Fire Engineering Strategy Statement

Document number: GH-FIRE-01-03

PROJECT: VINCAM CLOSE, RIBA 3 STATEMENT
CLIENT: NFC HOMES LTD.

REVISION: B

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Client/Project details and document revision history.

Fire Engineering Strategy Statement Document number: **GH-FIRE-01-03**		
Project: Vincam Close Project		
CLIENT / EMPLOYER: NFC Homes Limited 78, Pall Mall, London, SW1Y 5ES	**Revision**	B
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	Original Date:	01-09-2021

Rev	Prepared by:		Review		Revision detail	Date: d/m/y
	Name	Signature:	Name	Signature:		
A	Lewis Jones, BEng	L G Jones	Craig Parkhouse		Initial Report	27/08/2021
B	Lewis Jones, BEng	L G Jones	Craig Parkhouse		Issued report	01/09/2021

Green Hat Consulting Ltd, as member of the Fire Protection Association, warrants that this report has been prepared with all reasonable skill and care. However, this report has been constructed in accordance with client instructions and using latest information provided at the date of this report. The information within this report is only considered valid provided no modifications are made post completion of this report other than those agreed between the client and suitably qualified Green Hat Consulting Ltd representative. Please refer to disclaimer at the end of this document for full conditions of limitations of liability.

This document is an RIBA 3 Strategy Statement developed to assess all relevant information provided by the client to date of report and to provide suitable information in order to meet the functional requirements to meet minimum compliance to the current version to the relevant Approved Document B. Where no specific provision is mentioned in this fire strategy regarding any particular aspect, reference should be made to Approved Document B (England or Wales as required).

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1.0 Executive Summary

Greenhat Consulting Ltd have been appointed by NFC Homes Limited (Client) to develop a RIBA 3 Fire Strategy Statement in support of a planning application for the Vincam Close development, 38-42 Vincam Close, Whitton, TW2 7AB. The development will include the construction of eight new three and four-bedroom houses with private gardens and independent car parking.

Plan/drawings have been provided by Tim Snow Architects to enable the production of this report. While this report articulates agreements reached to meet compliance requirements, both Building control and the AHJ (Authorities Having Jurisdiction) are required to review and pass comment regarding this strategy to ensure its applicability to the development.

This report represents the RIBA Stage 3 Fire Strategy Statement, based upon the documents provided by NFC Homes Ltd.

This document is intended to:

- Demonstrate compliance with the functional requirements of the UK Building Regulations.
- Ensure the development meets the policies set out in the Policy D12 Fire Safety.

The purpose of this report is to demonstrate to the Authority Having Jurisdiction (AHJ) that the development meets the functional requirements of the Building Regulations *Approved Document B, Volume 1: Dwellings, 2019 Edition incorporating 2020 amendments - For use in England* (known from here on in as AD-B), and Policy D12 Fire Safety of London planning, taking cognisance of any insurance requirements as informed by the client, and, if required by AD-B, application of principles of BS 9991:2015 Code of practice for fire safety in the design, management and use of buildings in respect to management level required.

The proposed development will include the construction of eight two-storey buildings consisting of three and four-bedroom residential properties. Each will have a private garden and two private car parking bays.

This report provides context of how the development shall meet requirements for compliant structure, fire suppression, detection, and alarm, means of escape, internal and external fire spread, access for fire services, and all associated active and passive fire safety measures incorporated.

The report is structured into 10 relevant sections providing detailed information for fire safety compliance. It is important that the Principal Contractor review all sections for consideration to ahead of planning application.

This is an initial outline strategy to consider functional requirement to meet AD-B, Policy D12 and planning.

Revision B detail:

- Update to local fire station detail in section 8.
- Update to evacuation plan and fire drawings, removing previously provided additional option for protected egress route, the specification has now been finalised, see section 4 and appendix A.

Summary specifications.

Section	Project specific specifications
Project Name	**Vincam Close development, 38-42 Vincam Close, Whitton, TW2 7AB**
Description	The development will include the construction of eight three- and four-bedroom houses with private gardens and two independent car parking spaces.
Legislation	The project has been strategically prepared to enable compliance in accordance with **AD-B & Policy D12, version** as stated in executive summary.
Purpose groups identified	This project is for eight residential (dwellings) houses, the purpose group classification for this project is Group **1(b)** Dwelling house that contains a habitable storey with a floor level a minimum 4.5m above ground level.
Evacuation strategy	The strategy specified for this project is that of a **Simultaneous Evacuation Strategy.**
Fire detection and alarms systems	Current Alarm system specified for this project is a standard **Grade D2 LD3 system for all properties (BS5839/6).**
Structural fire protection	The building is two storeys in height (Ground and first floor), and the height of the top storey above ground level is below 5m, therefore 30-minute fire resistant construction is required for elements of structure. 60-minute fire resistant construction must be provided to party walls that separate houses/dwellings.
Fire service requirements	Fire appliance parking provided along Vincam Close with ample space for manoeuvring and near the Fire hydrant positioned external to the building where the current entrance is on site.
Special considerations or alternative requirements.	See Appendix A for information on the evacuation strategy from the ground and first floors.

2.0 Introduction

2.1 Purpose of the report

Green Hat Consulting Ltd was appointed by NFC Homes Ltd. to provide a fire strategy for the development.

The primary objective of this statement is to provide high level advice at this early stage on how an acceptable level of life safety may be achieved commensurate with the Functional Requirements of Approved Document B (fire safety) volume 1: Dwellings, 2019 edition incorporating 2020 amendments (herein named AD-B), for means of egress (B1), internal fire spread structure (B3), external fire spread (B4) and firefighting access (B5) and the impact of the development on the wider community.

2.2 Basis of the report

The basis of the report has been developed from the following information provided by NFC Homes and Tim Snow Architects. The Drawings provided are the latest versions provided to Green Hat to-date.

Table 1. Information provided for this report.

Name	Document Type	Produced by
Proposed Development Site Plan	Architectural Drawing	Tim Snow Architects
Plots 1 to 3 Plans & Elevations	Architectural Drawing	Tim Snow Architects
Plots 4 Plans & Elevations	Architectural Drawing	Tim Snow Architects
Plots 5 to 8 Plans & Elevations	Architectural Drawing	Tim Snow Architects

2.3 Limitations

This fire safety strategy statement is based on information provided by others, as noted above and as such under no circumstance is any liability accepted for the accuracy of such information. Furthermore, this report is subject to the agreement of the Approving Authorities. This report has been constructed in accordance with client instructions and using latest information provided at the date of this report.

The information within this report is only considered valid provided no modifications are made to the plans or specifications post final report other than those agreed between the client and Green Hat representative. Furthermore, the fire strategy report proposes alternative methods to satisfy the functional requirements of AD-B and Policy D12.

Whilst alternative methods have been based on accepted codes of practice, they will be subject to the agreement of the Approving Authorities. Where no current plans available this report has used indicative original plans for illustration only.

2.4 Building overview

2.4.1 General overview

The development consists of the construction of eight new three and four bedrooms detached and semi-detached homes with off street parking and garden space. The site is located at the existing properties of 38-42 Vincam Close, a residential cul-de-sac situated off B358, a main road connecting Whitton, Twickenham, and Hounslow. There is also a rail line to the south of the site.

Currently the plot is occupied by four residential properties which are to be demolished and the site prepped for construction of the new buildings which will provide more residential accommodation within the same site boundaries. The site is accessed directly via Vincam Close TW2 7AB, from the running point within the cul-de-sac. New access will be provided via an access road/driveway servicing each property.

The properties will be built of traditional timber construction with an external brick façade, with all properties being two storeys (ground and first floors), with a top floor height of 2.9m above ground level (as provided by NFC Homes Ltd). The new housing will comprise of six three-bedroom and two four-bedroom properties. Prior to construction a timber frame radiant heat risk assessment must be undertaken.

Vehicular access is provided from Vincam Close leading directly onto the development, with each property being provided with two car parking bays. Main access to each property is via the front door, with an egress from each property at the rear of the property through the kitchen/family room, each four-bedroom house has an additional egress route from the building via the utility room. The upper floor of each property is accessed by the main stairway located in the hall of the ground floor, which has direct access to each habitable room on that level.

2.4.2 Building height

Table 2. Building heights.

Height	Detail
1. Total building height = 8.260m (1) 2. Firefighting access height = 2.900m (2)	Plots 1 to 3 – Two Storeys (Ground plus First)
1. Total building height = 7.940m (1) 2. Firefighting access height = 2.900m (2)	Plot 4 – Two Storeys (Ground plus First)
1. Total building height = 8.120m (1) 2. Firefighting access height = 2.900m (2)	Plots 5 to 8 – Two Storeys (Ground plus First)

Note:

1. Total building height, which is measured from mean ground level to mean roof level. This measurement is used for Surface spread of Flame.
2. Firefighting access height, which is measured from fire-fighting access level to the height of the top-most storey. This measurement is used for Firefighting access. This value was provided by NFC Homes.

Note: Measurements taken off PDF drawings provided only.
See example image below.

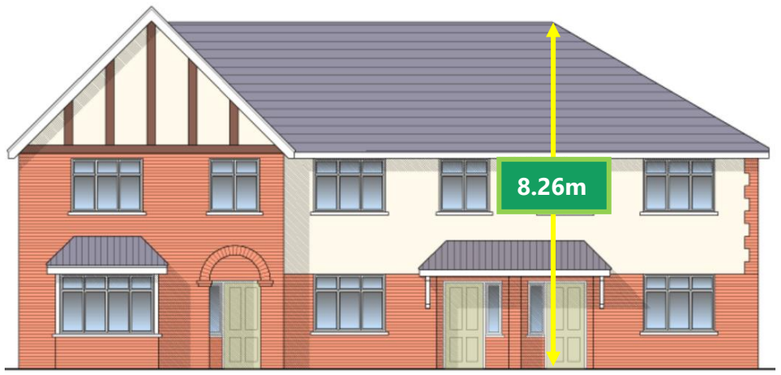


Image 1. Plots 1 to 3 elevation and building height.

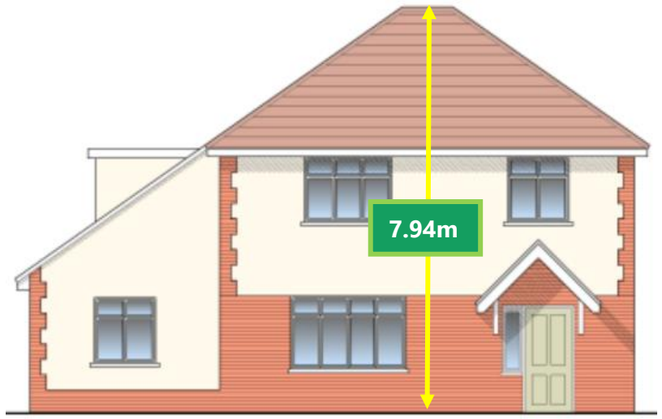


Image 2. Plot 4 elevation and building height.

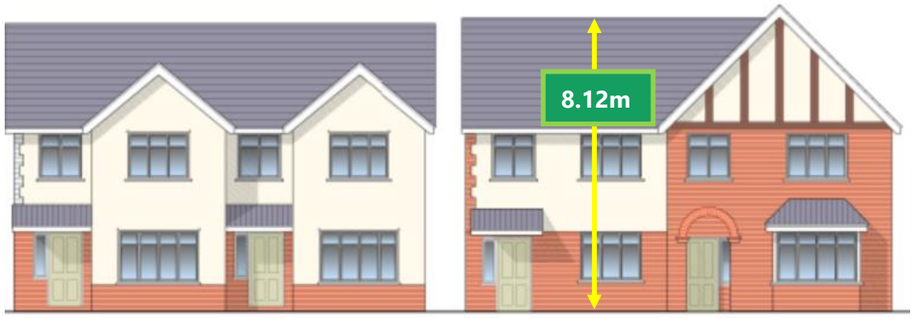


Image 3. Plots 5 to 8 elevation and building height.

2.4.3 Site aerial plan/overview

Image 4. Location.

Image 5. Current site/development location.

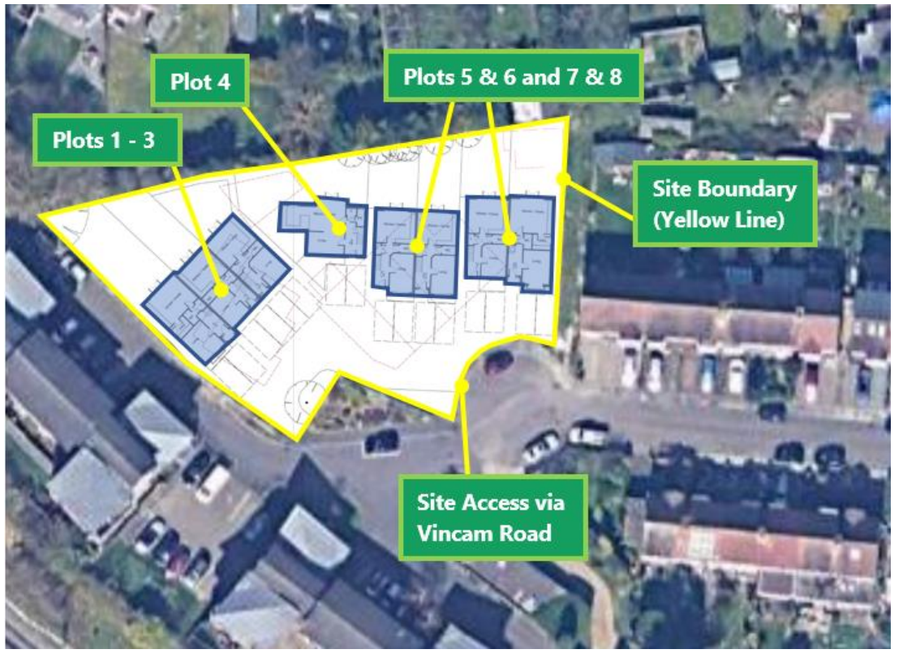


Image 6. Current site/development super imposed at location.

2.4.4 General arrangement floor plans

The general fire safety arrangements for the development are illustrated below, with further detail articulated within the appendices.

Ground floor plans.

Image 7. Ground floor plans.

The ground floor of each of the properties follows a similar room layout, entering the building into a main corridor/lobby area containing the single stairway to the upper floors, a cupboard space with double doors, and doors leading into the living room and kitchen/family room. The two larger four-bedroom properties (plots one and eight) contain a utility room which is accessed both externally via a second entrance and egress, and internally from the kitchen/family room.

Each of the properties have rear egress from the building through a set of double doors leading to a private garden space.

First floor plans.

Image 8. First floor plans.

The first floor of each property is accessed via the single stairway leading into a hallway which provides access to each bedroom, the upstairs bathroom, and a storage cupboard. Each property has three bedrooms with an EnSite located within the proposed master bedroom, with plots one and eight having an additional fourth bedroom.

Internal escape from this floor is only via the single stairway, however as specified by NFC Homes Ltd. escape from the upper floor will also be from the windows as part of the simultaneous evacuation strategy.

2.4.5 Purpose Group

Table 3: Purpose group for the development.

Purpose Group	Purpose for which the building or compartment of a building is intended to be used
1 (b)	Dwelling house that contains a habitable storey with a floor level a minimum of 4.5m above ground level up to a maximum of 18m.

2.4.6 Occupancy Levels

Table 4: Calculated number of occupants within each plot.

Level	**Use**	**Occupant numbers**
Plots 1 & 8	Four-bedroom residential house	8
Expected level	**Based upon beds**	**8**
Allowance	**10% of expected visitors/guests**	**1 (0.8)**
Total		**9**
Level	**Use**	**Occupant numbers**
Plots 2 - 7	Three-bedroom residential house	**6**
Expected level	**Based upon beds**	**6**
Allowance	**10% of expected visitors/guests**	**1 (0.6)**
Total		**7**

3.0 Legislation

3.1 The Building Regulations Approved Document B

The Building Regulations are produced for specific purposes, primarily the health and safety, welfare, and convenience of people and for energy conservation. The design, construction and handover of this development shall satisfy the functional requirements of the Building Regulations. Schedule 1, which includes the following:

B1 -Means of warning and escape
B2 -Internal fire spread (linings)
B3 -Internal fire spread (structure)
B4 -External fire spread
B5 -Access and facilities for the fire service, in particular Regulations: 6 (3), 7 (2) and 38
R38 -Handover Information
Approved Document B, Volume 1: Dwellings, 2019 Edition incorporating 2020 amendments - For use in England

3.2 Guidance documents

Guidance documents used to compile this document include:

- BS5839-6:2019 Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning, and maintenance of fire alarm systems in domestic premises
- BS5839-1:2017 Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning, and maintenance of systems in non-domestic premises
- BS 9251. Fire sprinkler systems for domestic and residential occupancies. Code of Practice
- BS5266-1:2016 Code of practice for the emergency lighting of premises
- BS5499-4:2013 Code of practice for escape route signing
- The Equality Act 2010 Developed in 2010, this Act brings together over 116 separate pieces of legislation into one single Act. The Act provides a legal framework to protect the rights of individuals and advance equality of opportunity for all.
- The London Plan 2021 section D12 (Fire) is the Spatial Development Strategy for Greater London.
- BR187:2014 External fire spread: Building separation and boundary distances

Approved Document B (fire safety) volume 1: Dwellings, 2019 edition incorporating 2020 amendments and all pertinent legislation and standards listed within the document. Fire safety measures will be required to meet AD-B, and where additional guidance may be required, will follow the guidance in BS 9991: 2015. However, where further clarification and or any deviation from this standard occurs justification demonstrating the functional requirements of the Building Regulations are provided using the suite of documents described herein, this is provided for convenience of approving authority and local fire service.

3.3 BS 9991: 2015. Fire safety in the design, management and use of residential buildings.

BS 9991:2015 gives recommendations and guidance on the design, management and use of the following building types, to achieve reasonable standards of fire safety for all people in and around:

• Dwellings (single-family dwelling houses, self-contained flats, or maisonettes);

• Residential accommodation blocks (e.g., for students or hospital staff), with individual bedrooms and the provision of kitchen/sanitary facilities constructed within a fire compartment, accommodating not more than six persons.

• Sheltered housing and extra care housing.

It is not applicable to hotels, caravans/mobile homes, hospitals, residential care/nursing homes, places of lawful detention, hostels, or houses of multiple occupancy.

BS 9991:2015 is applicable to the design of new buildings, and to material alterations, extensions, and material change of use of an existing building.

It also provides guidance on the ongoing management of fire safety in a building throughout the entire life cycle of the building, including guidance for designers to ensure that the overall design of a building assists and enhances the management of fire safety. It can be used as a tool for assessing existing buildings, although fundamental change in line with the guidelines might well be limited or not practicable.

3.4 Fire Safety Order

The Regulatory Reform (Fire Safety) Order:2005 [RR(FS)O] apply. It sets out the duties of the Responsible Person (RP). Part 1, Article 3 of the order provides meaning of responsible person, it states:

In this Order "responsible person" means:

1. (a) in relation to a workplace, the employer, if the workplace is to any extent under his control.

2. (b) in relation to any premises not falling within paragraph (a)

1. (i) the person who has control of the premises (as occupier or otherwise) in connection with the carrying on by him of a trade, business, or other undertaking (for profit or not); or

2. (ii) the owner, where the person in control of the premises does not have control in connection with the carrying on by that person of a trade, business, or other undertaking.

The RR(FS)O came into force in 2006 with the aim of reducing burden on business caused by the existence of multiple, overlapping general fire safety regimes and consequently overlap of the responsibilities of enforcing authorities.

3.5 Regulation 38

Regulation 38 of the building regulations requires that:

A person carrying out work shall provide fire safety information to the responsible person, not later than the date of completion of the work, or the date of occupation, whichever is earlier.

This regulation aims to ensure that information critical to the life safety of people in and around the building is communicated so that the building can be operated and managed correctly.

Information produced during development of fire safety precautions and accurate information related to those physical fire safety precautions must be issued to the owner, occupier and/or end user to assist in risk understanding and assists the responsible person to conduct a suitable and sufficient fire risk assessment (FRA) for the building in a way that allows those risks to be appropriately addressed and to be kept up to date as a true reflection of the completed building.

This report is not a fire risk assessment, it is however a fire strategy report written to articulate how the building meets the intent of AD-B and is therefore paramount to the information required by the RP to undertake and maintain duties under Regulation 38.

4.0 Means of Escape

The means of escape from the building is in accordance with AD-B general principles. Where any proposed means of escape strategy deviates from these guidance documents it will require agreement with the authority having jurisdiction. Section A 4) and B 2) of the Planning Policy D12 requires that suitable means of escape be provided for all building users.

4.1 Evacuation Strategy

The fire strategy design of these residential buildings has been developed to facilitate a **simultaneous evacuation** policy, whereby:

- If any detection is activated, all occupants within the affected house/property will react to the alarm and follow the designated means of escape to a place of safety outside and away from the building.

This evacuation strategy was specified by NFC Homes Ltd and satisfies the requirements in Section 2 of AD-B, which states:

- Escape from the ground storey of all habitable rooms can be achieved by opening directly onto a hall leading to a final exit, or via and emergency escape window or door.
- Escape from upper storeys a maximum of 4.5m above ground level of all habitable rooms can be achieved by either exiting via the stair to the ground floor and out through a final exit or if the route is compromised, egress can be via an emergency escape window on the first floor provided in every habitable room. There is the option to provide a protected stairway and lobby however the current specification is suitable for the size of the houses.

Due to the layout of the ground storey, and the windows on the first storey complying with AB-D to be classed as emergency escape windows, the designed properties meet requirement for evacuation.

5.0 Active Fire Safety Features

Sections A 2) and B 3) of the Planning Policy D12 requires that appropriate active fire safety systems are in place to reduce the risk to life. The following sections detail the active systems which will be in place to achieve this.

5.1 Fire Detection and Alarm Systems

Fire detection systems are designed to provide early warning of fire at an inception phase, and to enable an alarm (Auditable/Visual/Manual) to all occupants to ensure a safe and timely evacuation of a building, before egress becomes untenable as a consequence of fire, smoke and or toxic gases.

These are not classed as large dwelling house as no storey exceeds 200m^2, all dwellings should have a fire detection and alarm system, minimum Grade D2 Category LD3 standard, in accordance with the relevant recommendations of BS 5839-6. However, it is recommended that in new dwellings a Category LD2 system may be more appropriate.

Grade D2: *A system of one or more mains-powered smoke detectors, each with an integral standby supply. (The system may, in addition, incorporate one or more mains-powered heat detectors for kitchen locations, each with an integral standby supply).*

Category LD2: *A system incorporating detectors in all circulation spaces that form part of the escape routes from the dwelling, and in all rooms or areas that present a high fire risk to occupants.*

Category LD3: *A system incorporating detectors in all circulation areas that form part of the escape routes from the dwelling.*

Heat alarms should be mains operated and conform to BS 5446-2.

Fire detection and alarm systems must be properly designed, installed, and maintained. A design, installation and commissioning certificate should be provided for fire detection and alarm systems.
Third party certification schemes for fire protection products and related services are an effective means of providing assurances of quality, reliability, and safety.

6.0 Passive Fire Safety Features

Section A 2) of the Planning Policy D12 requires all buildings are designed to reduce the risk to life safety including appropriate passive fire safety systems.
The following sections detail the passive systems which will be in place to achieve this.

6.1 Internal Linings

All internal linings and ceilings will be formed from materials with limited combustibility, predominantly comprising of gypsum-based plasterboard products over metal stud walls.

6.2 Fire Resistance

In accordance with Section 5 of AD-B elements such as structural frames, beams, columns, loadbearing walls and floor structures should have, as a minimum, the fire resistance given in Table B3. As all the properties have a height of top floor above the ground floor of below 5m, all elements of structure shall achieve no less than 30 minutes fire resistant construction.

Table B4 Minimum periods of fire resistance

Purpose group of building	Minimum periods of fire resistance[1] (minutes) in a:						
	Basement storey* including floor over		Ground or upper storey				
	Depth (m) of the lowest basement		Height (m) of top floor above ground, in a building or separated part of a building				
	More than 10	Up to 10	Up to 5	Up to 11	Up to 18	Up to 30	More than 30
1. Residential:							
a. Block of flats							
– without sprinkler system	90 min	60 min	30 min†	60 min+§	Not permitted[2]	Not permitted[2]	Not permitted[2]
– with sprinkler system[3]	90 min	60 min	30 min†	60 min+§	60 min+§	90 min+	120 min+
b. and c. Dwellinghouse	Not applicable[4]	30 min*†	30 min†	60 min[5]	60 min[5]	Not applicable[4]	Not applicable[4]

Image 9. Table B4 of AD-B.

6.3 Compartmentation

Provision of compartmentation is required for dwellings that are semi-detached, the party wall between separate dwellings should be constructed as a compartment wall as required by section 5 of AD-B.

The following walls will need to be constructed of 60-minute fire resistant construction (as required by Table B3 of AD-B) in order to form a complete barrier to fire between the compartments they separate:

- Party walls between plots 1 and 2, and 2 and 3.
- Party walls between plots 5 and 6, and 7 and 8.

The compartment must run the full height of the building in a continuous vertical plane and be continued through any roof space to the underside of the roof. To reduce the risk of fire spread between properties, a zone of 1500mm wide of the roof should have a covering classified as B-ROOF(t4), or deck of a material rated class A2-s3 or better.

There are no requirements for compartment floors between adjoining buildings.

6.4 Fire Doors

Doors on escape routes should be readily openable to avoid undue delay to people escaping. The door of any doorway or exit should be hung to open in the direction of escape whenever reasonably practicable. It should always be hung to open in the direction of escape if more than 60 people might be expected to use it during a fire.

6.5 Final Exits

People should be able to rapidly leave the area around the building. Direct access to a street, passageway, walkway, or open space should be available. These should not present a barrier for disabled people.

7.0 External Fire Spread

Section A 3) of the Planning Policy D12 requires that the buildings are constructed in a way to minimise the risk of fire spread. The following sections detail how this is to be achieved.

7.1 External Wall Construction

Surface Spread of Flame

All external surfaces of walls of all areas of the building are to achieve a European Class A2-s3, d2 or better for surface spread of flame.

Combustibility

The construction materials used in the external wall construction will achieve a Class A2-s1, d0 or better.

Cavity Barriers (External Walls)

Cavity barriers should be provided to close the edge of cavities including around openings (inclusive of windows, doors, service, or any other penetration). Cavity barriers should also be provided at the junction between an external cavity wall and every compartment wall/floor. Cavity barriers should achieve a minimum -/30/15 rating and should not be confused with fire stopping which may require a higher fire rating.

Cavity barriers must also be provided to subdivide any extensive cavities as follows:

- So that the cavity has no dimension (not diagonal) exceeding 20m where the cavity has internal surfaces whichachieve a Class C-s3, d2 or better surface spread of flames. Or,
- So that the cavity has no dimension (not diagonal) exceeding 10m.

External Walls

These shall be designed to cover the following.

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

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

Detail of wall types and junction details, including interfacing of different elements and materials shall be provided for future fire strategy review.

Selection of products and installation methodology shall be in accordance with AD-B Regulation 7 – Materials and Workmanship.

7.2 Fire Spread

External Envelope structure is non-combustible, and choice of cladding shall consider combustibility to meet the requirements of AD-B.

From plans provided, glazing and unprotected areas of the development appear to be 30 to 45% of the total area of the rear elevations facing onto neighbouring gardens. This development therefore reaches the necessary requirements of Table 11.1 of AD-B.

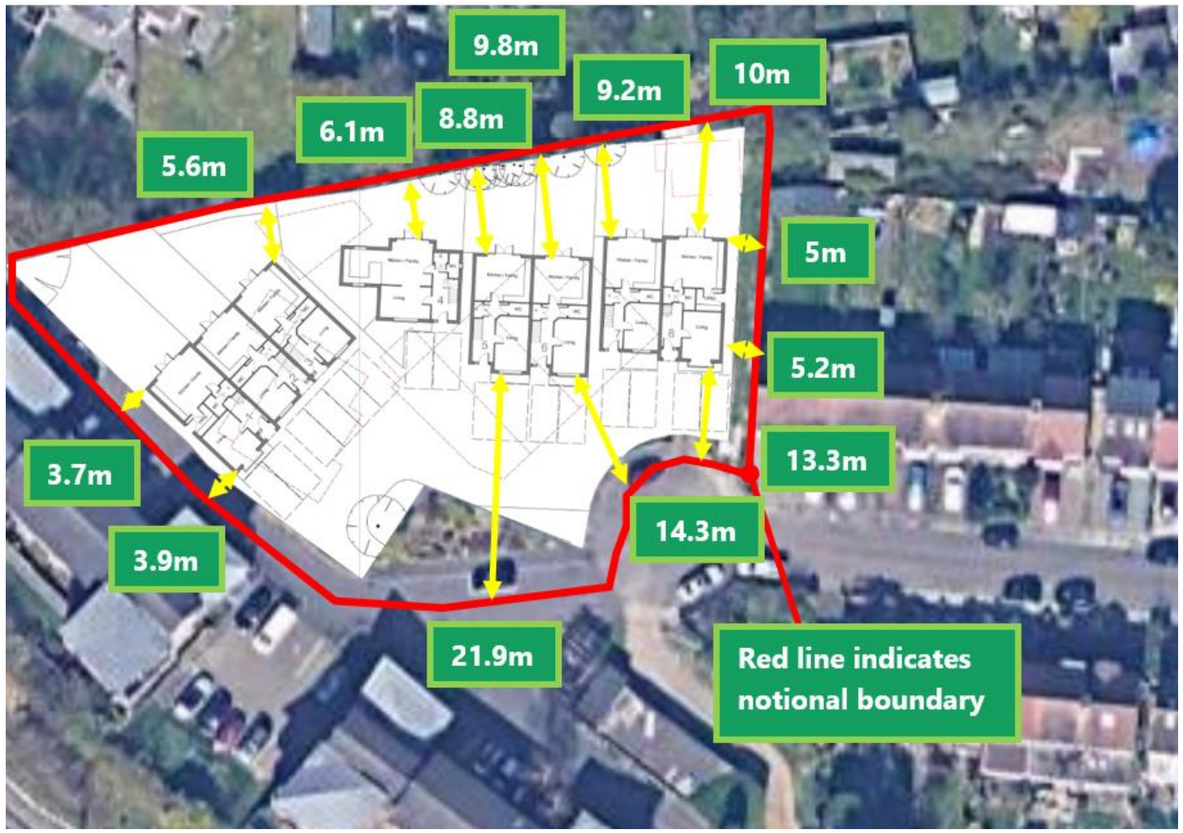


Image 10. Notional boundary and external fire spread of Vincam Close development.

8.0 Access and Fire Service Facilities

Sections A 6) and B 4) of the Planning Policy D12 requires that suitable provisions for firefighting access are provided for the fire service. The following sections detail the firefighting provisions which will be in place to achieve this.

8.1 Vehicle Access

Sections A 1) and B 5) of the Planning Policy D12 requires that suitable outside space and access routes are provided forthe fire service. This is demonstrated as being achieved as follows:

The development provides vehicle access via Vincam Close to the south of the properties, as shown in the below image

Image 11. Fire services access and information.

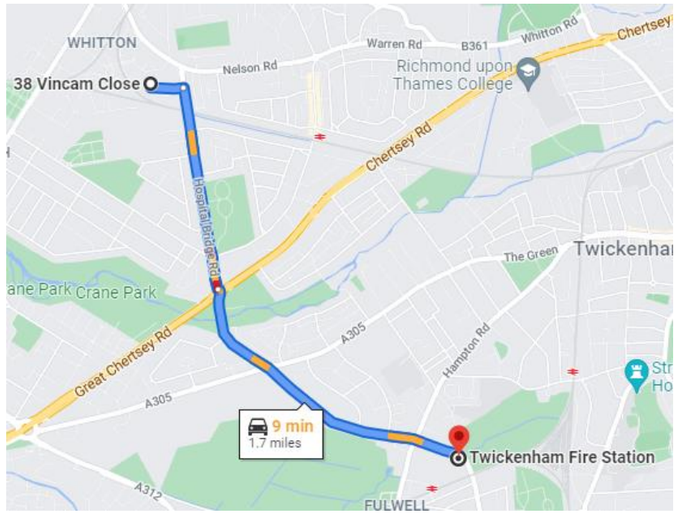


Image 12. Fire services access route

Fire station:
Twickenham Fire Station, 30 South Rd, Twickenham TW2 5NT
Telephone Number:
020 8555 1200.
Distance:
1.7 miles and approximately 9 minutes away.

Compliance Regulations

Provision and design of access routes and hardstandings

13.1 For dwellinghouses, access for a pumping appliance should be provided to within 45m of all points inside the dwellinghouse.

13.2 For flats, either of the following provisions should be made.

a. Provide access for a pumping appliance to within 45m of all points inside each flat of a block, measured along the route of the hose.

b. Provide fire mains in accordance with paragraphs 13.5 and 13.6.

13.3 Access routes and hardstandings should comply with the guidance in Table 13.1.

13.4 Dead-end access routes longer than 20m require turning facilities, as in Diagram 13.1. Turning facilities should comply with the guidance in Table 13.1.

See para 13.4

Fire and rescue service vehicles should not have to reverse more than 20m from the end of an access road.

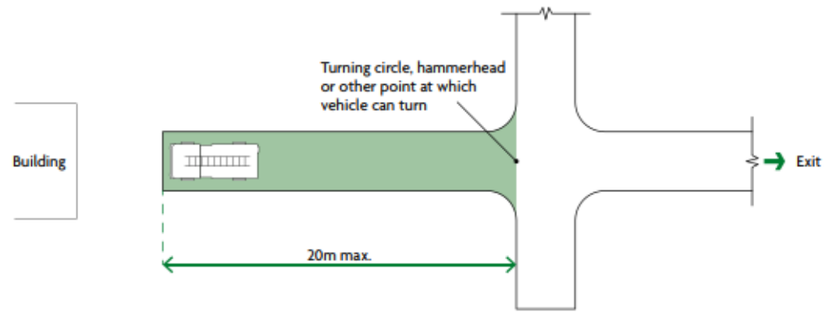


Diagram 13.1 Turning facilities

Table 13.1 Typical fire and rescue service vehicle access route specification

Appliance type	Minimum width of road between kerbs (m)	Minimum width of gateways (m)	Minimum turning circle between kerbs (m)	Minimum turning circle between walls (m)	Minimum clearance height (m)	Minimum carrying capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	12.5
High reach	3.7	3.1	26.0	29.0	4.0	17.0

NOTES:

1. Fire appliances are not standardised. The building control body may, in consultation with the local fire and rescue service, use other dimensions.
2. The roadbase can be designed to 12.5 tonne capacity. Structures such as bridges should have the full 17-tonne capacity. The weight of high reach appliances is distributed over a number of axles, so infrequent use of a route designed to accommodate 12.5 tonnes should not cause damage.

Images 13 and 14. Diagram and Table 13.1 of AD-B.

9.0 Fire Safety During Construction

A pre- construction fire plan is required, to work alongside traffic and environmental management plans.
Construction risks include storage of materials, access to work areas, site parking, housekeeping, and provision for 2 suitable means of escape from work areas to a safe agreed muster point.
Permits for vehicles, particularly those carrying flammable or explosive substances, must be set in place by the Principal Contractor.
Hot works permits shall be in place.
Crane locations to be agreed
Non-generic Risk and Method Statements shall be provided for contractor tasks. Suitable cutting and preparation areas should be mapped out.
Suitable induction and on-site training records shall be maintained.
Construction site security must be established as sites can be a magnet for theft and potentially arson incidents.
Construction phase fire risk assessments must be undertaken throughout the construction phase.

9.1 Fire Sealing

Services through the building shall be designed as to reduce impact of penetrations through compartments within the occupied floors and roof spaces.

Firestopping materials and cavity barriers must be specified and supported by certifications and data sheets pertaining to the construction detail and location that they are being used. Coordination between Architect, M&E Design team and specialist active and passive fire specialists is required at early stages to allow for suitable spacing requirements for services as they pass through penetrations.

Installers of all passive fire safety features must be current suitably 3rd Party accredited, and evidence must be provided.

9.2 Construction Phase Inspection and Sign-off Process

To ensure the correct materials are used in the correct spaces by the correct persons must have a process and programme for inspection/check and sign-off throughout project stages.

As a number of trades will be on site to install in these developments. It is fundamental the integrity of fire compartmentation and fire separation is constructed and maintained through the project and checked throughout as to be ready for handover and use post completion.

Development of a Fire Strategy

This Fire Statement shall be used to inform the overall fire strategy for the development.

When adopting information from the Fire Statement into the fire strategy, consideration should be given to the accuracy and relevance of the information to ensure the build is as per the design.

Final Commissioning, Handover and R38

Operations and maintenance manuals must be supported by evidence of what has been installed, who installed it, how it works and what are the management and maintenance requirements.

Items such as, but not limited to, the following must be provided with a clear signpost to the person(s) that become 'Responsible' after practical completion.

- As built Fire strategy – this shall build upon the deign fire strategy and account for any changes that may have occurred during the construction phase.
- A pre-handover Fire Risk Assessment (FRA) – including any close out of actions required from that FRA.
- As built fire plans and drawings showing active and passive features, emergency lighting and signage locations.
- Specifications of active and passive features installed.
- Commissioning information for active and passive features installed.
- Maintenance requirements of active and passive features installed.
- A simple understandable cause and effect' schedule of the evacuation principles and how the active measures work.

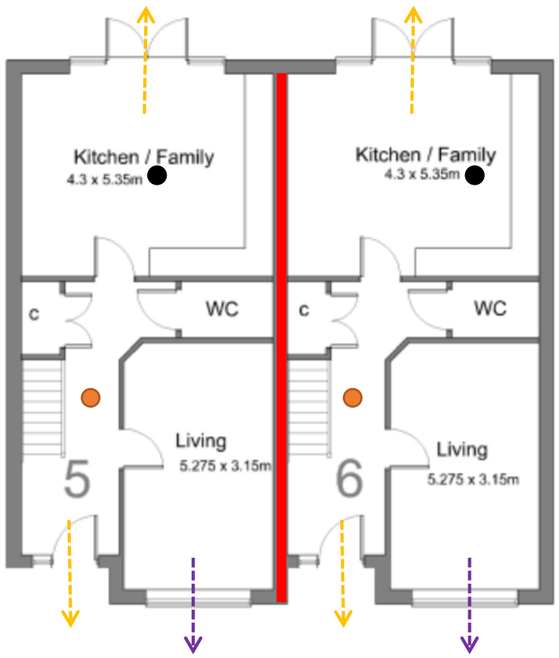
To support persons who are taking over the building post completion, and may be non-technical, the above could be supported by a walk-through fire safety video to give clarity and assurance to the end user who then becomes 'Responsible' therefrom under the Regulatory Reform (Fire Safety) Order 2005.

Appendix A Example Evacuation Strategy Plan

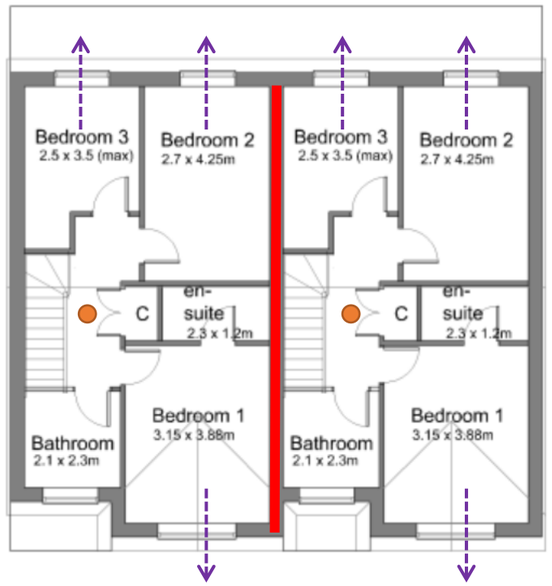
Key;	
	60 MINUTE FIRE RATED CONSTRUCTION
	SMOKE DETECTOR
	HEAT DETECTOR
	TYPICAL ESCAPE ROUTE
	EMERGENCY ESCAPE ROUTE

Plots 5 & 6 – Vincam Close (Example Property)

Evacuation Strategy



Ground Floor



First Floor

Legend.

Alarm System
The alarm and detection system to be installed meets Grade D Category LD3 requirements in accordance with BS 5839 Part 6. Heat detection alarms to be used in kitchen areas to avoid false alarms from smoke.

Compartmentation
The building is two storeys in height (Ground and first floor), and the height of the top storey above ground level is below 5m, therefore 30-minute fire resistant construction is required for elements of structure. 60-minute fire resistant construction must be provided to party walls that separate houses/dwellings.

Fire Doors
No fire doors are required for this property due to the evacuation strategy. All doors on escape routes should open in the direction of travel where suitable.

Evacuation
Single stage simultaneous evacuation strategy is in place for each house.
Ground Floor – Habitable rooms opening directly onto hall leading to final exit, and emergency escape windows also provided.
First Floor – Escape via the stair to the ground floor and out via front or rear exits if possible if the routes are compromised then emergency escape windows will be provided in every habitable room.

Note: This evacuation strategy is suitable for the size of the houses provided egress windows are installed in every habitable room as per the requirements of AD-B.

Additionally, it is important to understand that although other properties on the site are slightly different in layout if the principles described above are followed all properties will conform to the requirements of the building regulations.

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Project Name	Vincam Close Project	01792 797833	Evacuation Scope	Simultaneous Evacuation	Ref: Plots 5 & 6
Produced	01-09-2021		Project address	38-42 Vincam Close, Twickenham	Residential

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- Fire Engineering services RIBA 5 Construction – Principal Contractor
- Fire Engineering services RIBA 6 Handover – Principal Contractor
- Fire Engineering services RIBA 7 Premises Fire risk assessment – Building User/Responsible Person
- External cladding assessments (EWS1).
- Fire safety management and policy generation, management of risk advice.
- Fire Safety Training
- Fire engineering mark-up drawings.
- R38 Gap analysis and support with reports and information management.
- Timber frame Radiant Heat Calculations, strategy reports and risk assessment.
- Dangerous Substances and Explosive Atmosphere Regulations (DSEAR)
- Tailored reports only or full consultancy and fire engineering support service can also be provided.

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