Developed for:
Tasou Associates

Outline Fire Safety Strategy

81 Belsize Park Gardens
London

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Outline Fire Safety Strategy

81 Belsize Park
London

Project Reference: AF2508

Client: Tasou Associates

Issue	Date	Description	Author	Checked	Approval
02	24.09.2021	First issue for design team review	FHR	VDM	FHR
01	22.09.2021	First issue for design team review	FHR	VDM	FHR

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The checker has provided an internal review of the technical content of the report.

The approver confirms the report has received quality assurance in accordance with the principles of ISO 9001 and authorises external release of the document on behalf of Ashton Fire.

CONTENTS

1. INTRODUCTION

1.1 General

1.1.1 Ashton Fire have been commissioned by Tasou Associates to provide fire safety consultancy services for the proposed development located at 81 Belsize Park Gardens in London.

1.1.2 This report outlines the minimum fire safety provisions required for the proposed 81 Belsize Park, development to be compliant with the Functional Requirements of the Building Regulations 2010 (as amended).

1.1.3 This document is an outline document only that may be used for planning application submittal, it is not to be submitted as part of the Building Regulation application; a Detailed Fire Safety Strategy is required to be developed during the proceeding design stages to support.

1.1.4 This document has been prepared to support the pre-planning design and the planning application for the 81 Belsize Park Gardens development.

1.2 Fire safety guidance

1.2.1 The principal guidance document being used to demonstrate compliance with the requirements of the Building Regulations shall be BS 9991 [1]. For areas that fall outside the scope of BS 9991, the recommendations contained within BS 9999 shall be followed. It is noted that this guidance document does not set out statutory requirements; they are intended to provide guidance only for generic building designs. An alternative solution can be applied to achieve an acceptable level of safety commensurate with the function requirements of the Building Regulations 2010 (as amended).

1.2.2 On the basis that recommendations made within the guidance documents are followed, it is considered that the Requirements of the Building Regulations 2010 (as amended) will be fulfilled; and that an adequate level of fire safety will be provided throughout the premises.

1.3 Alternative fire engineering solutions

1.3.1 Fire engineering principles are employed to support alternative solutions where strict adherence to the codes would conflict with the wider aspirations for the scheme. The use of a fire safety engineering approach is recognised within BS 9991 as an acceptable means of complying with the Functional Requirements.

1.3.2 Apart from where noted in this report, the design will be in accordance with the recommendations of BS 9991. Departures from the code guidance are identified and alternative solutions proposed following the methodology outlined in PD 7974 [2].

1.3.3 In accordance with the fire safety engineering principles detailed in the PD 7974 codes of practice, all fire precautions are determined based on there being one seat of fire, as considered suitable for accidental fires.

1.4 The London Plan – Policy D12

1.4.1 The Policy D12 states:

In the interest of fire safety and to ensure the safety of all building users, all developments proposals must achieve the highest standards of fire safety and ensure that they:

- *Identify suitably positioned unobstructed outside space:*
    - *For fire appliances to be positioned on;*
    - *Appropriate for use as an evacuation assembly point;*
- *Are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire; including appropriate fire alarm systems and passive and active fire safety measures;*
- *Are constructed in an appropriate way to minimise the risk of fire spread;*
- *Provide suitable and convenient means of escape, and associated evacuation strategy for all building users;*
- *Develop a robust strategy for evacuation which can be periodically updated and published, and which all building users can have confidence in;*
- *Provide suitable access and equipment for firefighting which is appropriate for the size and use of the development.*

All major development proposals should be submitted with a Fire Statement, which is an independent fire strategy, produced by a third party, suitably qualified assessor. The statement should detail how the development proposal will function in terms of:

- *The building's construction: methods, products and materials used, including manufacturers' details;*
- *The means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach;*
- *Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans;*
- *Access for fire service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and position of equipment, firefighting lifts, stair and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these;*
- *How provision will be made with the curtilage of the site to enable fire appliances to gain access to the building;*
- Ensuring that any potential future modification to the building will take into account and not compromise the base build fire safety/ protection measures.

1.4.2 This document has been prepared in line with the above items and is deemed suitable to be adopted as the Fire Statement that is referenced in Policy D12. However, as this document is intended to serve as strategic guidance, detailed design information such as the methods of construction or the selection of specific products will not be included within this document and can be obtained from other members of the design team.

1.4.3 In accordance with Policy D5 (Inclusive Design) of the London Plan, safe and dignified emergency evacuation is required to be incorporated into the building for all building users. As this building has a passenger lift installed, the aforementioned policy stipulates that a suitably sized lift should be provided for evacuation. Fire evacuation lifts and associated provisions should be appropriately designed and constructed and should include the necessary controls suitable for the purposes intended. Furthermore, the operation of the lifts should be supported by appropriate management procedures. In accordance with Annex G of BS 9999, the evacuation lifts may be operated using either driver assisted evacuation, automatic evacuation or remote assistance evacuation. The end client shall need to understand and provide a suitable management plan for the evacuation lifts within the building.

1.4.4 In accordance with Clause 3.12.9 of Policy D12 of the London Fire Plan, Fire Statements are to be produced by qualified engineers with relevant experience in fire safety such as a chartered engineer or suitably qualified and competent professionals with demonstrable experience to address the complexity of the design being proposed. The relevant experience of the authors and authorisers of this document are displayed in the table below.

Table 1 - Qualifications and relevant experience

Name	Role	Academic qualifications	Membership of professional bodies	Relevant experience
Felipe Herrera	Associate Director	BSc in Architectural Engineering MSc in Architectural Engineering	Member with the Institute of Fire Engineers (MIFireE) Member with Society of Fire Protection Engineering (MSFPE) Chartered Engineer with Engineering Council UK via the Institution of Fire Engineers (CEng)	10 years in the design of fire strategies for residential buildings including high-rise buildings.
Daniel Mois	Fire Engineer	BSc in Civil Engineering MSc in Civil Engineer, Building Structures	Associate Member with the Institute of Fire Engineers (AIFireE)	2 years in the design of fire strategies for residential buildings including high-rise buildings.

1.4.5 As this document is a performance-based strategic document which is used to inform other members of the design team. As such, when reviewing the Policy D12 requirements, this document should be read in line with other supporting documentation produced by other members of the design team.

1.5 Reference information

1.5.1 This document is based on information provided by the design team to Ashton Fire as listed in Table 2. Additional contradictory information or subsequent design variations to the information supplied may render the findings and recommendations of this report invalid.

1.5.2 The figures used within this report are indicative and used to express the principles of the fire safety strategy. They may not be representative of final arrangement. The principles contained within this report are required to be maintained through any design amendments during the life of the building.

Table 2 - Project documentation referenced

Description	Reference	Revision	Author
Ground Floor	PA.01F	B	Tasou Associates
First Floor	PA.02F	B	
Second Floor	PA.03F	B	
Third Floor	PA.04F	B	

1.6 Project description

1.6.1 This report is specific to 81 Belsize Park Gardens residential development located in London.

1.6.2 The development involves the refurbishment and conversion of an existing building. The new building use will be residential.

1.6.3 The 81 Belsize Park Gardens residential development comprises of three single stair residential dwellings, arranged over 3 floors (two dwellings – Duplexes 01 & 03) and 4 floors (one dwelling – Duplex 02).

1.6.4 The three dwellings communicate with each other on ground level via an access/escape corridor with exits on both ends.

1.6.5 The main entrance to all three dwellings is located on first floor. To escape out in the event of fire, occupants need to exit via the first-floor entry door and access fire protected stairs that discharge on ground level. One of these final stairs serves Duplexes 02 & 03. The other stair only serves Duplex 01. These two main exit stairs then link with the final escape corridor on ground level mentioned in paragraph 1.6.4.

1.6.6 Residential ancillary accommodation consists of a bike store, a main reception room, a general store room and a refuse store. These are located on ground level.

1.6.7 The height of the dwellings, measured from adjacent ground level to the finished floor level of topmost occupied storey are

- Duplexes 01 & 03 – Approximately 6.6m (3 storeys or 1 floor located above 4.5m)
- Duplex 02 – Approximately 9.9m (4 storeys or 1 floor located above 7.5m)

1.6.8 The above heights are estimated based on a representative floor height of 3.3m.

1.6.9 Indicative layouts for the dwelling houses are illustrated in Figure 1 to Figure 5.

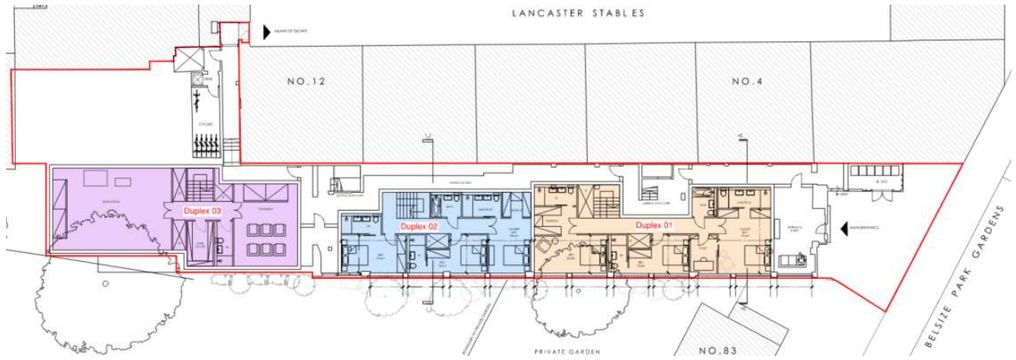


Figure 1 - Indicative site plan

1.6.10 The site plan from Figure 1 shows the three duplex dwellings surrounded by other properties. It can be accessed from two entrances via Belsize Park road to the North and via Lancaster Stables road to the West. The site property boundaries are very close to the building external walls; these boundaries are shown with a red line.

1.6.11 As can be seen in Figure 1, duplex 1 is coloured orange and is located at the North side. Duplex 02 is in the middle and is coloured blue. Duplex 03 is located at the South side and is coloured violet.

1.6.12 The main access corridor is located at ground access level and runs from the main entrance off of Belsize Park road along all three dwellings and towards the other access off of Lancaster Stables road.

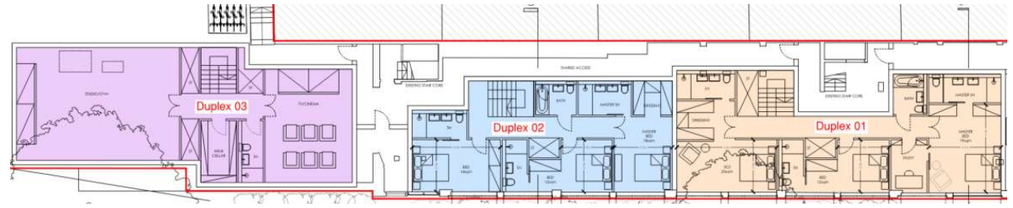


Figure 2 - Indicative ground floor layout

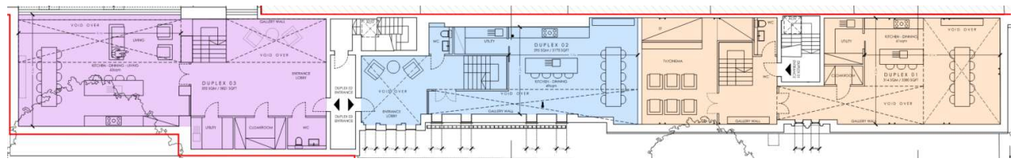


Figure 3 – Indicative first floor layout

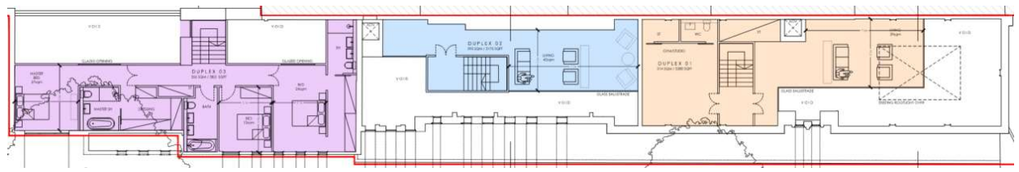


Figure 4 – Indicative second floor

Figure 5 – Indicative third floor layout

1.6.13 As can be seen in Figure 5, only duplex 02 reaches the third floor.

2. ACTIVE FIRE SAFETY SYSTEMS

2.1 Means of detection and alarm

2.1.1 The fire detection and alarm system requirements across the development are summarized in Table 3.

Table 3 -Minimum fire detection and alarm system

Accommodation	Minimum requirements
Dwellings / Duplexes	If rented, the dwellings should be provided with a minimum of a Grade A, Category LD1 detection and alarm system, designed and installed in accordance with BS 5839-6 [3]. If the dwellings will be owner occupied, the minimum category may be a Grade A, Category LD2 system. Where access from the balcony area is via a cooking space, sounders are required to be provided on the balcony.
Ancillary Accommodation	An L2 system conforming to BS 5839-1 shall be provided to all ancillary accommodation; Bicycle store, main reception, general store and refuse bins store.

2.2 Automatic suppression system

2.2.1 As duplex 02 has a top floor height a couple of meters above 7.5m and its top floor is not provided with alternative means of escape besides the internal protected stair, a Category 1 sprinkler system conforming to BS9251:2021 should be provided throughout this duplex.

2.2.2 Due to their heights, Duplexes 01 & 03 are not required to be protected with an automatic sprinkler system. However, the sprinkler system tank and overall sprinkler system should be extended to the other two duplexes to protect the final discharge route on ground floor and aide the fire brigade during firefighting situations. The escape strategy and firefighting strategy cannot be separated for duplex 02 and as such, all three duplexes shall be protected with the same automatic sprinkler system.

2.2.3 Similarly, the ancillary areas are also required to be provided with a sprinkler system as the available ancillary rooms are located away from duplex 02 and will be provided with protected ventilated lobbies when these open into the final discharge route. As all ancillary rooms are smaller than 100m^2, these may be designed with a sprinkler system according to BS 9251:2021.

2.2.4 The refuse store is not required to be protected with a sprinkler system because it is located away from all dwellings and away from the main discharge/access corridor.

2.2.5 The sprinkler system should be designed by a sprinkler specialist.

2.3 Smoke ventilation system

Stairways

2.3.1 The two main stairs serving the duplexes and discharging on the main access corridor on ground level are required to be provided with a 1.0m^2 AOV at the head of the stairway.

2.3.2 The internal duplexes stairs are not required to be provided with a smoke ventilation system.

Ancillary rooms

2.3.3 The ancillary rooms on ground level (Main reception, general storage room and bike store) shall be provided with a protected lobby that shall be ventilated with 0.4m^2 of permanent natural ventilation.

2.4 Fire Mains

2.4.1 Fire mains are required to be provided within the main protected stairs, if a hose distance larger than 60m exists from the fire truck hardstanding area to the furthest most point in the upper most floor on any of the duplexes.

2.4.2 All points within Duplex 01 can be reached within 60m hose distance if a truck can be parked right in front of the building on Belsize Park Gardens road.

2.4.3 As per preliminary measurements, the furthest most points on the third and second floors of duplexes 02 & 03 are located more than 60m hose distance from a potential hardstanding area on Lancaster Stables road. For these two duplexes, a fire main would be required within the main stair serving these two duplexes.

2.4.4 For buildings with a floor less than 50m in height, a dry rising main, designed and installed in accordance with BS 9990 is required.

2.5 Emergency (life-safety) power supplies

2.5.1 All life-safety systems shall be provided with robust power supplies in accordance with BS 8519 [4].

2.5.2 The following fire safety systems shall comply with their respective British Standards regarding secondary power supplies:

- Emergency lighting and signage;
- Automatic fire detection and alarm system;
- Automatic smoke ventilation systems;
- Sprinkler pumps (if applicable).

2.5.3 There must be a minimal delay in change over if the main power fails and it must occur automatically.

2.6 Evacuation for People with Reduced Mobility and Evacuation lifts

2.6.1 Following recent updates of London Plan, in accordance with D12 Policy recommendations, consideration should be given on how all building occupants, including those with reduced mobility / wheelchair users can evacuate in an emergency. As it can be difficult for people with reduced mobility (PRM) to navigate the escape stairs, it is typically recommended that occupants are provided with use of suitable lifts in an emergency.

2.6.2 In accordance with the London Plan Policy D5, an evacuation lift should be provided within each core of the building if passenger lifts are provided for the building. As passenger lifts are not planned, this requirement is not applicable.

3. MEANS OF WARNING AND ESCAPE

3.1 Evacuation philosophy

3.1.1 A 'stay-put' (also known as 'defend-in-place') strategy will be implemented in all dwellings, whereby, in the event of fire, only the dwelling of fire origin will receive a signal to evacuate. Further evacuation of other dwellings may be enacted by the fire and rescue service, as needed depending on the development of the fire.

3.1.2 The areas of ancillary accommodation shall operate a local simultaneous evacuation, whereby upon activation of the detection and alarm system, only the relevant areas shall receive a signal to evacuate. All other areas shall not receive a signal to evacuate.

3.2 Horizontal means of escape – Residential areas

3.2.1 The travel distance limits applicable within different parts of the residential areas are summarised in Table 4 below.

Table 4 - Travel distance limit within dwellings

Part of the building	Single direction limit	Multi-direction
Dwelling – Protected internal stair [1]	No requirements in dwellings or maisonettes	
Common area – Communal corridor [2]	4.5m	n/a
Common area – Discharge route	n/a	n/a
Notes: 1) Cooking facilities should be located away from the internal escape route. 2) Distance in the communal corridor for duplexes 2&3 is measured from the entry door to the stair door.		

3.2.2 A review of the floors in terms of means of escape within the communal areas is shown in figures below. Key fire safety challenges to be further addressed are highlighted and summarised in

3.2.3 Table 5 below.

Table 5 - Key fire safety challenges

Floor	Description	Reference
Ground Floor	In accordance with BS 9991, final escape route should be directly to outside or via a passageway which shall have the same level of protection as the stair itself. In the proposed arrangement, the final escape route for both main stairs is connecting with three ancillary spaces – a small storage room, the main reception and the cycle store. The bin store opens directly to outside away from the discharge route. To support the proposed arrangement, the bike store, the main reception and the small general store room shall be separated from the final escape route via a mechanically ventilated lobby which shall prevent the ingress of smoke within the final escape route. This is shown in Figure 8.	Figure 8

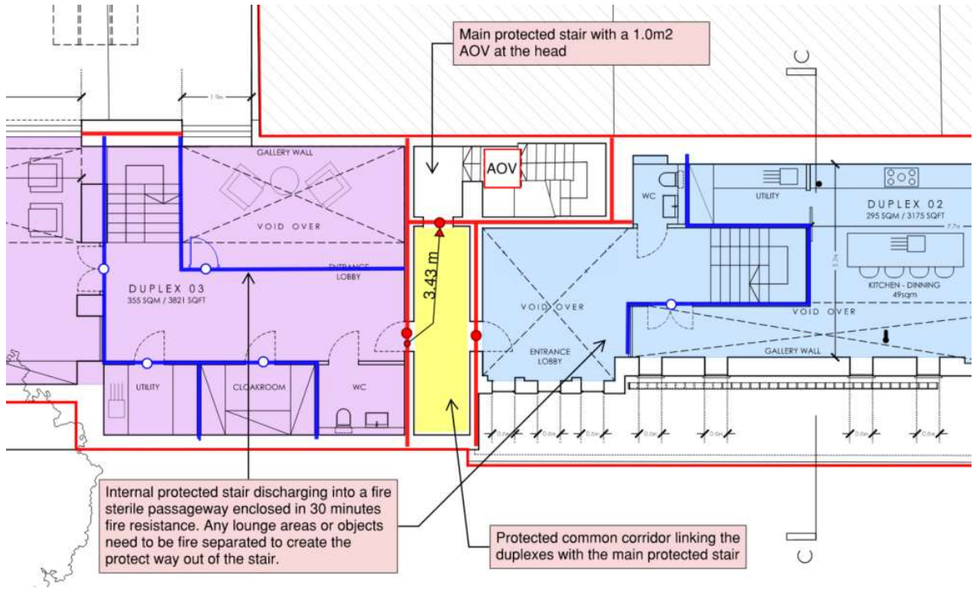


Figure 6 - Horizontal means of escape – Duplexes 02 & 03

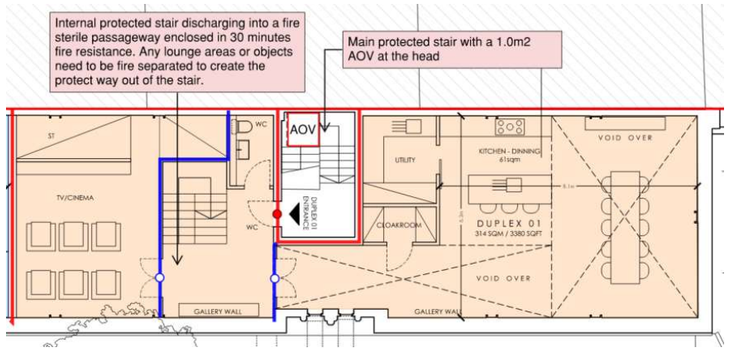


Figure 7 - Horizontal means of escape – Duplex 01

3.2.4 As can be seen in Figure 6 and Figure 7, all duplexes are provided with an internal protected stair.

3.2.5 On first floor level, the internal protected stair discharges into a sterile fire protected area.

3.2.6 For duplexes 02 & 03, the internal protected stairs connect to the main protected stair via a fire protected corridor. The fire protected corridor is coloured yellow in Fig 6 and Fig 7. The man stair has a 1.0m^2 AOV at the top.

3.2.7 For duplex 01, the internal protected stair connects directly with the main stair. This main stair is fully protected on ground and first floors and has a 1.0m2 AOV at the top.

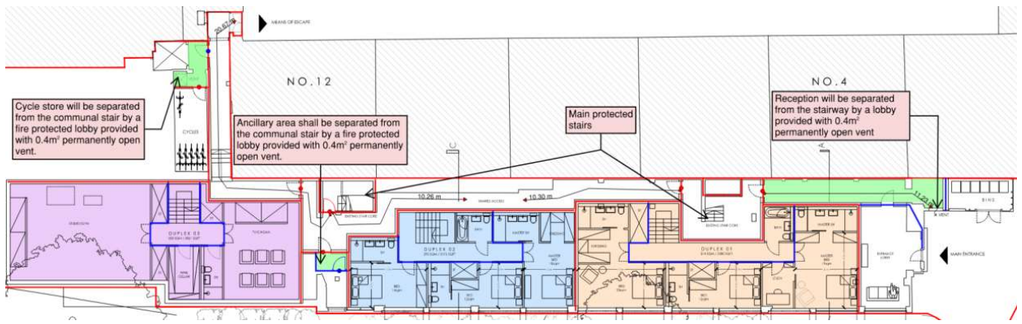


Figure 8 - Horizontal means of escape - ground floor

3.2.8 As can be seen in Figure 8, the final discharge route on ground level out of the two main stairs occurs via a fire protected corridor achieving the same level of fire protection as the stairs; i.e. 60 minutes standard fire resistance. As ancillary rooms open into this corridor, the ancillary rooms will need to have a fire protected and ventilated lobby. The ventilation of the lobbies shall be as a minimum of 0.4m² permanent ventilation. These ventilated lobbies are coloured green.

3.2.9 Once out of the main stairs, occupants have two alternative routes for escaping, one towards the North on Belsize Park Gardens road, and another one towards Lancaster Stables road.

3.3 Horizontal means of escape – Ancillary areas

3.3.1 The maximum permitted travel distances for ancillary areas are summarised in Table 6.

Table 6 - Maximum permitted travel distances within ancillary rooms

Ancillary room	Maximum travel distance within the room/ area [m]		Maximum travel distance to the nearest storey exit [m]	
	Single direction	Multi direction	Single direction	Multi direction
Plant rooms	9	18	18	45
Open air roof plant areas	n/a	n/a	60	100
Cycle stores, refuse stores & main reception	18	45	18	45

3.4 Vertical means of escape

3.4.1 In accordance with BS 9991 guidance, the main residential stairs shall be designed as an evacuation stair achieving at least 750mm clear width. If this width cannot be met given the existing nature of the building, this should be discussed with the authorities for approval.

3.4.2 Where handrails intrude 100mm or less, these can be ignored when assessing the clear width of the communal stair. The stair width should be kept clear for a vertical distance of 2m.

3.5 Private balconies and communal terraces

3.5.1 If provided in the future, private balconies should meet the following recommendations:

- The escape routes from the balcony should not pass through more than one access room;
- A detection and alarm system in accordance with BS 5839-6 shall be provided to the access room with an alarm system on the balcony;
- The maximum permitted travel distance from the balcony access door to the furthest point on the balcony is 7.5m.

3.5.2 Balconies and terraces should be designed in accordance with BS 8579:2020.

3.6 Escape beyond final exits

3.6.1 Travel beyond the building final exit must be away from the building, towards a place of safety, and not be jeopardised by unprotected openings of the building. In general, the building should be provided with escape routes, upon exiting the building that are either directly away from the building or alternate paths along the building façade.

3.6.2 Where the external escape route continues in a single direction along the façade, the external wall adjoining the escape route should have a minimum of 30 minutes fire resistance (integrity and insulation).

4. PASSIVE FIRE PROTECTION

4.1 Internal wall and ceiling linings

4.1.1 All wall and ceiling linings within the building should meet the recommendations of BS 9991 when tested under the European Classifications (in accordance with BS EN 13501-1 [7]) as summarised in Table 7.

Table 7 – Surface spread of flame requirements

Location	National Class	Euro Class
Small rooms ≤ 4m²	Class 3	D-s3, d2
Other rooms	Class 1	C-s3, d2
Circulation spaces (within dwellings)	Class 1	C-s3, d2
Circulation spaces (communal)	Class 0	B-s3, d2

4.2 Structural fire resistance

4.2.1 The required period of fire resistance of the structural elements has been based upon the recommendations in Table 4 of BS 9991.

4.2.2 The building (all duplexes and ancillary rooms) shall have a minimum structural fire resistance of 60 minutes.

4.2.3 Where a construction element with lower fire resistance supports or provides stability to another element of structure, then the protection to the supporting structure should be at least the same as the structure it is supporting.

4.2.4 Elements of structure that only supports a roof do not require fire resistance. Structure is considered to support more than only a roof it if supports a load other than the roof itself (e.g. rooftop plant) or is essential to the stability of a fire-resisting wall (internal or external).

4.3 Compartmentation and fire-resisting construction

4.3.1 The residential floors above the final discharge route on ground floor are required to be built as a compartment floor and should achieve at least 60 minutes fire resistance. This is to protect the main final discharge route and access route for firefighting purposes.

4.3.2 Each duplex shall be individually separated from the rest of the duplexes and ancillary rooms by fire rated construction achieving a minimum of 60 minutes fire resistance.

4.3.3 All shafts (e.g. service risers, lifts, shafts) are to be constructed as protected shafts achieving the same fire resistance as the structure.

4.3.4 The non-residential areas shall be separated from the rest of the building by compartment walls and floors achieving at least the same fire resistance as the structure of the building.

4.3.5 The two main residential stairs are required to achieve 60 minutes fire resistance. The passageway providing firefighting access to the main stairs are also required to achieve 60 minutes fire resistance.

4.3.6 Appendix A within this report includes fire compartment drawings with additional comments that shall be considered as the design progresses.

4.4 Fire doors

4.4.1 Fire doors should be in accordance with the recommendations of Table 12 in BS 9991.

4.4.2 Fire door assemblies shall comply with:

- BS 476-22 [8] or BS EN 1634-2 [9] for fire resistance; and where applicable,
- BS 476-31 [10] or BS EN 1634-3 [11]for smoke leakage.

Table 8 - Fire doors

Position of Door	Tested to BS 476-22	Tested to BS EN1634-2
Enclosing ancillary accommodation	As per the wall it is fitted in	As per the wall it is fitted in
Enclosing a protected shaft / riser	FD 30 S	E 30 S_a
Flat entrance doors	FD 30 S	E 30 S_a
Doors to internal protected stairs	FD30	E 30
Main stair doors	FD 30 S	E 30 S_a
Cross corridor doors in final discharge route	FD 30 S	E 30 S_a

4.5 Fire-stopping and penetrations through fire-resisting construction

4.5.1 Fire-stopping should be provided at the junction of fire-separating walls and external walls in order to maintain the fire resistance period of fire-separating walls, and thereby prevent a fire from travelling around the junction and into the neighbouring space. Penetrations through lines of fire-resisting separation should be fire-stopped using a system which will achieve the same fire resistance rating as the penetrated wall or floor.

4.6 Cavity barriers and concealed spaces

4.6.1 Cavity barriers should have a fire resistance rating of at least 30 minutes for integrity (E) and 15 minutes for insulation (I). In general, cavity barriers should be at 20 m centres, and in line with compartment wall and floors within cavities.

4.6.2 Cavity barriers provided around openings within the external wall may be formed of:

- steel at least 0.5mm thick or timber at least 38mm thick; or
- polythene-sleeved mineral wool, or mineral wool slab under compression when installed cavity; or
- calcium silicate, cement-based or gypsum-based boards at least 12mm thick.

5. EXTERNAL FIRE SPREAD

5.1 External wall construction – Buildings below 18m

5.1.1 Residential buildings with a height less than 18m are not classified as relevant building under Regulation 7(4).

5.1.2 The external walls within buildings less than 18m should achieve either of the following:

- Meet the performance criteria given in BRE report BR 135 for external wall using full-scale test data from BS 8414-1 [23] or BS 8414-2 [24]; or
- Follow the provisions given below:
  - External surfaces should meet the recommendations detailed in Table 9
  - Cavity barriers should be in accordance with Section 4.6.

5.1.3 For buildings less than 18m in height, insulation or filler materials in the external wall are permitted to be combustible (except for Category 3 ACM systems, which should not be used), provided that the external façade meets the remainder of the recommendations for the external façade construction and materials

5.1.4 The external surface of the walls should comply with Table 9 . The provisions in Table 9 apply to each wall individually in relation to its proximity to the relevant boundary.

Table 9 External surface of walls

Building height	Less than 1m from boundary	More than 1m from boundary
Less than 18m – All duplexes and ancillary rooms	Class B-s3, d2 or better (1)	No provisions
Note: 1) Profiled or flat steel sheet at least 0.5mm thick with an organic coating of no more than 0.2mm thickness is also acceptable.		

5.2 Roof coverings

5.2.1 The relevant test and classification standards for the external fire performance of roof systems are BS 476-3 [12] (National Class) and BS EN 13501-5 [13] (European Class).

5.2.2 Table 10 below summarises the separation distances from the boundary according to the type of roof covering as described in section 35.4 of BS 9999.

Table 10 – Limitations on roof coverings

Distance from relevant boundary	National Class	AA, AB or AC	BA, BB or BC	CA, CB or CC
	European Class	B_{ROOF}(t4)	C_{ROOF}(t4)	D_{ROOF}(t4)
Less than 6m		✓	×	×
At least 6m		✓	✓	×
At least 20m		✓	✓	✓

5.3 Space separation and unprotected areas of the façade

5.3.1 Should a fire occur in a building, heat will radiate through non-fire resisting openings in the external walls. This heat can be enough to set fire to nearby buildings. In order to reduce the chance of this occurring, the Building Regulations place limits on the area of the external elevation with no fire resistance, known as the unprotected area.

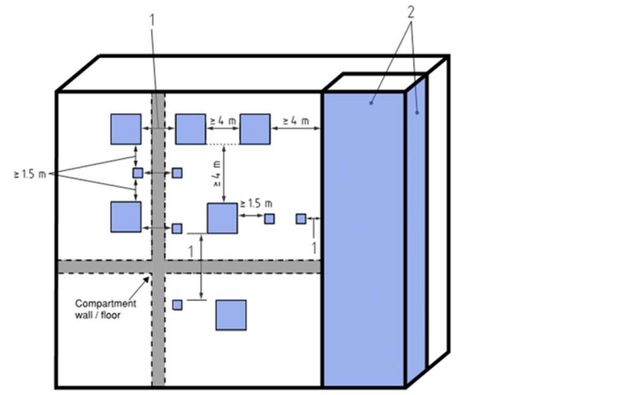
5.3.2 The relevant boundaries are the reference point at which the potential for fire spread, being:

- the site boundary;
- a notional boundary created on the centreline of an adjacent carriage way; or
- a notional boundary created midway between this building and the nearest adjacent building.

5.3.3 It should be noted that where an external wall is within 1.0m from the relevant boundary, that external wall shall have 0% unprotected area and is required to have the same fire resistance as the structure of the building, i.e. 60 minutes fire resistance from both sides (interior and exterior).

5.3.4 It is understood that most external walls are located within 1m of the site boundaries.

5.3.5 In accordance with Section 18.4 of BS 9991 guidance, only small unprotected areas in an otherwise protected façade do not contribute to the extent of unprotected area. These are shown in Figure 9.



Key

1 Unrestricted
2 External wall of shaft that is enclosed by a minimum of 60 min fire resistance from the accommodation side

Figure 9 – Indicative site wide fire track access routes

5.3.6 In accordance with BS 9991 guidance, the external fire spread assessment shall be carried out using the enclosing rectangle method as detailed in BRE187.

5.3.7 Where the external elevation will be required to be protected, the external wall within the relevant elevation shall be fire rated in accordance with this assessment which will be carried out in the following design stages.

6. ACCESS AND FACILITIES FOR THE FIRE AND RESCUE SERVICE

6.1 Vehicle access to and around the site

6.1.1 Fire and Rescue Service (FRS) vehicle access shall be provided within 18m of the main entrance point to the residential main access corridor from both available entrances, via Belsize Park Gardens road and via Lancaster Stables road.

6.1.2 Inlets for fire mains should be located close to the main entrance points and no more than 18m from the fire truck parking areas.

6.1.3 Fire and rescue service appliances should not reverse more than 20m, otherwise, suitable turning facilities shall be provided. Given this is an existing building, access areas shall be discussed with the local FRS to confirm acceptability practices and access routes.

6.1.4 The access route requirements provided in Table 11 are generic recommendations for a pump-type appliance taken from Table 20 of BS 9999. Fire and rescue service appliances are not standardised, therefore vehicle access provision should be discussed and agreed with the local fire and rescue service to ensure their vehicle complies with the parameters listed in Table 11.

6.1.5 The detailed vehicle access provisions for firefighting appliances will need to be developed as part of the wider masterplan design and discussed and agreed with the local FRS.

Table 11 -Typical pump-type firefighting appliance access requirements

Minimum access route specification	Dimension
Width between kerbs	3.7 m
Width between gateways	3.1 m
Turning circle between kerbs	16.8 m
Turning circle between walls	19.2 m
Clearance height	3.7 m
Carrying capacity	14.0 tonnes

6.1.6 Figure 10 indicatively illustrates fire service access routes and fire service access to the building.

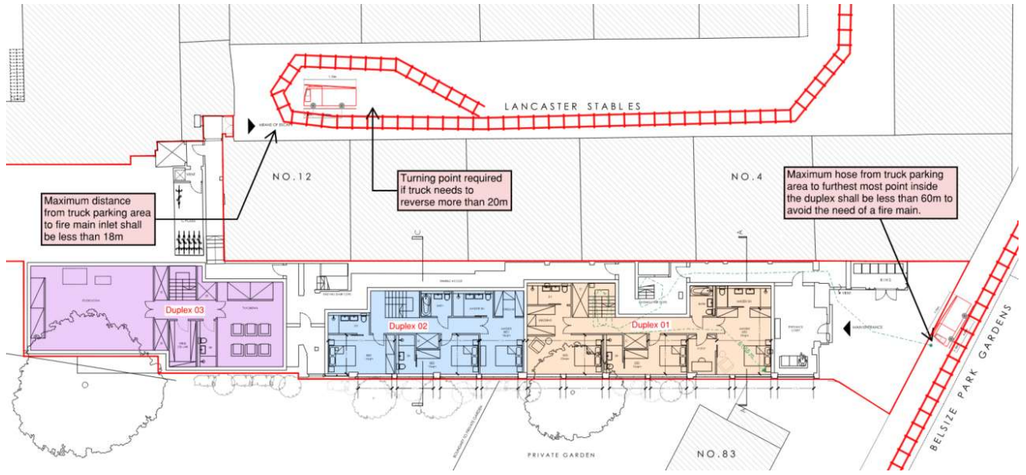


Figure 10 – Indicative site wide fire track access routes

6.2 Access into and through the building

6.2.1 Access to the dwellings shall be provided at ground floor level. Access to the residential upper floors shall be facilitated via the two available main stairs.

6.2.2 In accordance with BS 9991 recommendations, FRS access to the stairs should be directly from outside or via the available passageway which will have the same level of protection as the stair itself.

6.2.3 All doors giving access to the interior of the building will have a minimum width of 750mm.

6.2.4 Given that some points within duplexes 02 & 03 are located more than 60m away from the fire truck parking areas, the main stair serving these duplexes shall be provided with a dry riser main designed in accordance with BS 9990 [37]. A dry riser outlet should be provided at each floor level, including the ground floor level, on the full landings of the stair.

6.2.5 The remotest point of each storey within the residential areas will be within 60m reach of the fire main outlet, measured on a route suitable for laying hose.

6.2.6 The 60m maximum permitted hose distance is met for all points within duplex 01, as a fire truck may park in front of the building on Belsize Park Gardens.

6.2.7 Access to the ancillary areas located on the ground floor will be located within the 60m hose distance to the fire truck parking areas.

6.3 Firefighting facilities

6.3.1 The three dwellings have a top floor located below 18m, therefore a firefighting shaft is not required

6.3.2 The two main access stairs will have a minimum clear width of at least 750mm, which can also be used by the firefighters. This clear width shall also be met within the main access/escape corridor on ground floor giving access to the stairs.

6.3.3 An outlet from the fire main is to be located within the stair core on each level including ground for the main stair serving duplexes 02 & 03. The outlet should be located on the full landing of the stair.

6.3.4 The horizontal pipe run between the fire main inlet and outlet shall not exceed 18m.

6.4 Water supplies

6.4.1 Hydrants will be required in the vicinity of the building to support firefighting operations.

6.4.2 If the building is more than 90m from an existing hydrant, hydrants should be provided within 90m of the entry point to the building and not more than 90m apart. Where a dry-rising main is provided, the hydrants should be provided within 90m of dry riser inlet.

6.4.3 If fire hydrants are to be installed, they should be included as part of a ring fire main system. They should preferably be sited immediately adjacent to roadways or hard-standing facilities suitable for fire and rescue service appliances. To ensure that they remain usable during a fire, they should be sited with consideration of the effect that falling debris and other possible occurrences during a fire might have on the continuing viability of the location and as such should be not less than 6m from the building.

6.4.4 A water supply capable of providing a minimum of 1,500 litres per minute at all times is recommended. Water supplies will be designed and installed in accordance with BS 9990.

6.5 First-aid firefighting

6.5.1 First-aid firefighting provisions should be assessed and provided as part of the fire risk assessment for the development, including consideration for the day-to-day management of these provisions.

In general, fire points should be located within the ancillary areas presenting a significant fire risk and to ensure coverage of at least one fire point for every 200m^2 of floor area. The type and size of extinguisher(s) at each fire point should be chosen in accordance with the guidance given in BS 5306.

7. CONCLUSION

7.1 General

7.1.1 This fire report summarises the Stage 3 fire strategy design information and demonstrates how the building shall achieve the functional requirements of the building regulations through further design development.

7.1.2 This report shall be read by the wider design team for design coordination.

7.1.3 It is expected that detailed fire reports for the project shall be provided at Stage 4 following further co-ordination workshops.

7.1.4 This fire report has also been prepared to demonstrate how requirement D5 & D12 of the London Plan shall be satisfied within the design.

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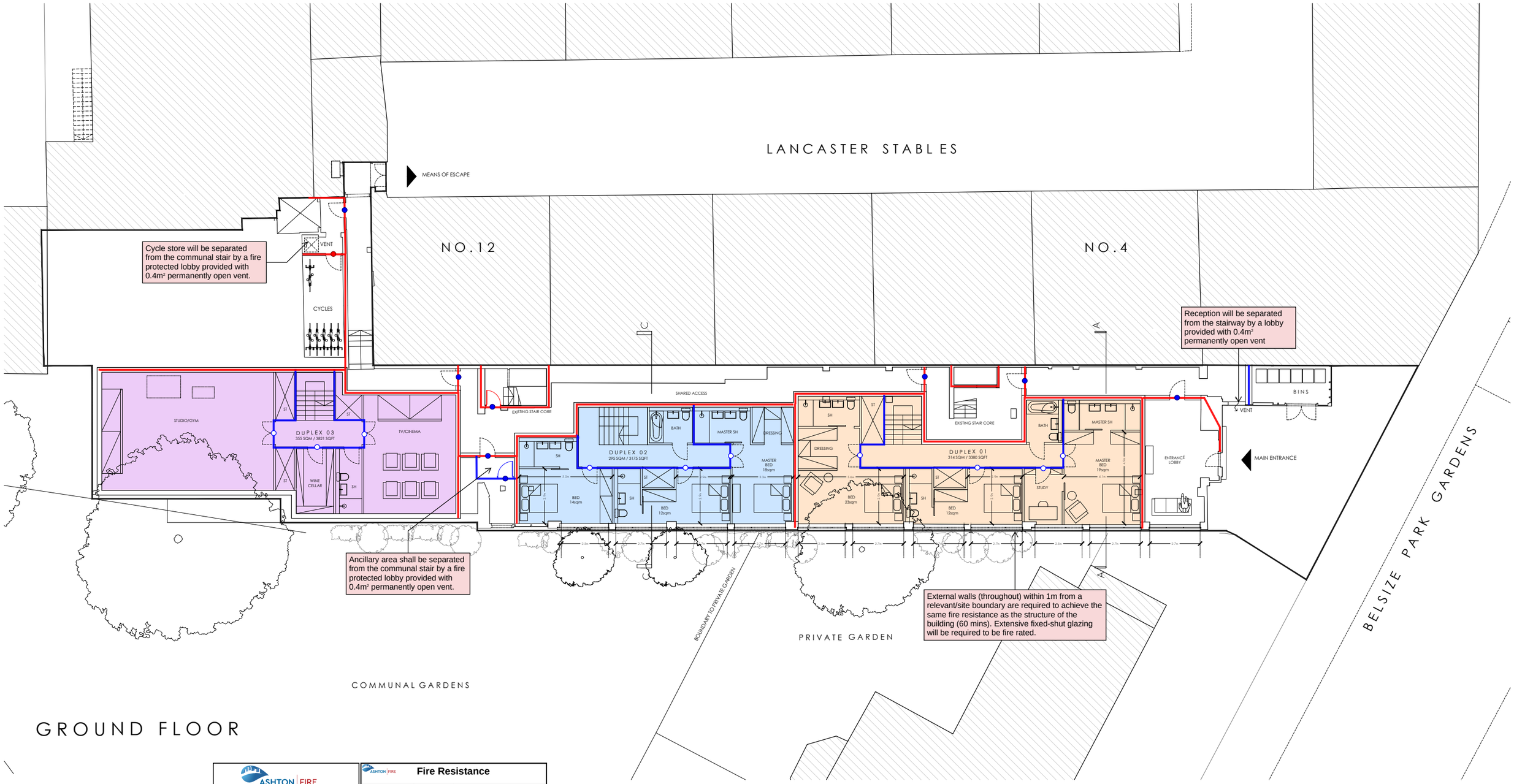
APPENDIX A – FIRE COMPARTMENT DRAWINGS

A.1.1 This appendix includes fire compartmentation mark-ups for the three duplexes.

A.1.2 These mark-ups are not exhaustive and shall be read in conjunction with Section 4 of this report, and in general terms with the entire fire strategy report.



GROUND FLOOR

0 1 2 3 4 5 10m

ASHTON | FIRE

Project Name: 81 Belsize Park

Drawing Title: FIRE STRATEGY DRAWING

Author:	FHR	Date:	22/09/21
Checked:	VDM	Issue:	02
Project Number:	AF 2508		

Fire Resistance

Rating (Minutes)	Walls	Doors	
		With Smoke Seals	Without Smoke Seals
30		●	○
60		●	○

A	09.09.2021	FIRE AMENDMENTS
B	10.09.2021	DIMENSIONS ADDED

N

tasou associates architects + structural engineers

PRIOR APPROVAL

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project	81 BELSIZE PARK GARDENS
drwg title	GROUND FLOOR
job no.	1698
drwg no.	PA.01F
rev.	B
date	JULY 2021
scale @ A1	1:100

LANCASTER STABLES

NO.12

NO.4

NO.83

FLAT ROOF WITH ACCESS

VOID

ORANGEY

VOID OVER

LIVING

KITCHEN - DINNING - LIVING
63sqm

GALLERY WALL

DUPLEX 03
355 SQM / 3821 SQFT

ENTRANCE LOBBY

UTILITY

CLOAKROOM

WC

DUPLEX 02 ENTRANCE

DUPLEX 03 ENTRANCE

ROOF

WC

UTILITY

DUPLEX 02
295 SQM / 3175 SQFT

KITCHEN - DINNING
49sqm

ENTRANCE LOBBY

ST

TV/CINEMA

DUPLEX 01 ENTRANCE

KITCHEN - DINNING
61sqm

DUPLEX 01
314 SQM / 3380 SQFT

Internal stair should discharge into the communal escape area via a fire sterile passageway enclosed in 30 minutes fire resistance. Objects are not permitted in the passageway. The void above the protected internal stairway is required to be separated from the rest of the building by 30 minutes fire resistance

External walls (throughout) within 1m from a relevant/site boundary are required to achieve the same fire resistance as the structure of the building (60 mins from both sides). Extensive fixed-shut glazing will be required to be fire rated.

Internal stair should discharge into the communal escape area via a fire sterile passageway enclosed in 30 minutes fire resistance. Any lounge areas or objects need to be fire separated to create the protect way out of the stair.

C

A

FIRST FLOOR

0 1 2 3 4 5 10m

ASHTON | FIRE

Project Name: 81 Belsize Park

Drawing Title: FIRE STRATEGY DRAWING

Author:	FHR	Date:	22/09/21
Checked:	VDM	Issue:	02
Project Number:	AF 2508		

Fire Resistance

Rating (Minutes)	Walls	Doors	
		With Smoke Seals	Without Smoke Seals
30			
60			

A	09.09.2021	FIRE AMENDMENTS
B	10.09.2021	DIMENSIONS ADDED

N

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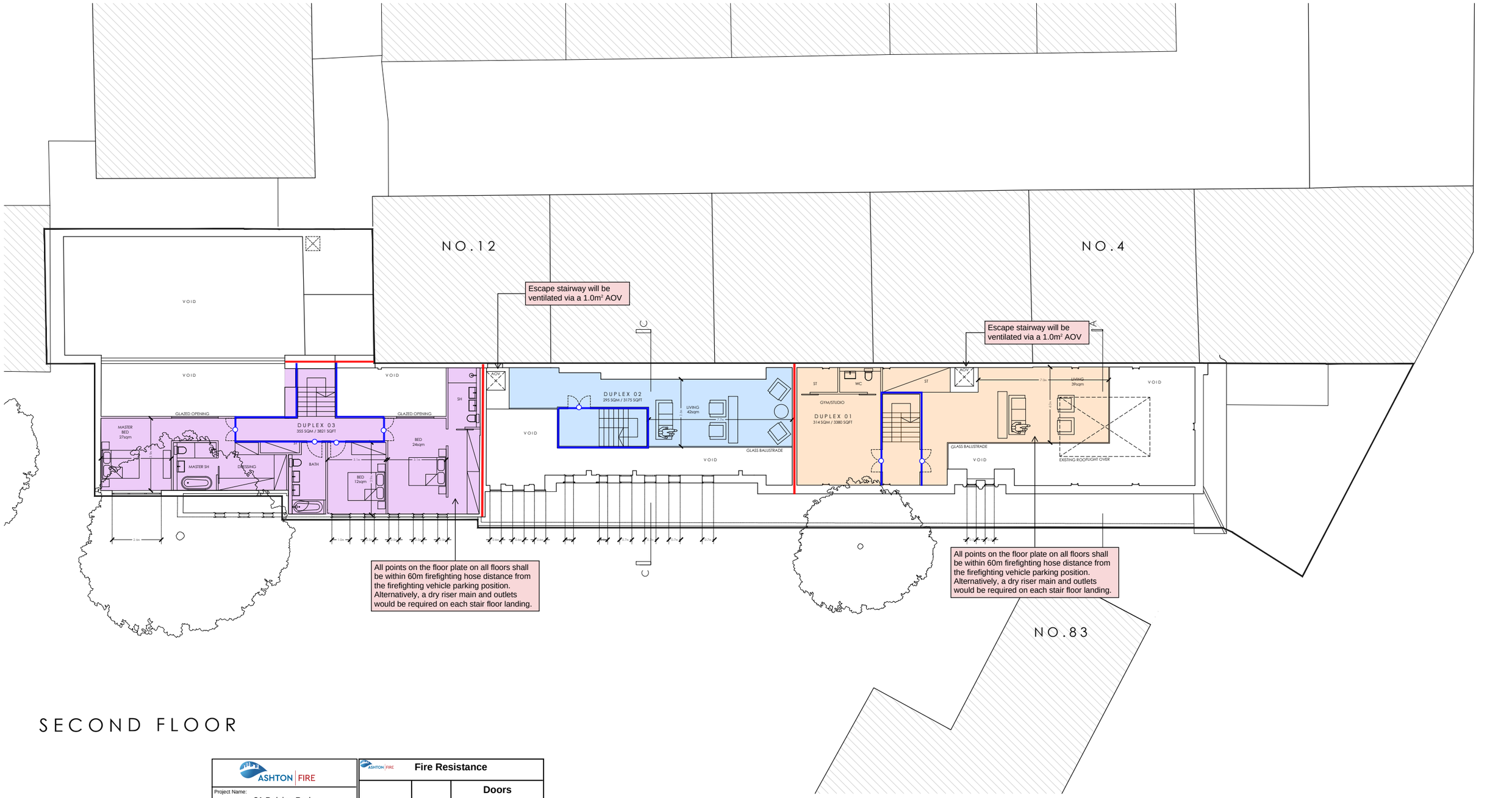
PRIOR APPROVAL

project	81 BELSIZE PARK GARDENS
drwg title	FIRST FLOOR
job no.	1698
drwg no.	PA.02F
rev.	B
date	JULY 2021
scale @ A1	1:100



SECOND FLOOR

ASHTON | FIRE

Project Name: 81 Belsize Park

Drawing Title: FIRE STRATEGY DRAWING

Author:	FHR	Date:	22/09/21
Checked:	VDM	Issue:	02
Project Number:	AF 2508		

Fire Resistance

Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30		●	○
60		●	○

A	09.09.2021	FIRE AMENDMENTS
B	10.09.2021	DIMENSIONS ADDED

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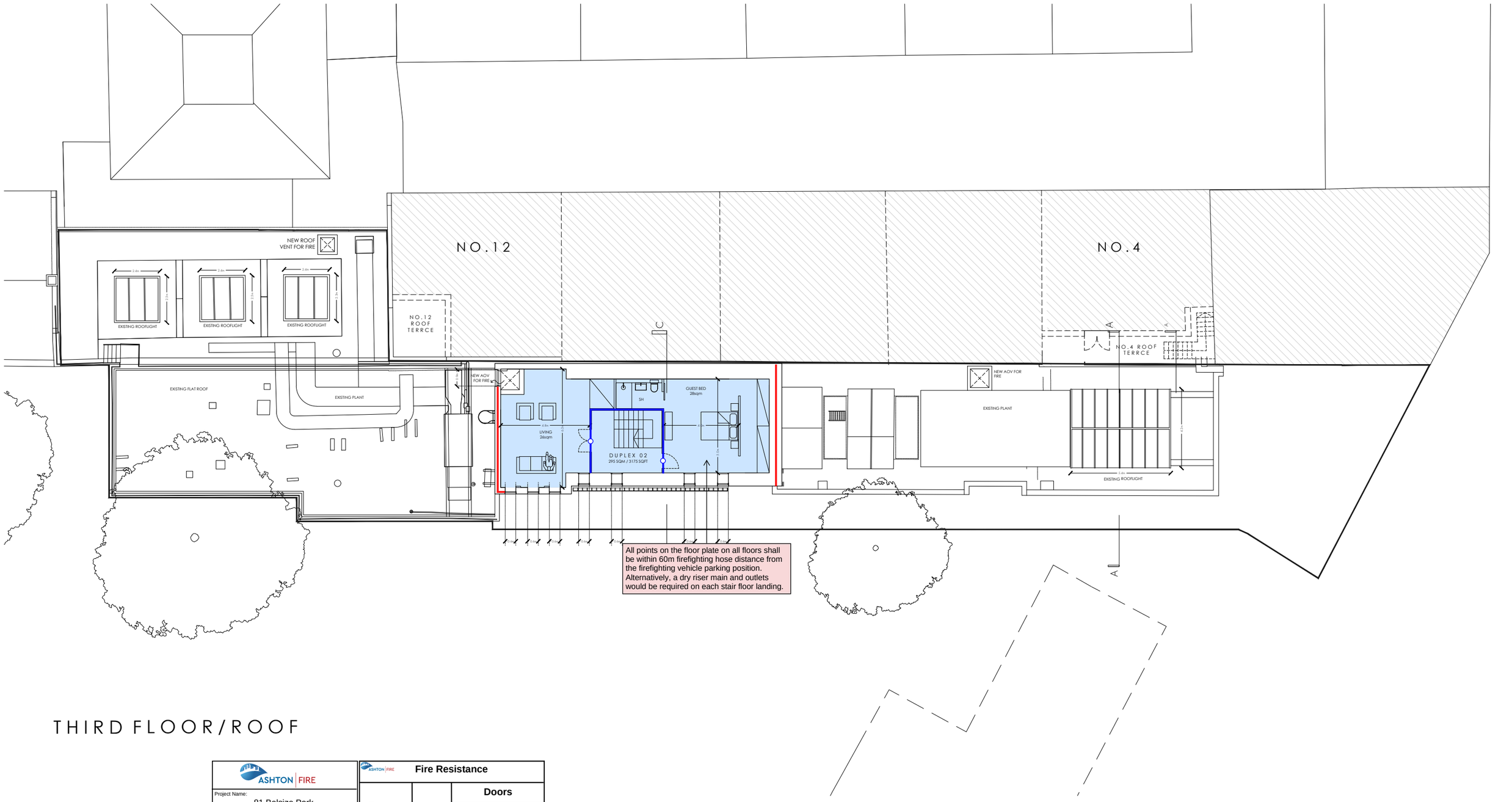
PRIOR APPROVAL

project	81 BELSIZE PARK GARDENS
drwg title	SECOND FLOOR
job no.	1698
drwg no.	PA.03F
rev.	B
date	JULY 2021
scale @ A1	1:100



THIRD FLOOR/ROOF

Project Name:	81 Belsize Park
Drawing Title:	FIRE STRATEGY DRAWING
Author: FHR	Date: 22/09/21
Checked: VDM	Issue: 02
Project Number:	AF 2508

Fire Resistance

Rating (Minutes)	Walls	Doors	
		With Smoke Seals	Without Smoke Seals
30	—	●	○
60	—	●	○

A	09.09.2021	FIRE AMENDMENTS
B	10.09.2021	DIMENSIONS ADDED

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PRIOR APPROVAL

project	81 BELSIZE PARK GARDENS
drwg title	THIRD FLOOR
job no.	1698
drwg no.	PA.04F
rev.	B
date	JULY 2021
scale @ A1	1:100

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