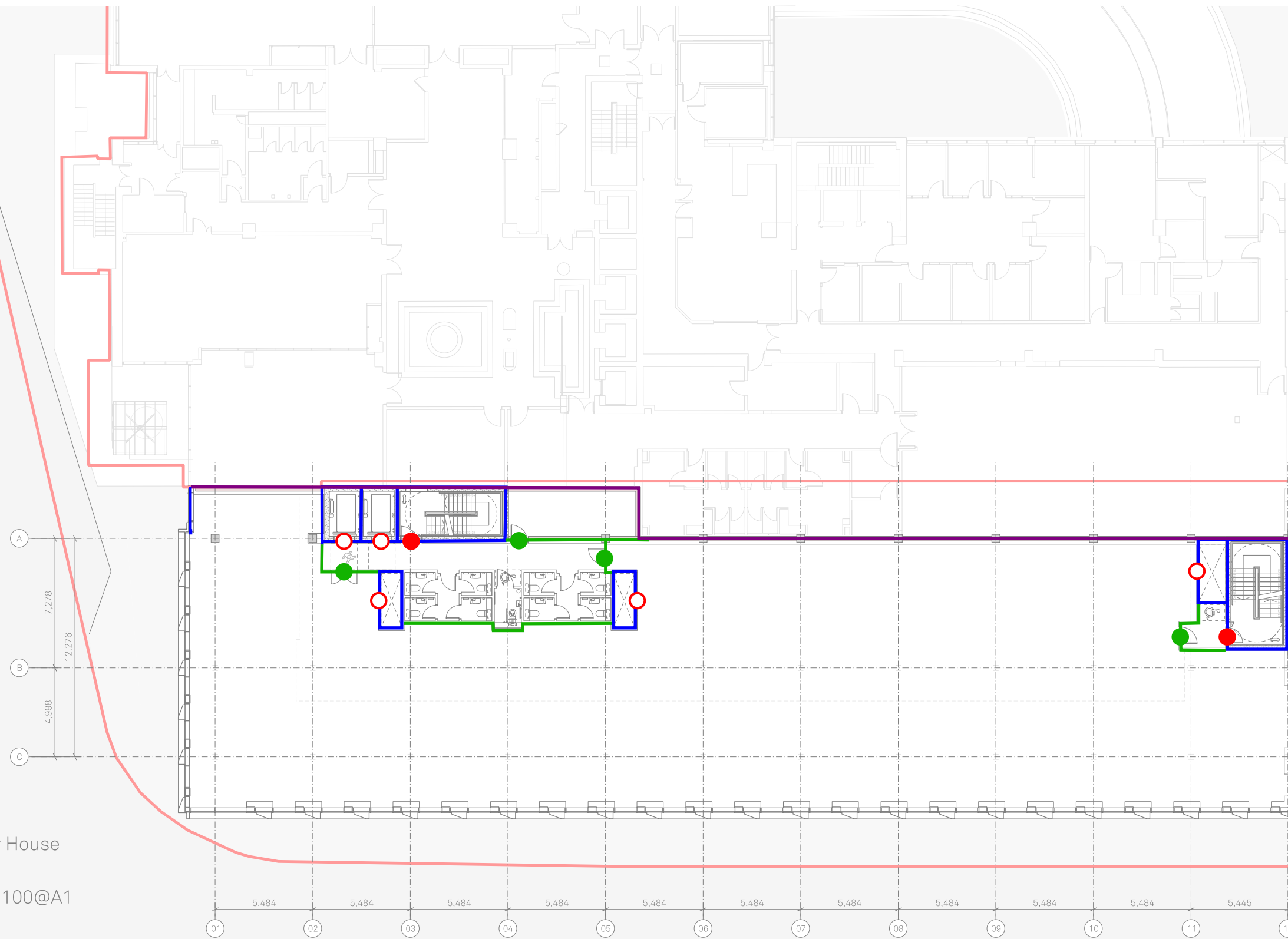
Fire Resisting Compartmentation

- 240 minutes
- 120 minutes
- 90 minutes
- 60 minutes
- 30 minutes

Fire Doors

- FD240S / FD240
- FD120S / FD120
- FD90S / FD90
- FD60S / FD60
- FD30S / FD30
- FD20S / FD20

Premier House
Level 01
Scale 1:100@A1



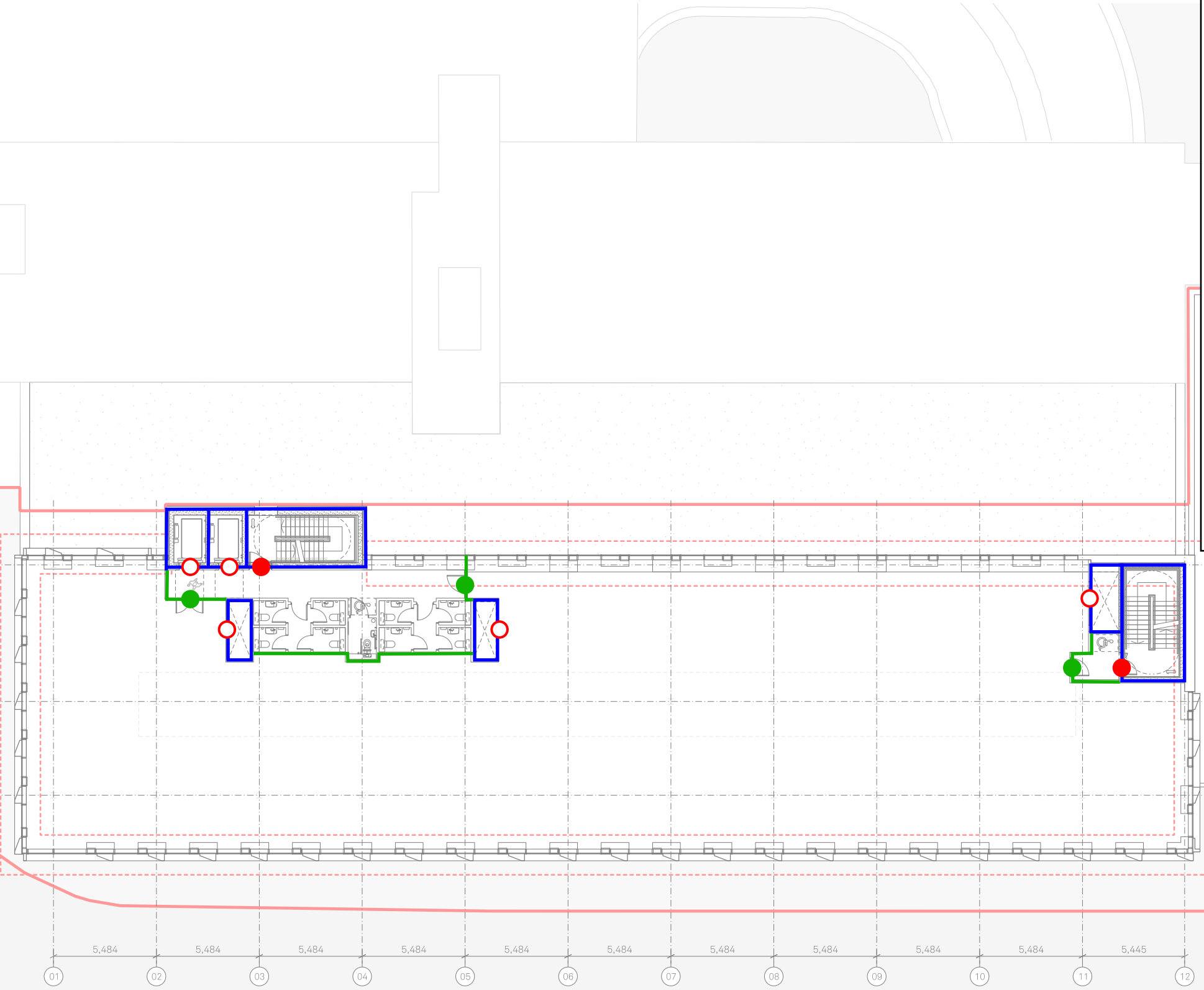
Fire Strategy Key

Fire Resisting Compartmentation

- 240 minutes
- 120 minutes
- 90 minutes
- 60 minutes
- 30 minutes

Fire Doors

- FD240S / FD240
- FD120S / FD120
- FD90S / FD90
- FD60S / FD60
- FD30S / FD30
- FD20S / FD20



Premier House
Level 02
Scale 1:100@A1

Fire Strategy Key

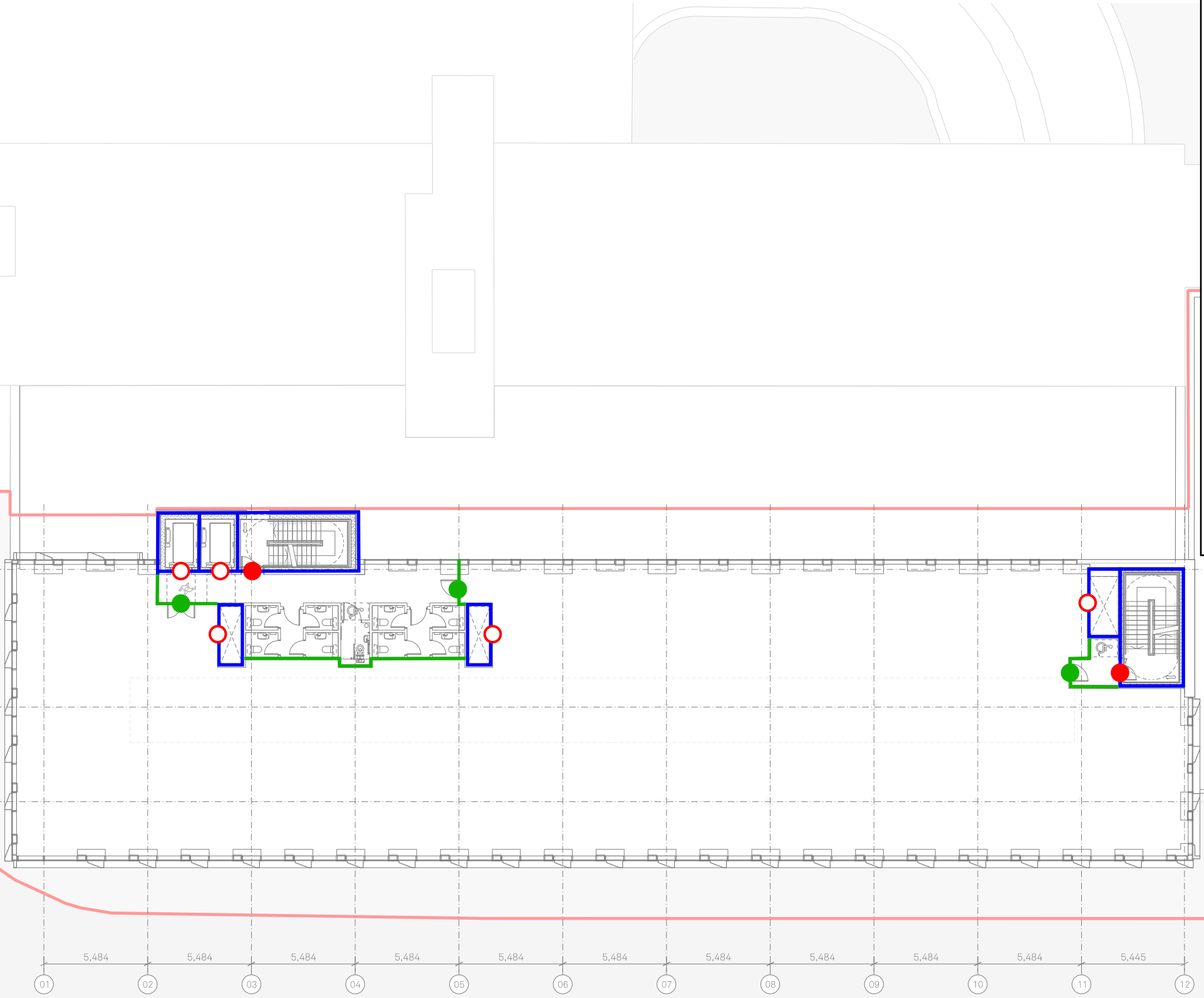
Fire Resisting Compartmentation

- 240 minutes
- 120 minutes
- 90 minutes
- 60 minutes
- 30 minutes

Fire Doors

- FD240S / FD240
- FD120S / FD120
- FD90S / FD90
- FD60S / FD60
- FD30S / FD30
- FD20S / FD20

Premier House
Level 03 - 04
Scale 1:100@A1



Fire Strategy Key

Fire Resisting Compartmentation

- 240 minutes
- 120 minutes
- 90 minutes
- 60 minutes
- 30 minutes

Fire Doors

- FD240S / FD240
- FD120S / FD120
- FD90S / FD90
- FD60S / FD60
- FD30S / FD30
- FD20S / FD20

Premier House
Level 05
Scale 1:100@A1

A 7,278
B 12,276
C 4,998

01 5,484 02 5,484 03 5,484 04 5,484 05 5,484 06 5,484 07 5,484 08 5,484 09 5,484 10 5,484 11 5,445 12

Premier House

Quality Assurance

This report has been prepared for the use by, and takes into account the particular instructions and requirements of, our Client. It is not intended for use by any third party, and Design Fire Consultants Ltd shall not be liable for the reliance on or use of the report by any third party.

Revision	Date	Issue Description	Author	Checked
00	04 August 2022	Stage 3 - First issue for comment	J Dubbey	P Patel
				