

Planning Fire Safety Statement

Land behind Lynton Grange

Fortis Green, London N2 9ET



Design stage:
RIBA Stage 2: Concept design

17th February 2023
MUK10092 – Issue 01

Client: Fortis Green Mews Ltd, 119 High Road, Loughton, Essex IG10 4LT

Revision	Date	Description
01	17.02.23	Initial issue

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The London Plan 2021

The proposed development will feature five residential dwellinghouses. As such, this is considered a ‘minor development’ under the London Plan 2021 [1], where featuring both less than ten residential dwellings and non-residential areas being no greater than 1,000 m² in total. A Planning Fire Safety Strategy report is therefore provided both to fulfil the expectations of the London Plan, as well as to support the client and design teams with developing their project information into detailed and technical design.

Summary Tables 1, 2 & 3 provide completed Form 2 and Form 3 pro-formas as provided within the Greater London Authority document “London Plan Guidance – Fire Safety” (February 2022 version, draft for consultation). The remainder of the document provides more detailed information to substantiate the completed pro-forma and to assist the client with the further development of the scheme.

Summary Table 1 – General

Item	Detail
Site address	Land behind Lynton Grange, Fortis Green, London N2 9ET
Description of development	Demolition of 20 x existing garages on-site and erection of 5 x two-storey residential units with associated landscaping, parking, refuse and cycle storage.
Name, qualifications, professional memberships, and experience of author	Mr Andrew O.M. Ballantyne BArch MEng CEng MIFireE PMSFPE , a Chartered Engineer registered with the Engineering Council by the Institute of Fire Engineers, and Full Member of the Institute of Fire Engineers (Member 00056660). Andy graduated with a Master’s degree in Structural and Fire Safety Engineering from the University of Edinburgh and a Batchelor’s degree in Architectural Design from the University of Dundee. Andy has subsequently worked in fire safety engineering for circa 8 years and undertaken numerous commercial, residential, and governmental projects in London of varying scale and complexity.
Has a Gateway One Statement been submitted?	Not applicable, where proposal is not a ‘Relevant Building’ as defined in Regulation 7(4) of the Building Regulations.

Summary Table 3 – Form 3: Provision of an evacuation lift (London Plan Policy D5(B5))

Item	Detail
Details of the evacuation lift and shaft	The development will feature dwellinghouses only. As such, no evacuation lift is expected where no lifts are proposed.
Capacity assessment	Not applicable
Evacuation strategy	Not applicable
Evacuation lift management plan	Not applicable
Declaration of compliance by a competent person	The technical content produced for this planning application is considered to suitably comply with the relevant legislation and requirements of London Plan Policy D5(B5), where applicable, subject to suitable development and implementation during the Building Regulations process and constructed in accordance with the Building Regulations. Signed: 

Summary Table 2 – Form 2: Planning Fire Safety Strategy (London Plan Policy D12A)

Item	Detail	See also:
Identifies suitably positioned unobstructed outside space for fire appliances to be positioned on	Fire appliances will be able to use the existing Fortis Green and the car park of Lynton Grange to reach a hardstanding area at the entrance to the access road to the development.	Section 6
Identifies suitably positioned unobstructed outside space appropriate for use as an evacuation assembly point	Assembly areas are not expected to be identified for dwellinghouses. Nevertheless, ample safe waiting space would be available on the pavements near to the development or within the wider Lynton Grange site.	-
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	Each dwellinghouse will feature active fire safety systems in accordance with the expectations of BS 9991, including: - Grade D1 Category LD2 detection and alarm to BS 5839-6 - Category 2 sprinklers in accordance with BS 9251. Passive fire protection measures will include the provision of party walls and fire-resisting construction to separating dwellinghouses, to protected internal and external escape routes, and for walls near to site boundaries.	Section 3 & Section 4
Constructed in an appropriate way to minimise the risk of fire spread	Internal lining specifications and compartmentation are to be provided to meet the expectations of BS 9991, assisting to limit fire growth and to separate dwellinghouses from each other. The external walls and roof elements with either be existing elements from of materials that meet contemporary fire safety guidance (including those expectations in Approved Document B Volume 1, being a more recently revised document that BS 9991).	Section 4 & Section 5
Provides suitable and convenient means of escape, and associated evacuation strategy for all building users	Means of escape is based in the expectations of BS 9991. The dwellinghouses do not feature common areas or lifts and are not expected to be provided with additional features to support disabled users (i.e., evacuation lifts) under the expectations of Policy D5(B5) of the London Plan.	Section 3
A robust strategy for evacuation which can be periodically updated and published, and which all building users can have confidence in	Information regarding the means of escape and fire safety equipment is to be retained in accordance with the principles of the Golden Thread, and to be provided to purchasers of the dwellinghouses in accordance with relevant fire safety legislation to support their ongoing maintenance of fire safety systems within their dwellinghouse.	Section 7
Suitable access and equipment for firefighting which is appropriate for the size and use of the development	Firefighting access into the dwellinghouses will be via direct hose laying from the fire appliance hardstanding or supported by a horizontal dry fire main. To support the extended hose laying distances, automatic suppression is to be provided throughout each of the dwellinghouses.	Section 6
Where a lift core is provided, at least one lift is an evacuation lift	No lifts are to be provided at the development.	Summary Table 3 & Section 3.6

Table of contents

1.

INTRODUCTION

4

1.1

General

4

1.2

Legislation and basis of design

4

1.3

Reference information

4

2.

DEVELOPMENT SUMMARY

5

2.1

Description of proposal

5

2.2

Occupancy

5

3.

MEANS OF WARNING AND ESCAPE

6

3.1

Evacuation philosophy

6

3.2

Means of detection and alarm

6

3.3

Means of escape from within dwellinghouses

6

3.4

Means of escape from ancillary and non-residential areas

6

3.5

Final exits and onward escape

6

3.6

Means of escape for disabled persons

6

3.7

Emergency lighting and signage

6

4.

INTERNAL FIRE SPREAD

7

4.1

Internal wall and ceiling linings

7

4.2

Automatic fire suppression

7

4.3

Structural fire resistance

7

4.4

Fire-resisting construction and fire doors

7

4.5

Concealed spaces and cavity barriers

8

4.6

Fire-stopping and penetrations through fire-resisting construction

8

5.

EXTERNAL FIRE SPREAD

9

5.1

Construction and materials used for external walls

9

5.2

Roof coverings

9

5.3

Space separation and unprotected areas of the façade

9

6.

FIRE SERVICE ACCESS AND FACILITIES

11

6.1

Notification and information for the fire and rescue service

11

6.2

Fire appliance access to the site

11

6.3

Firefighting water supplies

11

6.4

Firefighting facilities within the building

11

6.5

Stand-by power supplies

11

7.

ADDITIONAL FIRE SAFETY GUIDANCE

12

7.1

Fire safety information and future development

12

7.2

Management and maintenance of fire safety systems

12

7.3

Hoarding

12

7.4

Fire extinguishers and fire blankets

12

8.

EXTERNAL REFERENCES

13

APPENDIX A – FIRE SAFETY AND FIRE-RESISTING CONSTRUCTION MARK-UPS

14

1. Introduction

1.1 General

- 1.1.1 Mu.Studio (UK) Ltd have been commissioned by Fortis Green Mews Ltd to provide fire safety consultancy services in support of the planning stage design of five new dwellinghouses on an infill site to the rear of Lynton Grange as indicated in Figure 1.
- 1.1.2 This report may be used in support further detailed design development. It is not intended to portray detailed design information for fire safety systems or construction specifications and should be read in conjunction with the wider project documentation.
- 1.1.3 Any alternative design solutions suggested within this report are subject to agreement and eventual approval by the relevant authorities having jurisdiction (AHJs).



Figure 1 – Image of existing site

1.2 Legislation and basis of design

- 1.2.1 This fire safety strategy is developed in cognisance of the fire safety expectations of the Building Regulations 2010 (as amended), including:
 - Regulation 7 – Materials and workmanship
 - Schedule 1, Part B1 – Means of warning and escape
 - Schedule 1, Part B2 – Internal fire spread (linings)
 - Schedule 1, Part B3 – Internal fire spread (structure)
 - Schedule 1, Part B4 – External fire spread
 - Schedule 1, Part B5 – Access and facilities for the fire and rescue service
- 1.2.2 The fire safety strategy has not been developed to include additional property protection enhancements or to meet the expectations of insurer requirements. However, fire safety provisions as required by the Building Regulations will, to some extent, assist with the protection of property in the event of fire.

- 1.2.3 This fire safety strategy does not address site fire safety during construction. The Health and Safety Executive (HSE) [2] and Fire Protection Association (FPA) [3] issue guidance on identifying and managing fire precautions on construction sites, which should be consulted by the Principal Contractor for the scheme.
- 1.2.4 The building will be designed in accordance with the recommendations of BS 9991 [4], including further documents and standards referenced therein. This will be augmented by recent updates to Approved Document B – Volume 1: Dwellings (ADB) [5], being above and beyond the expectations of BS 9991. Fire engineering principles may be employed to support alternative solutions where strict adherence to BS 9991 guidance would conflict with the aspirations of the scheme. Unless otherwise stated, fire safety provisions are expected to be in accordance with BS 9991 guidance as appropriate.

1.3 Reference information

- 1.3.1 This strategy is based on information provided as listed in Table 1 below. Additional contradictory information or subsequent design variations to the information supplied may render the findings and recommendations of this report invalid.
- 1.3.2 External references utilised in the generation of this report are summarised in Section 8.

Table 1 – Project design documentation

Description	Author	Document	Rev.
Proposed Site plan	Dowen Farmer Architects	1073-LYG-PR-GA-00	-
Proposed Ground floor plan		1073-LYG-PR-GA-00	-
Proposed First floor plan		1073-LYG-PR-GA-01	-

2. Development summary

2.1 Description of proposal

- 2.1.1 The proposed development is for the construction of five new dwellinghouses at an infill site close to the rear of the Lynton Grange building, being accessed for Fortis Green via a car park and subsequent access road as illustrated in Figure 1 and Figure 2. The dwellinghouses will each be set over two storeys.
- 2.1.2 The uppermost floor of the dwellinghouses will be located at circa 2.9 m in height, with no floors being greater than 4.5 m in height. As such, the development is not considered to be a 'relevant building' by Regulation 7(4) of the Building Regulations where no floor greater than 18 m above ground level is present.
- 2.1.3 Figure 4 and Figure 4 provides an overview of the internal arrangement of the proposed dwellinghouses, with fire safety mark-ups also included within Appendix A.

2.2 Occupancy

- 2.2.1 The dwellinghouses will be for domestic residential use only. No additional fire safety features to support disabled or assisted living have been requested, and this fire strategy has been developed premised on the minimum expectations of Part B in Schedule 1 of the Building Regulations only.
- 2.2.2 It will be the responsibility of residents to develop an escape plan in the event of a fire. Where elderly, immobile, or young children need assistance to escape, the fire safety provisions provided may assist in maintain tenable escape conditions for a reasonable duration. In particular:
- A good standard of detection and alarm will provide early warning to residents, assisting in the rousing of sleeping occupants and supporting investigation of the fire prior to untenable conditions developing.
 - Suppression provided throughout dwellinghouses may assist in restricting fire growth.
 - Fire doors to the protected hallway and stair may be closed by residents, separating this space from a developing fire and increasing the length of time for which the stair would be tenable for escape.

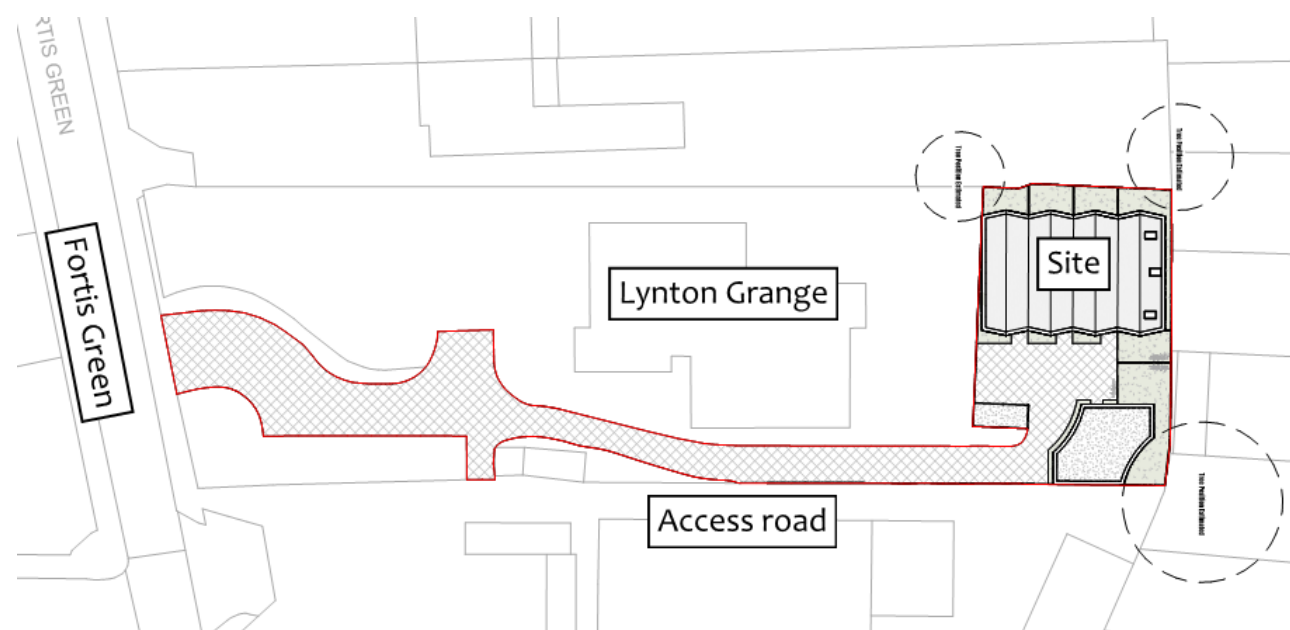


Figure 2 – Proposed site plan

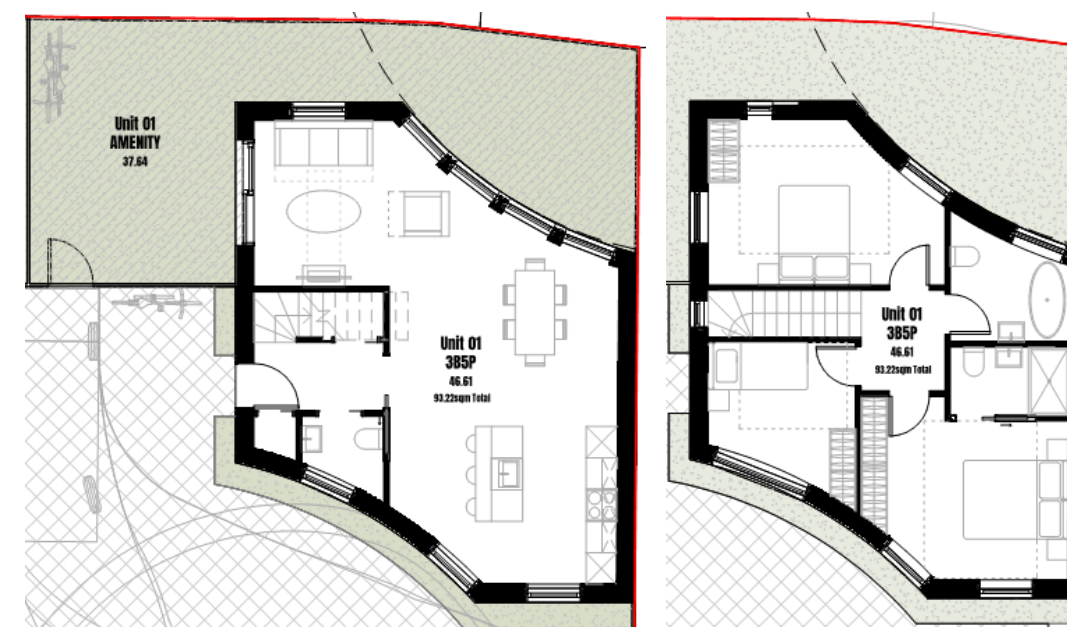


Figure 3 – Unit 01 arrangement (left: Ground floor, right: First floor)



Figure 4 – Typical Unit 02 - 05 arrangement (above: First floor, below: Ground floor)

3. Means of warning and escape

3.1 Evacuation philosophy

- 3.1.1 Each dwellinghouse will utilise a simultaneous evacuation strategy, with immediate activation of the fire alarm provided throughout the house upon first activation of any fire detector head.

3.2 Means of detection and alarm

- 3.2.1 Dwellinghouses are to be fitted with an automatic fire detection system to meet Grade D1 Category LD2 in BS 5839-6 [6], in support of the arrangements detailed in Section 3.3. This will include heat detection in the kitchen area, and smoke detection throughout living areas, hallways, and internal stairs.
- 3.2.2 A Grade D1 system is included such that these dwellinghouses would be suitable as either rental investments or for owner-occupation under BS 5839-6.
- 3.2.3 Suitable means of warning are to be provided to the gardens of Units 02 – 05, which are accessed via the living area only. With these gardens being of a small area and having a clear view of the associated internal space, it would be considered that the internal alarm system is sufficient and external alarms or beacons would not be necessary to avoid creating public nuisance during false alarms.

3.3 Means of escape from within dwellinghouses

- 3.3.1 Each of the dwellinghouses are designed and specified in accordance with the recommendations of Section 6.3 in BS 9991, where a number of the First floor bedrooms will not feature suitable escape windows due to overlooking the enclosed garden areas. The proposed arrangements feature:
- A protected stair and entrance hall, separated by fire-resisting construction (see Section 4.4), and as illustrated in the fire strategy mark-ups in Appendix A.
 - A protected stair connects directly to a final exit at Ground floor, as per Figure 1(a) in BS 9991.
- 3.3.2 The design team have expressed a desire to explore an open-plan arrangement at Ground floor, with the internal stair being open to the living area. Such an arrangement is not considered in detail at this stage, where typically requiring advanced assessment such as Computational Fluid Dynamics (CFD) alongside discussions with an appointed building control authority. A viable design is proposed utilising a protected entrance hall arrangement, which may be reviewed further should the scheme be developed into construction and submitted for approval under the Building Regulations.

3.4 Means of escape from ancillary and non-residential areas

- 3.4.1 No ancillary or non-residential areas are proposed within the development.

3.5 Final exits and onward escape

- 3.5.1 Travel beyond the final exits of the building and toward a place of ultimate safety should not be jeopardised by unprotected openings. This is achieved by the provision of escape in a direction away from the final exit for each dwellinghouse.
- 3.5.2 Assembly areas are not required to be designated for residential buildings. However, in the event of a fire incident, residents are recommended to retreat to a safe distance from the building and away from fire service access routes.

3.6 Means of escape for disabled persons

- 3.6.1 In accordance with the expectations of Policy D5(B5) of the London Plan, evacuation lifts are to be provided to all areas of a development served by a lift. As no lifts are provided within the development, no evacuation lifts are expected to be provided to meet the expectations of Policy D5(B5).
- 3.6.2 Refuge points for disabled occupants are not expected in dwellinghouses, and no such spaces have been included.

3.7 Emergency lighting and signage

- 3.7.1 Emergency lighting and fire safety signage are not required to be provided within dwellinghouses to meet the guidance in BS 9991.

4. Internal fire spread

4.1 Internal wall and ceiling linings

- 4.1.1 During the development of a fire in a building, the choice of material for the lining of walls and ceilings can significantly affect the spread and growth of fire. Restrictions are placed on the wall and ceiling lining materials within certain areas of buildings to limit the spread of fire and production of smoke in these areas.
- 4.1.2 It is particularly important that in circulation spaces, where the rapid spread of fire is most likely to prevent occupants from escaping, the surface linings are restricted, by making provision for them to have low rates of heat release and surface spread of flame.
- 4.1.3 All wall and ceiling linings in the building should meet the recommendations summarised in Table 2 below.
- 4.1.4 The surface linings of walls and ceilings should generally conform to the classification recommended above for the appropriate location. However, parts of walls in rooms may be of a lower class but not lower than European Class D-s3, d2, provided that the area of linings having the lower classification does not exceed half of the floor area of the room, subject to a maximum of 20 m² in residential areas.
- 4.1.5 No thermoplastic rooflights shall be used at the development.

Table 2 – Reaction to fire classification expectations

Location	Minimum classification to BS EN 13501-1 [7]
Small rooms ≤ 4 m ²	Class D-s3, d2
Other rooms	Class C-s3, d2

4.2 Automatic fire suppression

- 4.2.1 Automatic suppression is required within each of the proposed dwellings to support the extended hose laying distances from the fire appliance hardstanding, as discussed in Section 6.4.
- 4.2.2 To support extended hose laying distances, BS 9991 expects a Category 2 sprinkler system to BS 9251 [7] to be provided. This is to include the increased design density as set out in Footnote B) in Table 2 of BS 9251.
- 4.2.3 The system may use concealed sprinkler heads if considered preferable by the client, provided these also meet the wider expectations of BS 9251.
- 4.2.4 If sufficient incoming water supply is available, the sprinkler systems may be run directly from the water mains. In the event of insufficient incoming water supply, a suitably sized water tank should be provided to ensure that adequate water is available in the event of a fire. For the Category 2 sprinkler system, the available water is to be sufficient for 30 minutes of supply to support the time required for firefighting operations to commence.

4.3 Structural fire resistance

- 4.3.1 Elements of structure should typically be designed and / or protected to achieve 30 minutes fire resistance to meet the expectations in Table 4 of BS 9991 for buildings having an uppermost floor height less than 5 m above ground level. Elements of structure that support walls having a higher fire resistance rating, such as party walls, will need to have a structural fire resistance rating to match the supported element.
- 4.3.2 Elements of structure that only support a roof do not generally require fire resistance. Structure is considered to support more than only a roof if it supports a load other than the roof itself (e.g., rooftop plant), or is essential to the stability of a compartment or other fire-resisting wall (internal or external).
- 4.3.3 When determining the elements required to be fire-resisting, the structural engineer may utilise safety factors for the fire design loading case. These are typically less onerous than for the maximum ambient design loading case for primary members, or less onerous than the wind design loading case for stabilising members such as cross-bracing.

4.4 Fire-resisting construction and fire doors

- 4.4.1 All floors should be constructed as fire-resisting floors.
- 4.4.2 Compartment / party walls are to be provided between each of the residential dwellinghouses.
- 4.4.3 Elements of fire-resisting construction will be provided in accordance with the recommendations in Table 3, and as indicated on the fire safety drawings included within Appendix A.
- 4.4.4 BR 128 [8] contains advice for the nominal fire-resistance ratings of masonry walls. New drylining partitions or floor systems should be selected using a manufacturer's guidance documents for complete systems (such as the White Book from British Gypsum or the Knauf Manual), which will also provide a fire-resistance rating for the selected build-up.
- 4.4.5 Fire door assemblies are to comply with BS 476-22 [9] or BS EN 1634-2 [10] for fire resistance, and where applicable BS 476-31 [11] or BS EN 1634-3 [12] for smoke leakage.
- 4.4.6 Fire doors within residential dwellings are not required to have self-closing devices. It is recommended that fire doors are closed at night, or in the event of a fire alarm activation the first occupant to respond then closes any fire doors which may assist with containing the fire.

Table 3 – Periods of fire resistance for fire-separating elements (in minutes, for loadbearing, integrity, and insulation where exposed from each side separately unless otherwise stated)

Element requiring fire-resistance	Fire resistance rating	Fire doors
Elements of structure	30	N/A
Floors within dwellinghouses	30 (from underside)	N/A
Party walls separating dwellinghouses	60	N/A
External walls (if required by Section 5.3): Less than 1,000 mm from a point in the relevant boundary More than 1,000 mm from the relevant boundary	30 30 integrity, 15 insulation	FD30 N/A
Protecting the internal hallways and stairs	30	FD30
Cavity barriers	30 integrity, 15 insulation	N/A

4.5 Concealed spaces and cavity barriers

- 4.5.1 Cavity barriers are provided in concealed spaces to prevent the rapid spread of unseen fire or smoke in voids, and to prevent the spread of fire around compartmentation via voids.
- 4.5.2 All cavity barriers are to have a fire resistance rating of at least 30 minutes for integrity (E) and 15 minutes for insulation (I). Cavity barriers should be at no greater than 20 m centres in cavities with Class C-s3, d2 linings or better to BS EN 13501-1, as well as being located to align with fire-resisting construction as indicated in Figure 5. For other linings, the spacing between cavity barriers should be reduced to 10 m.
- 4.5.3 Cavity closers provided around openings may be formed of:
- steel at least 0.5 mm thick or timber at least 38 mm 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 12 mm thick.

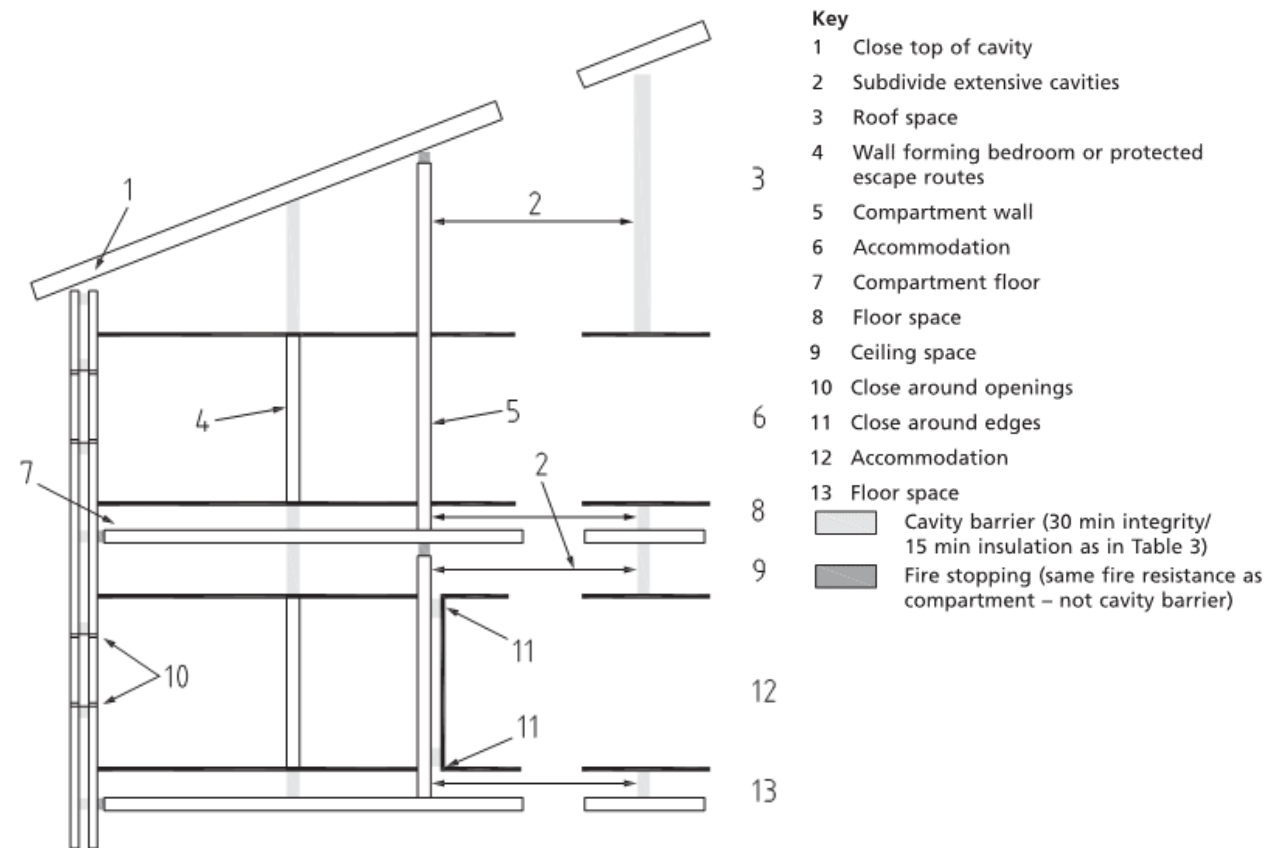


Figure 5 – Generic cavity barrier expectations

4.6 Fire-stopping and penetrations through fire-resisting construction

- 4.6.1 Fire-stopping should be provided at the junction of fire-separating walls and external walls to maintain the fire resistance period of fire-separating walls and prevent a fire from travelling around the junction and into the neighbouring space. Penetrations through lines of fire-resisting separation should also be fire-stopped using a product or system that will achieve the same fire resistance rating as the penetrated wall or floor.
- 4.6.2 To maintain the fire resistance rating of separating construction, any pipe or cable penetrations through lines of fire-resisting separation should be fire-stopped in accordance with one of the following methods set out by Section 19 in BS 9991. Figure 6 is provided to assist in the interpretation of the above recommendations.
- for pipes of any diameter, a proprietary seal which has been shown by test to meet the fire-resistance rating of the wall, floor, or cavity barrier for the penetration circumstance; or
 - for pipes with a restricted diameter, keeping the opening as small as possible and providing fire-stopping around the pipe. The nominal interior diameter of the pipe should not be more than the relevant dimensions given in Table 10 in BS 9991.
- 4.6.3 If ductwork is present which passes through construction forming a protected internal stair or internal entrance hallway within a dwellinghouse, this is recommended to be in accordance with the NHBC Building Regulations Guidance Note "Ductwork passing through protected entrance halls in dwellings" [13].

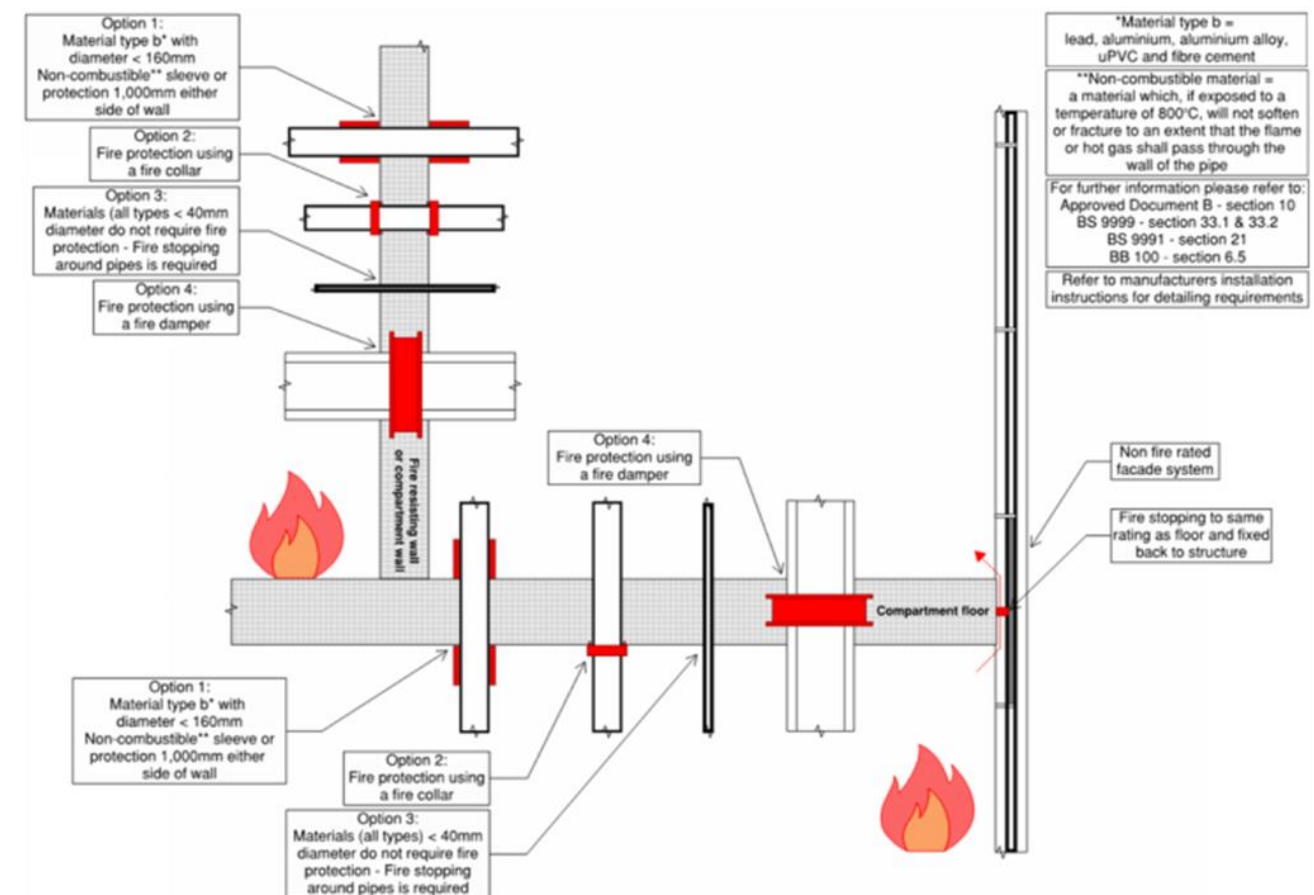


Figure 6 – Generic fire-stopping expectations

5. External fire spread

5.1 Construction and materials used for external walls

- 5.1.1 To prevent the spread of flame across the surface of building at a speed which may pose a threat to life, materials forming new areas of external walls of this dwellinghouse less than 18 m in height are to meet the following recommendations from Figure 17 in BS 9991:
- Class B-s3, d2 or better to BS EN 13501-1 where located within 1,000 mm of the site boundary; or
 - No restriction where at least 1,000 mm from the site boundary.
- 5.1.2 External walls are also expected to have cavity barriers in accordance with Section 4.5, located to align with internal fire-resisting construction or to limit the unbroken length of external wall cavities.
- 5.1.3 For buildings less than 11 m in height, insulation or filler materials in the external wall are permitted to be combustible provided that the external façade meets the remainder of the recommendations for the external façade construction and materials. Nevertheless, consideration should be given to the overall intent of Building Regulation B4, which states that external walls should be constructed to adequately resist fire spread. As such, combustible materials should not be used for construction of new external walls or external wall attachments without prior consideration and suitable care.
- 5.1.4 No external balconies or terraces are proposed at the development, where apartment external spaces will be garden areas at ground level only.

5.2 Roof coverings

- 5.2.1 Roof coverings are to be resistant to fire spread where being either close enough to a boundary to be at risk of ignition from a fire in another building, or where needed to resist fire spread between compartments via the roof coverings above.
- 5.2.2 New roof coverings 1.5 m either side of a fire-resisting wall should achieve an B_{ROOF}(t4) rating. The remaining new roof areas should meet the recommendations of Table 8 in BS 9991, as summarised in Table 4. In general, it would be suggested that all new roof areas should achieve B_{ROOF}(t4) or better.
- 5.2.3 Roof coverings may constitute a number of materials (but does not include the roof structure as a whole). Therefore, the top covering material should be considered in tandem with the substrate(s) to assess the performance of the coverings. The covering system as a whole is to meet the provisions of Section 5.2.2.
- 5.2.4 For any green roofs (also including brown or sedum roofs) included at the development, these should be specified in accordance with the GRO code [15], including:
- Having a growing medium / substrate at least 80 mm thick.
 - Have a growing medium / substrate that features <20% organic content and no peat.
 - Having a growing medium / substrate that has been tested in accordance with BS 8616 [16].
 - Have fire breaks of a least 300 mm around rooflights, soil pipes, rainwater outlets, and at least 500 mm where adjacent to openable windows or doors.
 - Fire breaks should consist of either at least 50 mm depth of 20 – 50 mm sized pebbles placed directly onto a drainage board, or concrete paving stones that are a minimum of 40 mm thick.
- 5.2.5 Any photovoltaic panels should also be in accordance with roof classification guidance. If the photovoltaic array results in live cables with a current / voltage that may pose a hazard to firefighters, a remote isolation switch should be provided to allow these to be disconnected prior to commencement of wet operations.

Table 4 – Limitations on roof coverings

Distance from boundary	Allowable roof covering classifications to BS EN 13501-5 [17]		
	B _{ROOF} (t4)	C _{ROOF} (t4)	D _{ROOF} (t4)
Less than 6 m	✓	✗	✗
At least 6 m	✓	✓	✗
At least 20 m	✓	✓	✓

5.3 Space separation and unprotected areas of the façade

- 5.3.1 Should a fire occur, heat will radiate through openings in the external walls. This heat can be enough to set fire to nearby buildings. To reduce the likelihood of this occurring, the Building Regulations guidance place limits on the area of the external elevation with no fire resistance, known as the unprotected area.
- 5.3.2 The building is to be designed and constructed with sufficient space separation and / or fire-resisting construction in the external façade to adequately limit the likelihood of fire spread to, or from, the adjacent relevant boundaries.
- 5.3.3 The relevant boundaries are the reference distances at which the potential for fire spread is considered, being the site boundary or a notional boundary created at the centreline of an adjacent road, railway, or other area with a sufficiently low likelihood of development. These are indicated for the site on Figure 7.
- 5.3.4 Compartment walls and floors will reduce the extent of façade likely to be radiating at any one time. Following the recommendations of BR 187 [18], the lower emitted radiation of 84 kW/m² may be used for the dwellinghouses, reduced to 42 kW/m² where supported by automatic suppression (see Section 4.2).

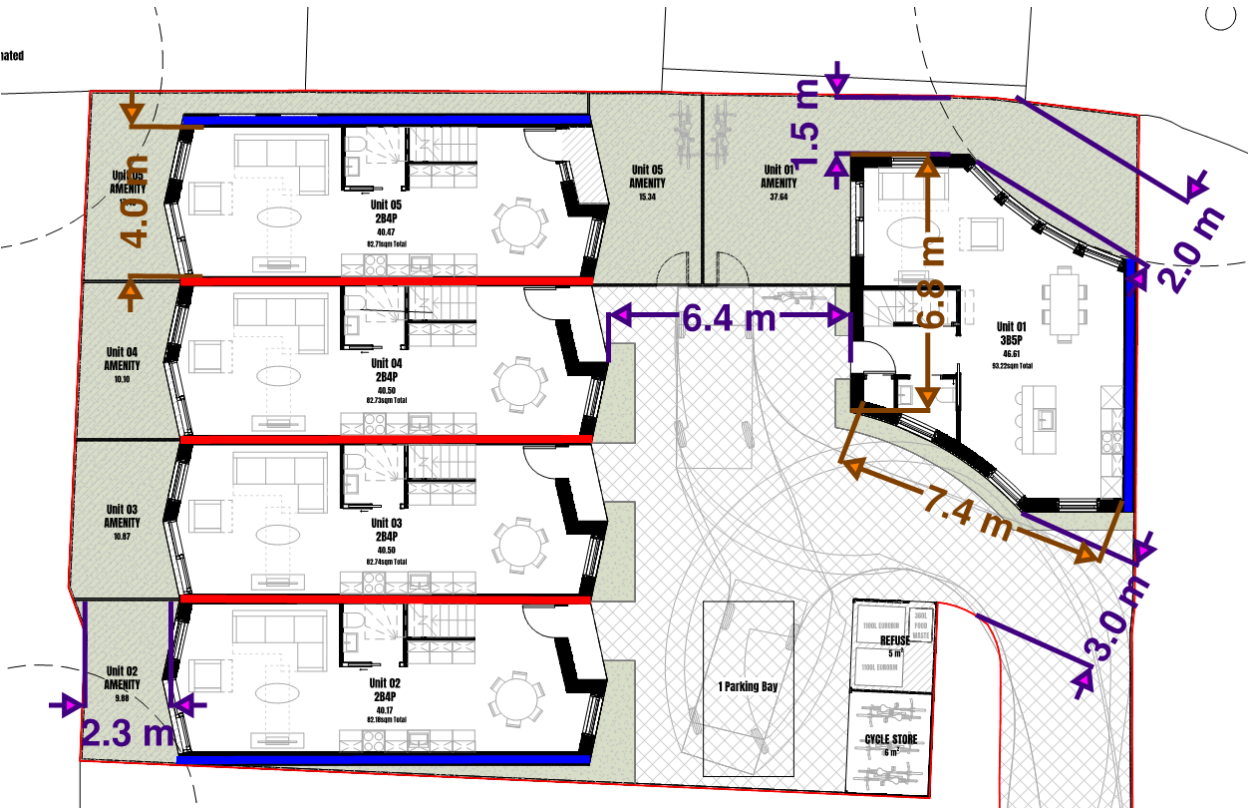


Figure 7 – Location of site boundaries and compartment widths (north at page north)

- 5.3.5 Using the methodology in BR 187, an analysis of the available distance between the development and the boundaries has been conducted as indicated in Figure 7. The findings of this analysis for the various compartments are presented in Table 5, which calculates the percentage of the façade permitted to be unprotected based on the available separation distances.
- 5.3.6 Following this analysis, the provided space separation and compartmentation will generally be sufficient for preventing external fire spread on façades facing into the site. Those façades located within 1 m of the site boundary are required to be fire-resisting to 30 minutes for integrity and insulation, though may incorporate small unprotected areas (no greater than 1 m²) in accordance with Diagram 11.5 from ADB (where BS 9991 contains errors within the corresponding illustration), as also included in Figure 8.
- 5.3.7 The north façade of Unit 01 and west façade of Units 02 to 05 will require a degree of fire-resisting construction to meet the expectations set out in Table 5. This construction should achieve a fire resistance rating of 30 minutes for integrity and 15 minutes for insulation.

Table 5 – Summary of external fire spread assessment

Area / Façade	Enclosing rectangle (m)		Distance to boundary (m)	Permitted % of unprotected area
	Width	Height		
Unit 01 (north)	7.4	≤6.0	1.5 to 2.0	56
Unit 01 (east)	-		<1	0
Unit 01 (south)	7.4		3.0	100
Unit 01 (west)	6.8		3.2	100
Unit 05 (north)	-		<1	0
Units 02 – 05 (east)	4.0		3.2	100
Unit 02 (south)	-		<1	0
Units 02 – 05 (west)	4.0		2.1 to 2.5	58

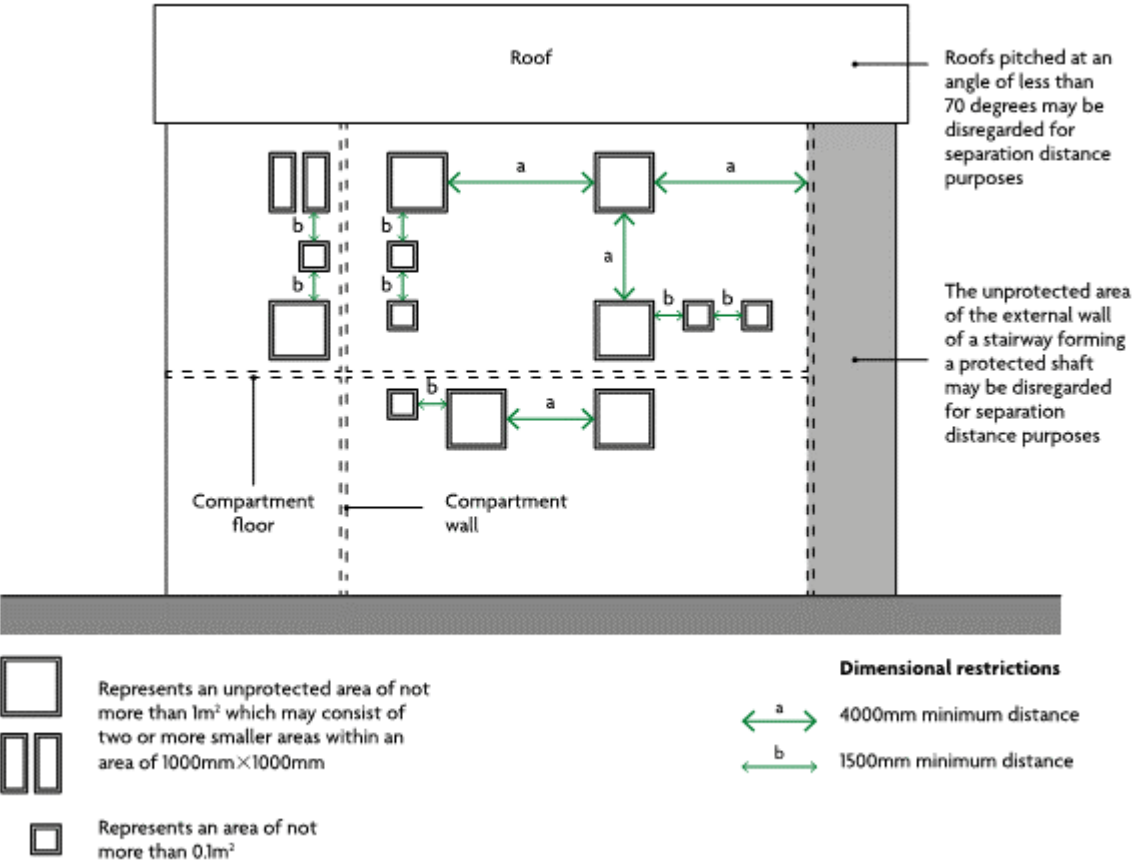


Figure 8 – Allowable unprotected areas within facades located less than 1 m from the site boundary

6. Fire service access and facilities

6.1 Notification and information for the fire and rescue service

6.1.1 In the event of a fire, the local Fire and Rescue Service (FRS) are expected to be notified by a dwellinghouse resident upon witnessing the fire.

6.2 Fire appliance access to the site

6.2.1 Vehicle access for fire appliance will be retained as per the existing condition at site, being available to the car park area at the front of the site from Fortis Green as indicated in Figure 9. Fortis Green and the car park access road are each expected to meet the fire appliance access guidance given in London Fire Brigade Guidance Note 29 [19], as summarised in Table 6.

6.2.2 Access to Fortis Green is available from multiple directions such that fire appliance turning or reversing would not be required. The car park area does not feature a dedicated turning area, and as such a maximum reversing distance of 20 m is expected when accessing this area.

6.2.3 The access road into the site will not be sufficient for provided fire appliance access to adjacent to the dwellinghouses. As such, hose laying is to occur from the hardstanding area to the furthest point within the residential dwellinghouses as is discussed further in Section 6.4.

Table 6 – Pump-type firefighting appliance access requirements from GN29

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 tonnes
Maximum reversing distance	20 m

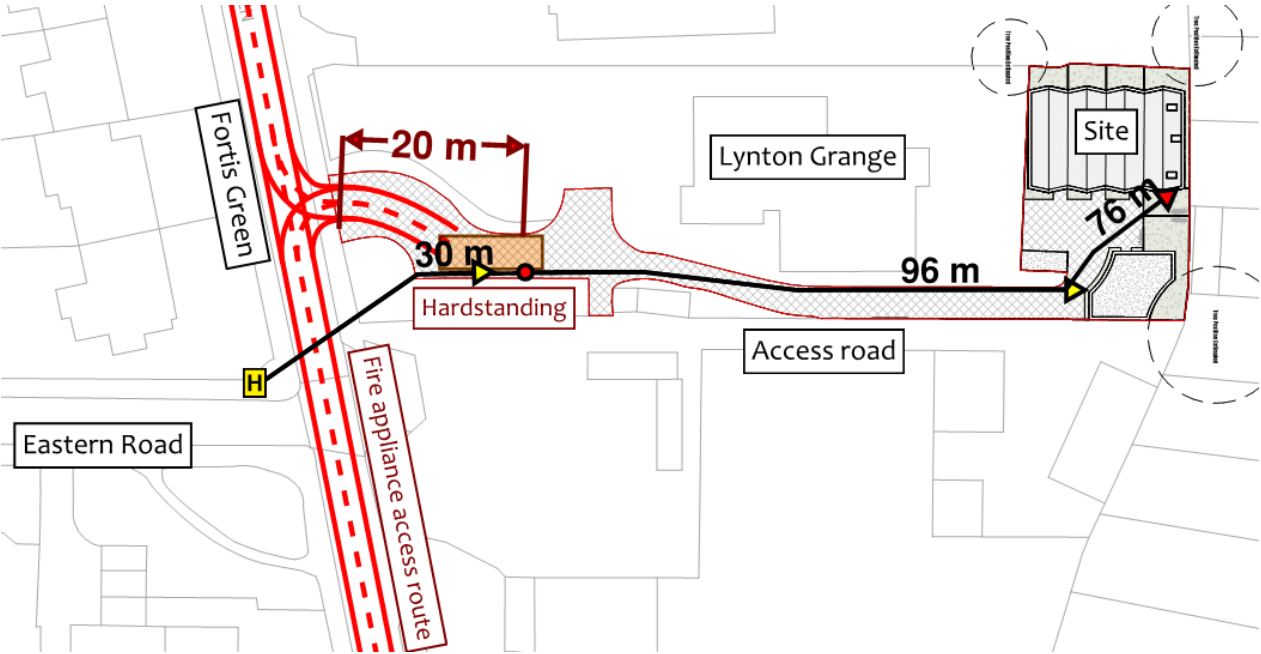


Figure 9 – Firefighting vehicle access and water supplies

6.3 Firefighting water supplies

6.3.1 As a mature residential area, the existing water supply provisions for firefighting will also serve the site. This will be via a public hydrant located at the junction of Eastern Road and Fortis Green as indicated in Figure 9.

6.3.2 Section 51.2(a) in BS 9991 recommends that at least one fire hydrant is located within a maximum of 90 m from an entry point to the building. As illustrated on Figure 9, the fire appliance hardstanding area is located within 30 m of the nearest hydrant, such that water supplies for firefighting would be readily available. This proposed site is circa 96 m from the hydrant, though this will be supported by the proposed extended hose laying strategy from the fire appliance as set out in Section 6.4.

6.3.3 It is also noted that in Section 14.8(b) ADB, and allowance of up to 100 m is given for existing fire hydrants. This is considered as further supporting the proposed arrangement (where BS 9991 does not distinguish between new and existing hydrants).

6.4 Firefighting facilities at the development

6.4.1 As the dwellinghouses are accessed directly from outside, no internal features to support firefighting (such as firefighting lifts and stairs, smoke extraction, dry rising mains, etc.) are expected by BS 9991.

6.4.2 With restricted access to the site, automatic suppression will be provided in each dwellinghouse to support firefighting access. Further detail regarding the level of suppression required is detailed in Section 4.2.

6.4.3 Section 50.1.2 of BS 9991 recommends that where a suitable automatic suppression system is provided in a dwellinghouse having no floor greater than 4.5 m in height, the distance between the fire appliance and any point in the house may be increased to up to 90 m.

6.4.4 As illustrated in Figure 9, where considering hose laying direct from the fire appliance hardstanding there is a hose laying distance of ~76 m from the hardstanding area to the entrance of the furthest proposed dwellinghouse. Hose laying distances within the dwellinghouse are illustrated in the fire strategy marked-up drawings in Appendix A, being circa 13 m to the furthest point of the dwellinghouse. As such, the total hose laying distance is ~90 m, meeting the maximum hose laying distance deemed acceptable by BS 9991.

6.4.5 It is noted that a fire appliance could enter further into the site should a slightly longer reversing distance be deemed tolerable by the fire service. In this event, the maximum hose laying distance from the appliance hardstanding could be reduced by circa 5 – 10 m and would be significantly within the maximum hose laying distance set out in BS 9991.

6.5 Stand-by power supplies

6.5.1 The fire detection and alarm systems are expected to utilise internal batteries capable of a continuous stand-by supply to meet the relevant design standard and be fully rechargeable within a period of 24 hours.

6.5.2 The automatic suppression system may utilise a single incoming power supply, to be installed in accordance with Section 5.12.2 and Figure 7 in BS 9251, as deemed appropriate for a Category 2 sprinkler system.

7. Additional fire safety guidance

7.1 Fire safety information and future development

- 7.1.1 This Planning Fire Safety Strategy details an appropriate level of information to support a planning application for a development of this scale and nature.
- 7.1.2 Following planning, this Planning Fire Safety Strategy should be provided to the design team responsible for progressing the scheme through detailed and technical design. The design team will be required to seek approval for the development under the Building Regulations by the appointed building control authority, including consultation with the local fire and rescue service where applicable.
- 7.1.3 Further development of the fire safety provisions set out within this Planning Fire Safety Strategy is expected during the Building Regulations approvals process, including the selection of specific products, systems, or materials to fulfil the expectations of the Planning Fire Safety Strategy.
- 7.1.4 Where any modification to the fire safety provisions set out in Section 3 to 6 of this Planning Fire Safety Strategy are proposed during further design, these should not be incorporated unless agreed in writing by the appointed building control authority.
- 7.1.5 The as-built fire safety strategy for the building, as agreed by the appointed building control authority, should be documented and provided to the subsequent dwellinghouse owners, to meet the expectations of Regulation 38 of the Building Regulations and principles of the Golden Thread of Information. This should be provided as part of a wider package of building information including, but not being limited to:
- This Planning Fire Safety Strategy report
 - The as-built fire safety strategy report and associated fire strategy drawings
 - Manufacturer’s literature for fire safety products and equipment present at the building
 - Drawings indicating the installed locations of fire safety products and equipment
 - Manufacturer’s literature detailing suitable methods of operation and maintenance of fire safety products and equipment
- 7.1.6 It is recommended that the above information is provided in a digital format that may be retained using a cloud-based or other remote service, to reduce the potential for loss of information in the event of fire, flooding, theft, etc.
- 7.1.7 The dwellinghouse owners are recommended to ensure that periodic maintenance of the fire safety equipment is undertaken in accordance with manufacturer’s recommendations. The information provided within the Regulation 38 documentation may be used to assist maintenance professionals in identifying the systems, spare parts, operational procedures, maintenance procedures, etc. for the various systems present.
- 7.1.8 Any subsequent amendment to the fire safety provisions within a dwellinghouse will require consent from an appointed building control authority. The owner should consult with a suitable building control authority or fire safety professional prior to conducting any future modification works, to ensure that these will be in accordance with any relevant fire safety legislation in force at that time.

7.2 Management and maintenance of fire safety systems

- 7.2.1 In residential dwellinghouses the owner / occupier is expected to be responsible for the management and maintenance of a suitable level of fire safety. This may include:
- management to minimise the incidence of fire (e.g., good housekeeping and security)
 - considering their emergency escape plan and ensuring escape routes are unobstructed
 - being aware of any particular risks (e.g., cooking)
 - being aware of the challenges that may be faced by disabled residents or guests
 - ensuring that fire detection or fire suppression systems are appropriately maintained and / or tested

- periodically checking the adequacy of fire extinguishers or fire blankets

7.2.2 Protected entrance halls should have wall and ceiling linings achieving a Class C-s3, d2 reaction to fire standard. Display features such as posters, artwork pieces, etc. could be included if deemed appropriate by the dwellinghouse resident, who is recommended to consider fire safety within their appraisal.

7.3 Hoarding

- 7.3.1 ‘Compulsive hoarding’ or ‘Hoarding’ is a mental health issue characterised by the accumulation of large quantities of goods within an occupant’s home. Amongst the number of health and safety issues associated with hoarding, this also poses a challenge with regards to fire safety.
- 7.3.2 The fire safety provisions provided within a building assume certain characteristics, including fire load. Hoarding may significantly increase the fire load above that which is typically assumed within a residential unit and present a greater likelihood of sheltered or deep-seated fires occurring which could pose a challenge to fire-resisting construction, suppression systems, or firefighting operations.
- 7.3.3 Should there be cause to believe an occupant is hoarding goods, it is recommended that this be reported to the local health or mental health service provider as well as to the local fire and rescue service.

7.4 Fire extinguishers and fire blankets

- 7.4.1 First-aid firefighting provisions are recommended should be assessed and provided as part the dwellinghouse owner’s fire safety measures. Suitable first-aid firefighting provisions can help with the extinguishment of small fires, preventing these from growing into significant fires.
- 7.4.2 Where provided, the type and size of extinguisher(s) are recommended to be chosen in accordance with the guidance given in BS 5306-8 [20], as summarised by Table 7 and the classification of fire fuel hazards summarised as follows:
- Class A – fires involving solid materials, usually of an organic nature (general hazards);
 - Class B – fires involving liquid or liquefiable solids (such as liquid fuels, lubricants, paints, etc.);
 - Class C – fires involving gases;
 - Class D – fire involving metals; and
 - Class F – fires involving cooking media (vegetable or animal oils or fats).
- 7.4.3 Fire blankets may be provided in kitchens for extinguishing cooking fires and should be affixed vertically to a wall or door to for ease of deployment in an emergency. The blanket should be located close to the cooking appliance, but far enough away such that a hob fire would not prevent access to the fire blanket.

Table 7 – Fire extinguisher types

Medium	Colour code	Application	Do NOT use for
Water	White	Class A fires	Liquid, electrical, metal or cooking fires
Powder	Blue	Class A, B or C fires	Metal or cooking fires
Foam	Cream	Class A or B fires	Electrical*, metal or cooking fires
CO ₂	Black	Class B fires	Metal or cooking fires
Wet chemical	Yellow	Class A or F fires	Liquid, electrical or metal fires
* AFFF Foam extinguishers may be used for electrical fires up to 35 kV (dielectric test) and where operated from a distance of at least 1 m.			

8. External references

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- [6] BSI, BS 5839-6:2019 + A1:2020 Fire detection and fire alarm systems for buildings - Part 6: Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings, London: British Standards Institution, 2019.
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- [9] BRE, "BR 128: 1988 Guidelines for the construction of fire-resisting structural elements," BRE Bookshop, Watford, 1988.
- [10] BSI, "BS 476-22:1987 Fire tests on building materials and structures. - Part 22: Methods for determination of the fire resistance of non-loadbearing elements of construction," British Standards Institution, London, 1987.
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- [15] GRO, "The GRO Green Roof Code: Green Roof Code of Best Practise for the UK 2021," Green Roof Organsition, London, 2021.
- [16] BSI, "BS 8616:2019 Specification for performance parameters and test methods for green roof substrates," British Standards Institute, London, 2019.
- [17] BSI, "BS EN 13501-5:2005 Fire Classification of construction products and building elements - Classification using test data from external fire exposure to roof tests," British Standards Institute, London, 2005.
- [18] BRE, "BR 187: 2014, External fire spread - Building separation and boundary distances," IHS BRE Press, Bracknell, 2014.
- [19] LFB, "GN29: Fire Safety Guidance Note - Access for Fire Appliances," London Fire Brigade, London, 2007.
- [20] BSI, "BS 5306-8:2012 Fire extinguisher installations and equipment on premises. - Part 8: Selection and positioning of portable fire extinguishers. Code of practice," British Standards Institution, London, 2012.

Appendix A – Fire safety and fire-resisting construction mark-ups

- Fire resistance rating of 60 minutes
- Fire resistance rating of 30 minutes
- FD30 Fire door (no self-closer)

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Client

Capstone Group

Sheet number

1073-1073-LVG-PR-GA-00

Sheet name

Proposed Ground Floor Plan

Sheet scale

1:100 @ A1

Date/time

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Rev	Description	Date	Issued	Checked
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OS information no accurate and not to be used for measurements.

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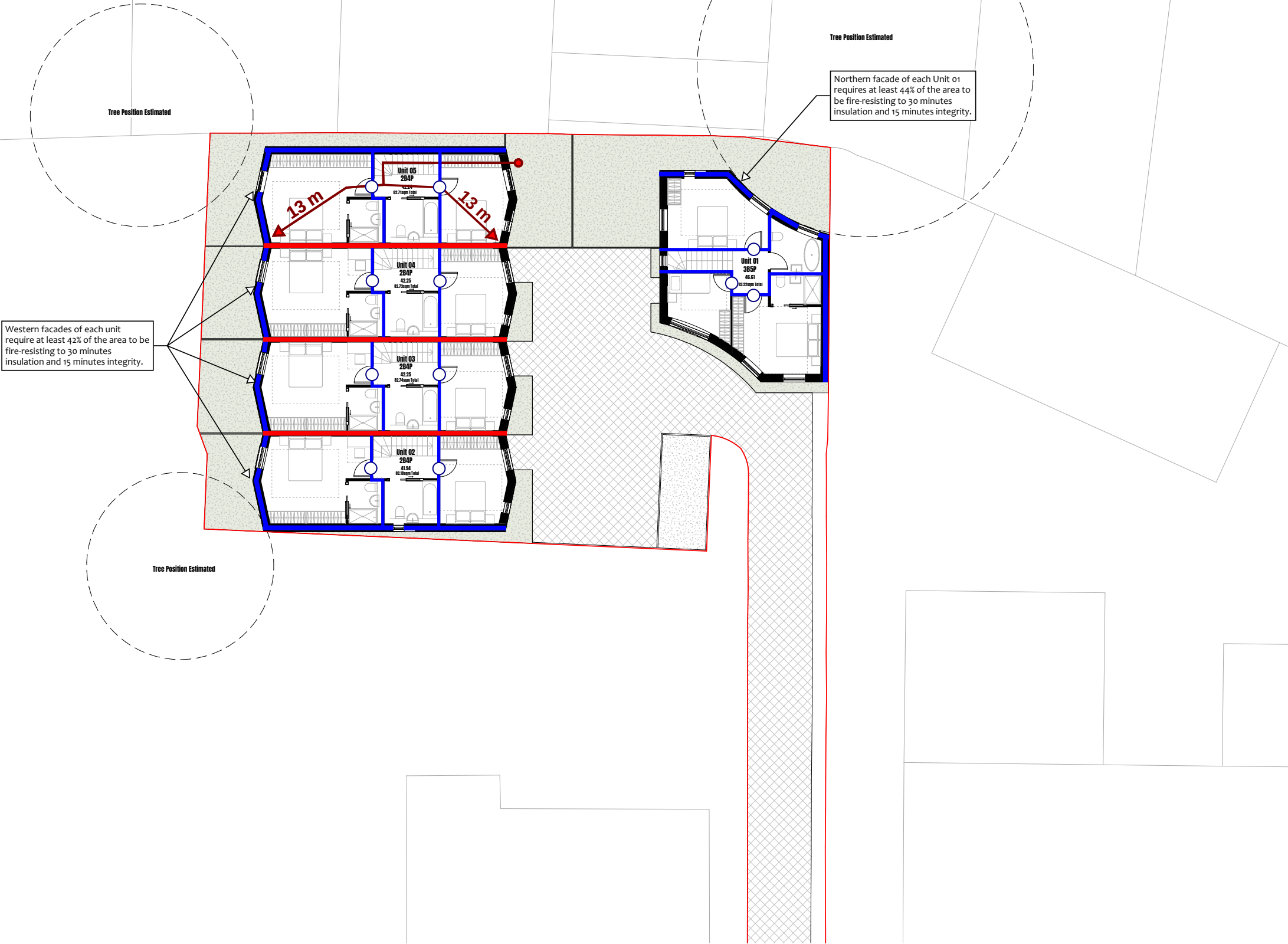
1 Proposed Ground Floor Plan

1:100

Scale Bar: 1:100 @ A1 (Metres)



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Sheet name

Proposed First Floor Plan

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