

FIRE STRATEGY REPORT

St Ann's New Neighbourhood Phase 1a Block A, B

Date:

14/09/2023

Reference Number:

AFF_20708_04_St Anns Block AB_FSR_02

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REPORT DETAIL

Project:

St Ann's New Neighbourhood, Block AB

Document

Fire Strategy Report

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Report Revision History

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1	24/04/2023	Draft Issue for Comment	Maximilian Dangelmaier MSc.	Ids Van der Wal BEng (Hons) MSc. AIFirE	Jeremy Ockenden BEng (Hons) MSc. AIFirE
2	14/09/2023	Updated version due to updated flat types.	Hangyu Li BEng MSc.	Maximilian Dangelmaier MSc. Fire and Rescue Engineer	Jeremy Ockenden BEng (Hons) MSc. AIFirE

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1 INTRODUCTION

1.1 Introduction

St Ann's New Neighbourhood comprises residential development split into several phases. Phase 1a proposes 240 new build units across two residential blocks of flats (Block C and D) as well as terraced town houses in Blocks A and B.

Figure 1 highlights Block A in red, Block B in green as well as outlines Phase 1a in blue.



Figure 1: Site Plan (proposed landscape)

The building is located in northern London and is positioned on the St Ann's Hospital site.

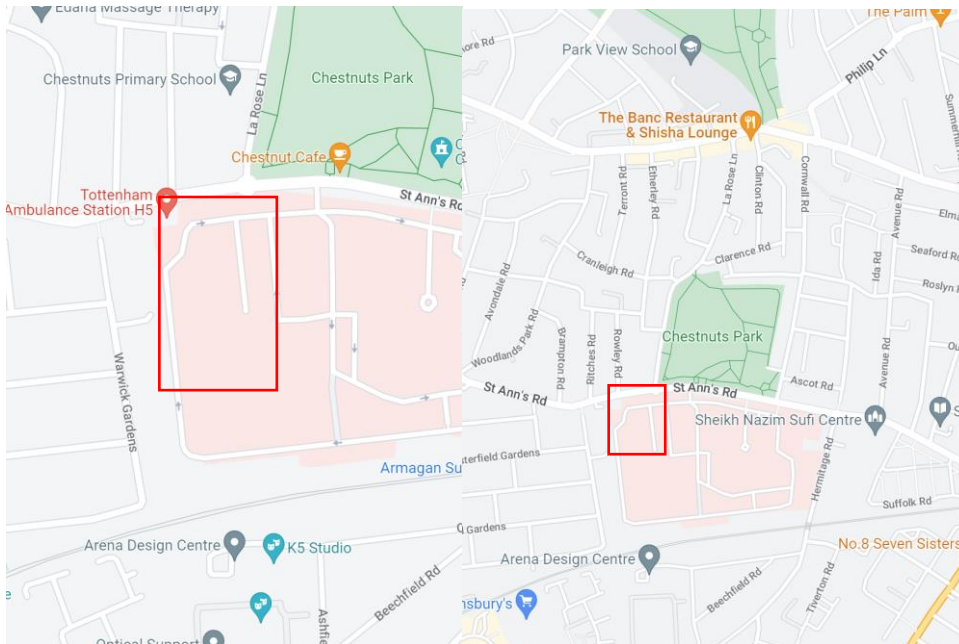


Figure 2: Excerpt from Google Maps

1.2 Scope

This Fire Strategy Report (FSR) has been prepared in support of the design and approvals process for St Ann's New Neighbourhood, Buildings A and B, so as to provide strategic design and performance criteria which, when met by the design of the building, are designed to enable all stakeholder requirements to be met.

1.3 Relevant Stakeholders

This Fire Strategy Report has been developed collaboratively with the relevant stakeholders as identified below:

Table 1: Relevant Stakeholders

Name	Role	Organisation
-	Project Manager	Catalyst Housing Ltd.
Jomel Allen	Project Manager	Hill Group
Damon Willicombe	Project Manager	Hill Group
Jag Bains	Project Manager	Hill Group
Paul Edwards	Structural Engineer	Meinhardt
Suzanne Prest	Architect	Karakusevic Carson Architects
Hangyu Li	Project Engineer	Affinity Fire Engineering (UK) Ltd.
Maximillian Dangelmaier	Project Manager	Affinity Fire Engineering (UK) Ltd.
Jeremy Ockenden	Project Director	Affinity Fire Engineering (UK) Ltd.

1.4 Stakeholder Requirements

The following stakeholder requirements have been identified for this project:

Table 2: Stakeholder Requirements

Class	Regulation Stakeholder	/ Requirement
Life Safety	The Building Act 1984	Life safety is to be demonstrated in accordance with the requirements of Parts B1 and B5 of the Building Regulations 2010.
	The Building Regulations B1	The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire and appropriate means of escape in the case of fire from the building to a place of safety outside the building capable of being safely used at all material times.
	The Building Regulations B2	To inhibit the spread of fire within the building the internal linings shall: a) Adequately resist the spread of flame over their surfaces: and b) Have, if ignited, a rate of heat release or rate of fire growth, which is reasonable in the circumstances. Where internal lining means the material or products used in the lining of any partition, wall, ceiling or other internal structure.
	The Building Regulations B3	The building shall be constructed so that in the event of fire its stability will be maintained for a reasonable period of time. A wall common to two or more buildings shall be designed and constructed so that it adequately resists the spread of fire between those buildings. Where reasonably necessary to inhibit the spread of fire within the building, measures shall be taken to an extend appropriate to the size and intended use of the building, comprising either or both of the following: a) Sub-division of the building with fire-resisting construction. b) Installation of a suitable automatic fire suppression system. The building shall be designed and constructed so that the unseen spread of fire and smoke within concealed spaces in its structure and fabric is inhibited.
	The Building Regulations B4	The external walls of the building shall adequately resist the spread of fire over the walls from one building to another, having regard to 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.

Class	Regulation Stakeholder	/ Requirement
	The Building Regulations B5	The building shall be designed and constructed so as to provide reasonable facilities to assist firefighters in the protection of life.
Property Protection	None	None
Environmental Protection	The Environment Agency	The guidance of PPG18 Managing Fire Water and Major Spillages should be adopted in regard to management of waste fire water. This is to be addressed by the relevant civils designer.
Other	Fire Safety Standards Version 3.0 (20.05.2022)	Catalyst Housing Ltd. have set out their own requirements in this document to further enhance the fire safety standards in line with their own policies.
	Hill Group Technical Policy BQ035-21/10/2022	Hill Group have set out their own requirements in this document to further enhance the fire safety standards in line with their own policy.

1.5 Method

1.5.1 The Building Regulations 2010

The Building Act 1984 is the primary legislation under which the Building Regulations and other legislation are made. The Building Regulations 2010 is the Statutory Instrument which seeks to ensure that the policies set out in the Act are implemented.

Compliance with the requirements of the Building Regulations may be demonstrated via the following:

Meeting Standard Guidance

Demonstrating that design meets the recommendations of the Approved Documents B1 or B2, or other suitable design guidance documents. It must be noted that these guidance documents are specifically created to provide solutions for generic/common buildings, and guidance documents may only relate to specific building or occupancy types.

Development of an Alternative Approach

Any other approach may be adopted to demonstrate that the functional requirements of the Building Regulations have been met. These alternative approaches are commonly referred to as Fire Engineered Solutions.

As a matter of good practice Fire Engineered Solutions should be developed in accordance with the guidance BS 7974 which set out a consistent framework for robustly determining whether the Fire Engineered Solutions will achieve the functional requirements.

In this instance the following approach is adopted; wherever practicable the design of the building will be demonstrated as meeting the relevant guidance of BS 9991, and where the design of the building falls outside the application of this guidance an alternative approach will be developed.

Determination of compliance with the requirements of the Building Regulations is at the jurisdiction of the Approvals Authority, and all design guidance or performance criteria set out within this report are at approvals risk until agreed with the authority.

1.5.2 The Building Regulations 2010 – Regulation 7

The Building Regulations, Regulation 7 requires that materials which are used are; appropriate for the circumstances in which they are used, adequately mixed or prepared, and are applied, used or fixed so as to adequately perform the functions for which they are designed. It is noted that report provides performance specifications against which the selection and application of materials must be determined by the design team or principal contractor.

The Building Regulations 2010 (incorporating the 2018 Amendments) place additional specific regulatory requirements upon materials incorporated into external wall construction for any construction which:

- Has an uppermost storey of >18m, when measured from lowest possible adjoining ground level to the top of the uppermost floor surface of the uppermost storey.

AND

- Has any of the following:
 - One or more dwellings.
 - Contains an institution¹.
 - Contains a room for any residential purpose (excluding any hostel, hotel or boarding house).

Where these requirements apply these will be highlighted as part of **Section 6: B4 – External Fire Spread** of this report.

1.5.3 The Regulatory Reform (Fire Safety) Order 2005

The Regulatory Reform (Fire Safety) Order (RRO) requires that all buildings are managed and maintained so as to afford an adequate standard of life safety for all legal occupants (including visitors) of a building and to provide adequate access and facilities for the Fire Service to undertake their activities within the building.

This Fire Strategy **must** be provided to the Responsible Person under the requirement of the Building Regulations Regulation 38. Additionally:

- This strategy should form part of the Fire Safety Arrangements under the RRO for the building once occupied.
- This strategy should be provided, and referred to, as part of the Fire Risk Assessment process for the building.

¹ Means an institution (whether described as a hospital, home, school or other similar establishment) which is used as living accommodation for, or for the treatment, care or maintenance of persons:

- suffering from disabilities due to illness or old age or other physical or mental incapacity. Or
- under the age of five years.

Where such persons sleep on the premises.

- Any performance requirements made in regard to the management of the building should be adopted, or otherwise considered and appropriately modified.

Whilst the RRO does not come into force until after a building has been constructed, reasonable provision should be made in the design and construction of the building to allow for the building to be safely managed and operated in accordance with the RRO. To this end the Approvals Authority has a statutory duty to consult with the relevant Enforcing Authority who are required to advise on:

- Matter which has to be complied with under the RRO once the building is occupied.
- Matters which have to be complied with to meet any other fire legislation, other than the Building Regulations.
- Advisory but non-enforceable matters, including commentary on the application of the Building Regulation should they choose to do so.

Where the views Enforcing Authority that the design of the building is such that the requirements of the RRO cannot be met they should set down its concerns and recommendations in a formal written case, which may include details of any enforcement action it may take upon occupation.

Determination of compliance with the requirements of the Regulatory Reform (Fire Safety) Order solely is at the jurisdiction of the Enforcing Authority, and all design guidance or performance criteria set out within this report are at approvals risk until agreed with the authority.

1.5.4 The Construction (Design and Management) Regulations 2015

The Construction (Design and Management) Regulations (CDM) require that all parties involved in the design of a building, or whose advice may effect a change upon the design of the building shall be required to:

- Take account of any pre-construction information provided by the client (and principal designer, if one is involved).
- Eliminate foreseeable health and safety risks to anyone affected by the project (if possible).
- Take steps to reduce or control any risks that cannot be eliminated.

This is generally communicated via a Designers Risk Assessment (DRA) which identifies elements of the design which may present construction hazard and identifying what measures may be taken to eliminate the risk or otherwise reduce the hazard presented.

It is noted that this Fire Strategy sets out the minimal performance requirements for the building design and design decision made to meet these performance requirements may not be safely eliminated from the final design. Advice is however provided to the design team in consideration of these risks, and where possible to do so recommendations are made which limit the level of risk during construction, management, maintenance and upkeep of any specific fire safety systems which may be recommended to the design. It is however noted that ultimately Affinity does not provide the design of these systems and a full Risk Assessment process must be undertaken by the designer of that system.

1.6 Limitations

In this instance the Fire Safety Strategy is developed based on applicable limitations and assumptions for the development which are listed as follows. Affinity Fire Engineering (UK) Ltd. accept no liability for where this report is applied outside the limitations stated:

- The information contained in this document is provided for the sole use of The Hill Group and applies only to the St Ann's New Neighbourhood, buildings A and B. No reliance should be placed on the information by any other person or for any other project.
- This Fire Strategy provides strategic design advice and performance criteria only. This Fire Strategy does not constitute a design document, and the detailed design shall be provided by other parties. Where this document does not provide clear performance criteria all elements of design shall be required to be designed to meet the relevant guidance as set out in **Section 1.5** above and any applicable standards made reference to within.
- This Fire Strategy has been developed based upon the understanding of the building design and usage as set out in **Section 2** below. Any changes in the design or usage of the building may alter the basis upon which the Fire Strategy was developed.
- This Fire Strategy has been developed based upon the information stated in **Section 1.7** below. Any changes to the design of the building subsequent to this information will not be reflected within this Fire Strategy document.
- This Fire Strategy has been developed to meet the fire safety needs of the building as an entire system, and elements of this strategy must not be partially implemented of, or cherry picked.
- This Fire Strategy has been developed on the basis that fire strategy systems within the building are managed and maintained in such a manner that they shall (so far as is reasonable) operate as intended in the instance of fire.
- Fire safety considerations during construction must be addressed under the Construction (Design and Management) Regulations 2015 by the principal contractor, and are not addressed under this report, and this report may not be utilised for the purpose of demonstrating compliance with these regulations unless explicitly otherwise stated.
- Unless explicitly otherwise stated this Fire Strategy does not address any fire safety requirements (or recommendations) in regard to compliance with COSHH (Control of Substances Hazardous to Health Regulations 2002) or DSEAR (Dangerous Substances and Explosive Atmosphere Regulations 2002).

1.7 Sources of Information

This report is based on the following sources of information:

Table 3: Sources of Information

Name	Author	Date
Fire Strategy Report – Phase 1a TS210413-R01-ISSUE03A	Tenos	01.06.2022
Fire Safety Standards Version 3.0 (see also Stake Holder Requirements)	Catalyst Housing Ltd.	20.05.2022
Block A and B Flat Types Drawing Register N15301-KCA1-AX-ZZ-DR-A-1300x	Karakusevic Carson Architects	21/04/2023 <i>Rev. P01 21/04/2023</i>

1.8 Setting Out and Formatting

This report will set out the guidance and performance criteria following the general structure of the Building Regulations, i.e. guidance required to demonstrate compliance with the requirements of The Building Regulations B1 shall be provided within **Section 3 – B1 Means of Warning and Escape**.



Figure 4: Block A (N15301-KCA-AX-ZZ-M3-A-01000)



Figure 5: Block B (N15301-KCA-BX-ZZ-M3-A-01000)

2.1.1 Major Building Elements

The sole use of the buildings is dwellinghouses.

A one storey attachment including a substation is located on the eastern elevation of Block B2. An existing water tower is located adjacent to Block B1.

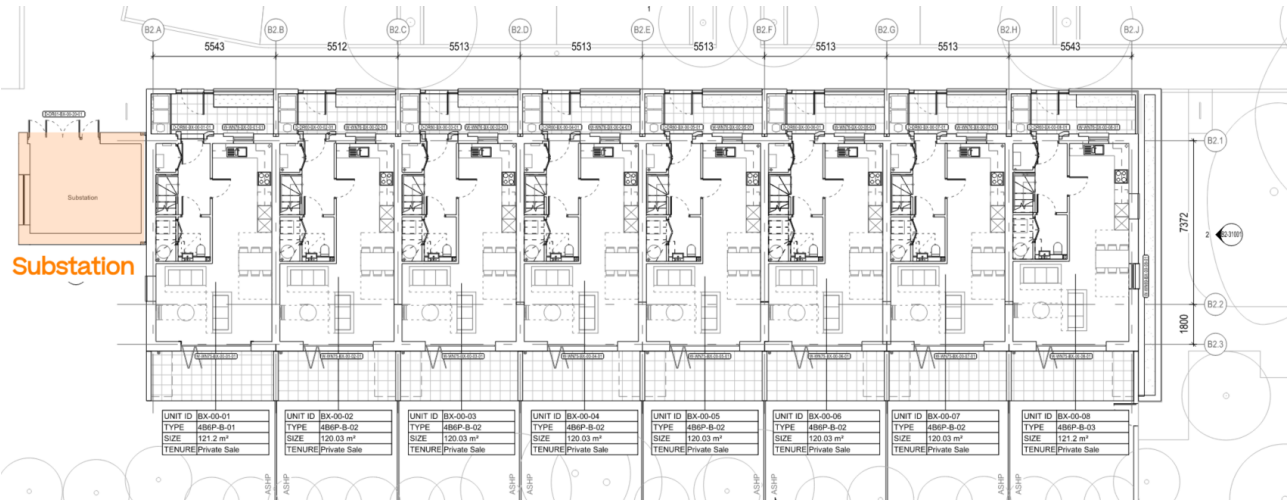


Figure 6: Substation Block B2

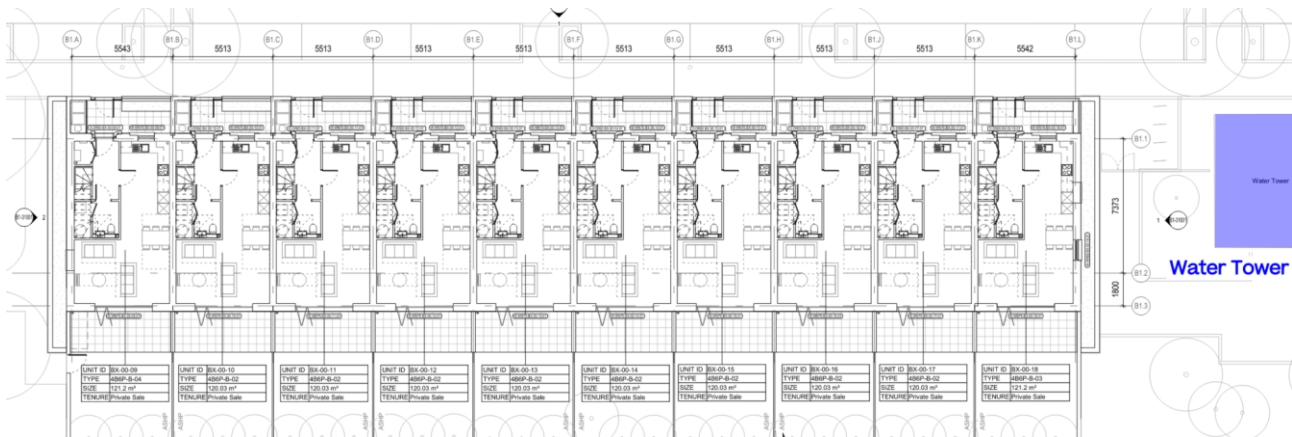


Figure 7: Water Tower Block B1

2.1.2 Building Height

The building height definitions are as follows:

1. Height of the building which is measured from mean ground level to mean roof level. This measurement is used for **Section 6.2** (Surface Spread of Flame).
2. Firefighting access height, which is measured from firefighting access level to the height of the topmost storey. This measurement is used for **Section 7** (Fire Service Access).
3. The height of the topmost storey has been defined by Regulation 7 as the height measured from the lowest ground level adjacent to the building to the topmost habitable storey. This measurement is used for **Section 5.2.1** (Structural Fire Resistance) and **Section 6.1.2** (External Wall Construction).

It has been determined that Regulation 7 (1) may not be applied to this report as the height of the buildings do not exceed 18m.

Table 4: Building Heights

Block/Building	1. Mean Ground Floor Level to the Mean Roof Level (m)	2. Lowest Side of Ground Floor Level to the Topmost Habitable Floor Slab (m)	3. Fire Service Access Height (m)
A1	10.2	6.2	6.0
A2	10.2	6.2	6.0
B1	9.2	6.2	6.0
B2	9.2	6.2	6.0



Figure 8: Building Heights Block A (left) and Block B (right)

2.2 Hazards

This Fire Strategy has been developed based upon the following understanding the fire hazards within the building:

Table 5: Hazard Assessment

	Potential Hazards	Commentary
Fuel Sources	Bathrooms	Bathrooms are reasonably expected to have negligible fire loading.
	Townhouses	Fuel loading is generally expected to be typical of a residential accommodation being formed from a mix of furniture and cooking equipment.
Ignition Sources	Electrical and lighting	Electrical and lighting installation are expected to be provided as typical for residential accommodation. Particular attention is to be paid to the substation on the northern side of Block B2.
	Smoking	Smoking could occur within private units.
	Cooking	Cooking facilities are provided as part of the design.
Occupant Factors	Occupant Characteristics	Occupants are reasonably expected to both awake, asleep and familiar with the residential parts of the building.
	Impairments	Occupants are reasonably expected to have physical and mental impairments in line with national averages.
Egress and Wayfinding	Dead-ends and complex wayfinding	No complex wayfinding or dead-ends are to be expected within the dwellings.

Potential Hazards	Commentary
Proximity to high hazard locations/processes	As noted above there should be no high hazard locations on any floor, and as such occupants will not need to pass such areas.
Exposure to radiant sources	The stairs within the apartments are to be protected thus no exposure to radiant heat sources is to be expected.
Residential Usage	Typical, residential accommodation is not reasonably expected to present conditions that may impact upon occupant's ability to recognise and respond to fire conditions appropriately

3 B1 MEANS OF WARNING AND ESCAPE

3.1 Evacuation Strategy

The fire strategy design for the individual dwellings assumes to facilitate a 'simultaneous' evacuation policy, whereby occupants within the same dwelling evacuate as soon as they are made aware of a fire within their premises.

3.2 Fire Detection and Alarm Systems

A fire detection and alarm system minimum Category LD2 is to be installed within all dwellings according to **Clause 4.1 Catalyst ER**. The fire detection and alarm system should be in accordance with BS 5839-6 (2).

3.3 Automatic Fire Sprinkler System

No automatic fire sprinkler system is required for Blocks A and B.

3.4 Storey Exits and Protected Egress Routes

All dwellings are provided with direct exits into the open on ground floor level. The egress from the 1st and 2nd storey is to be made via a protected stair. The protected stair leads to a final exit on Ground Floor in accordance with Clause 6.3 and Figure 1 BS 9991.



Figure 9: Egress on Ground Floor A1 (left) and First Floor A1 (right); (A2 and B are alike)

4 B2 INTERNAL FIRE SPREAD (LININGS)

4.1 Surface Spread of Flames

The surface linings of walls and ceilings are to be designed to meet the following limitations:

Table 6: Performance requirement for internal linings

Location	Minimum Classification
All other rooms <4m ² within the dwelling	D-s3,d2
Stairs and hallways within the dwelling	C-s3,d2
All other rooms within the dwelling ^A	

Note A: Up to ½ (but no greater than 20m² total) of an individual rooms internal surface may be reduced to a D-s3,d2 classification.

The following elements are excluded from application of these requirements:

- Doors and door frames.
- Window and window frames.
- Architraves, picture rails, mouldings, skirting boards and other similar narrow elements.
- Fitted furnishings.
- Fireplace surrounds and mantle shelves.

4.2 Thermoplastic Material

4.2.1 Rooflights and Lighting Diffusers

Thermoplastics may be used in rooflights, and lighting diffused providing that the following limits listed in **Table 7** are met.

Table 7: Limitations on the Use of Thermoplastic Rooflights and Diffusers

Classification of the Lower Surface	Location ^A	Maximum Area of Each Element (m ²)	Maximum Aggregate Area (m ²)	Minimum Separation between each Element (m)
TP(a)	Any	-	-	-
TP(b) or D-s3,d2	Rooms	1	50	Equal to the largest plan dimension of the largest element

Classification of the Lower Surface	Location ^A	Maximum Area of Each Element (m ²)	Maximum Aggregate Area (m ²)	Minimum Separation between each Element (m)
		5	50	3

Note A: Thermoplastic rooflights and diffusers may not be located within protected stairs.

5 B3 INTERNAL FIRE SPREAD (STRUCTURE)

5.1 General

The fire resistance levels in the following sections are specified in terms of R/E/I, where R, E and I correspond to the following and are measured in minutes:

R - Loadbearing Capacity;

E - Integrity and

I - Insulation.

Fire resistance requirements will need to satisfy either BS 476 Part 22 (3) or the relevant European Standard (i.e. BS EN 1364 (4), 1365 (5) or 1366 (6)).

5.2 Fire Resistance

5.2.1 Structural Fire Resistance

All elements of structure are to achieve the level of fire resistance listed in **Table 8** below.

Table 8: Minimum Standard of Structural Fire Resistance

Part of the Building	Building Height (m)	Minimum Structural Fire Resistance
Block A	6.2	60/-/-
Block B	6.2	60/-/-

5.2.2 Fire Resisting Construction and Closures

Fire resistance levels are to satisfy the requirements of BS 9991. Key elements are specified below.

Table 9: Minimum Periods of Fire Resistance

Location	Minimum Periods of Fire Resistance (mins)	Minimum fire resistance of door in terms of integrity (minutes)	Minimum fire resistance of door in terms of integrity (minutes)	Type of Exposure
Structural Frame, Load Bearing Walls, Beams or Columns	60/-/-	N/A	N/A	Exposed faces
Floors	60/60/60	N/A	N/A	From underside
Compartment Walls	60/60/60	N/A	N/A	Each side separately

Location	Minimum Periods of Fire Resistance (mins)	Minimum fire resistance of door in terms of integrity (minutes)	Minimum fire resistance of door in terms of integrity (minutes)	Type of Exposure
Protected Stairway	30/30/30	FD30	E30	Each side separately
Substation ^B	240/240/240	N/A	N/A	Each side separately
External Walls <1m to the relevant boundary	60/60/60 ^A	N/A	N/A	Each side separately
External Walls >1m to the relevant boundary	60/60/60	N/A	N/A	From inside the building

Note A: Except for the substation, which needs to achieve 240/240/240.

Note B: The substation is provided at 240/240/240 to align with UKPN requirements, this exceeds the standard recommended by BS 9991.

5.3 Continuity of Construction

5.3.1 General Provisions

All compartment walls should achieve both of the following:

- Form a complete barrier to fire between the compartments they separate.
- Have the appropriate fire resistance, as given in **Table 9** above.

5.3.2 Compartment Walls

Compartment walls common to two dwellings should comply with both of the following.

- Run the full height of the building in a continuous vertical plane (compartment walls between buildings or separated parts of the building).
- Be continued through any roof space to the underside of the roof.

5.3.3 Protected Stairway Enclosures

Fire rated ceilings are to be provided within the protected stairway to achieve vertical compartmentation (see also **Figure 9**). This is due to the fact, that walls within protected stairways do not necessarily align on a vertical level. As floor slabs within townhouses may be constructed as a joisted floor, the provision of a fire rated ceiling within the protected stairway ensures compartmentation within the egress route. The fire rated ceiling needs to connect the fire rated walls of the stairway enclosure.

This is in accordance with BQ035 Group Technical Policy (Hill). See **Figure 10** below:

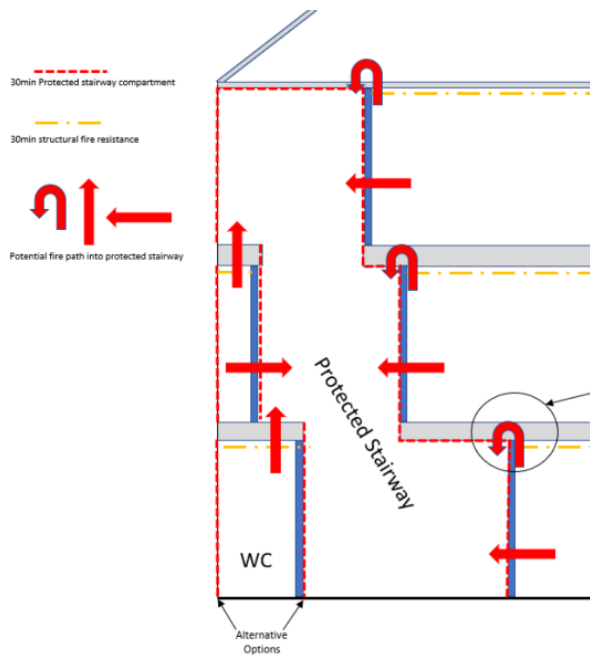


Figure 10: BQ035 Hill Policy - Protected Stairway

5.4 Services and Penetrations

5.4.1 Flues

The wall of a flue, duct containing flues or appliance ventilation duct(s) should have a fire resistance (REI) that is at least half of any compartment wall or compartment floor it passes through or is built into.

5.4.2 Pipes

Pipes passing through a fire-separating element, unless in a protected shaft, should meet one of the following recommendations:

Proprietary Seals (Any Pipe Diameter)

Provide a proprietary sealing system that will maintain the fire resistance of the wall, floor or cavity barrier tested and installed in accordance with BS EN 1366-3 (7).

Pipes with a Restricted Diameter

Where a proprietary sealing system is not used, firestop around the pipe, keeping the opening for the pipe as small as possible. The nominal internal diameter of the pipe should not exceed the dimensions outlined in **Table 10**.

Table 10: Maximum Nominal Internal Diameter of Pipes passing through a Compartment Wall / Floor

Situation	Pipe material and maximum nominal internal diameter (mm)		
	(a) High melting point metal ⁽¹⁾	(b) Lead, aluminium, aluminium alloy, uPVC, ⁽²⁾ fibre cement	(c) Any other material
Compartment wall or compartment floor between flats	160	160 (stack pipe) ⁽³⁾ 110 (branch pipe) ⁽³⁾	40
Any other situation	160	40	40

Note 1: Any metal (such as cast iron, copper or steel) which, if exposed to a temperature of 800°C, will not soften or fracture to the extent that flame or hot gas will pass through the wall of the pipe.

Note 2: uPVC pipes that comply with either BS 4514 or BS 5255.

Note 3: These diameters are only in relation to pipes that form part of an above-ground drainage system.

Sleeving

A pipe with a maximum nominal internal diameter of 160mm may be used with a sleeve made out of a high melting point metal, if the pipe is made of one of the following.

- Lead.
- Aluminium.
- Aluminium alloy.
- Fibre-cement.
- uPVC (pipes should also comply with either BS 4514 or BS 5255).

A high melting point metal means any metal (such as cast iron, copper or steel) which, if exposed to a temperature of 800°C, will not soften or fracture to the extent that flame or hot gas will pass through the wall of the pipe.

5.4.3 Fire Stopping

In addition to any other provisions for fire stopping, both of the following conditions should be met.

- Joints between fire-separating elements should be fire-stopped.
- Openings through a fire resisting element for pipes, ducts, conduits or cable should be all of the following.
 - As few as possible.
 - As small as practicable.
 - Fire-stopped (allowing thermal movement in the case of a pipe or duct).

Materials used for fire-stopping should be reinforced with (or supported by) materials rated class A2-s3, d2 or better to prevent displacement in both of the following cases.

- Where the unsupported span is greater than 100mm.

- Where non-rigid materials are used (unless subjected to appropriate fire resistance testing to show their suitability).

Other fire-stopping materials, subject to the type of application, include the following:

- Cement mortar.
- Gypsum-based plaster.
- Cement-based or gypsum-based vermiculite/perlite mixes.
- Glass fibre, crushed rock, blast furnace slag or ceramic-based products (with or without resin binders).
- Intumescent mastics.

5.5 Cavities

5.5.1 Locations

Cavity barriers are to be provided in the following locations within an external cavity wall:

- Around all openings through the cavity wall, including but not limited to:
 - Doors.
 - Windows.
 - Vents.
 - Pipes.
- At the junction of every fire rated wall and the external cavity wall, including but not limited to:
 - Party walls between units.
- So as to sub-divide extensive cavities within the external wall such that:
 - The maximum dimension within the cavity is 20m, where all materials (other than pipes, cables or conduits) achieve no less than a C-s3,d2 reaction to fire classification.
 - The maximum dimension within the cavity is 10m, where all materials (other than pipes, cables or conduits) achieve less than a C-s3,d2 reaction to fire classification.

5.5.2 Performance Requirements

Except where noted below all cavity barriers are to achieve no less than -/30/15 (REI) in accordance with BS 476-20 (8).

The following materials are also deemed to meet the performance requirements of a cavity barrier around openings without testing in line with the guidance of Clause 19.2 BS 9991.

Table 11: Deemed to comply materials

Steel of no less than 0.5mm thick.
Timber no less than 38mm thick.
Polythene-sleeved mineral wool or mineral wool slab installed in compression within the cavity. Good practice would dictate that this should be compressed no less than 10mm when fitted.

Calcium silicate, cement-based or gypsum boards, no less than 12mm thick.

5.5.3 Masonry Cavity Walls

Where the inner and outer leaf of external wall are constructed of masonry (brickwork, blockwork or concrete) with a minimum thickness of 75 mm (each leave), the following is deemed acceptable in line with the guidance of BS 9991:

- Cavity barriers in line with compartment walls and cavity closers around openings can be excluded.
- The cavity is to be closed at the top of the wall. This material does not need to achieve a specific performance in relation to fire resistance.

Closing the cavity at the top can be omitted where the cavity is fully filled with insulation.

- Materials achieving class B-s3, d2 or worse may be placed within the cavity.
- Cavity barriers should be provided to separate this specific wall type from other external wall types.

5.5.4 Fixing and Installation

All cavity barriers are to be designed, fixed and installed with the product certification and manufacturer's instructions.

Deemed to comply materials (see **Table 11** above) must be fixed such that the cavity barrier is not rendered ineffective by any of the following:

- Natural movement of the building from subsidence, shrinkage, temperature change or wind pressures.
- Failure of the supporting system or fixings during fire.
- Failure of materials against which the cavity barrier may abut.

It is specifically noted that cavity barrier materials when installed in combination with Steel Framing Systems (SFS) have not usually been tested in this configuration (due to the nature of the BS 476 tests, which places the barrier material between two leaves of concrete or block). Where utilising certified cavity barrier systems in combination with SFS or similar wall systems the following alternative approach is to be adopted:

- The inner plaster line to the wall system should be demonstrated as achieving no less than a 30/30/30 (REI) fire resistance rating (from the inside only) where installed in combination with the SFS wall system.

This is such that there can be confidence that the SFS framing will maintain its structural stability where installed as a complete wall system for a duration equivalent to that of the cavity barrier which it may be supporting.

6 B4 EXTERNAL FIRE SPREAD

6.1 Fire Spread to Boundary

It has been assessed that all boundaries are sited at a distance of at least 1m away from Blocks A and B, with the exempt of the substation on the northern elevation of Block B2.

The external fire spread assessment has been undertaken using the approach specified in BR 187 (9).

A number of assumptions are made when assessing the risk of external fire spread as follows:

- A fire does not spread beyond the boundaries of 1 dwelling of origin hence only 1 dwelling needs to be assessed at the same time.
- The dwelling of fire origin has reached flashover.
- All unprotected areas of one dwelling will be radiating with equal intensity.
- The fire growth rate for residential units is assumed to be medium.

6.1.1 Boundary Conditions

The northern boundary is to be assumed halfway across the public road.

The eastern elevation of A2 is facing Peace Garden. The distance to the proposed structure West Gate Lodge in Peace Garden is 70m. **Note:** It is currently assumed Peace Garden to be a public park, however if this is private property, then it should be ensured that no future developments occur on this land without reassessing fire spread for the site as a whole.

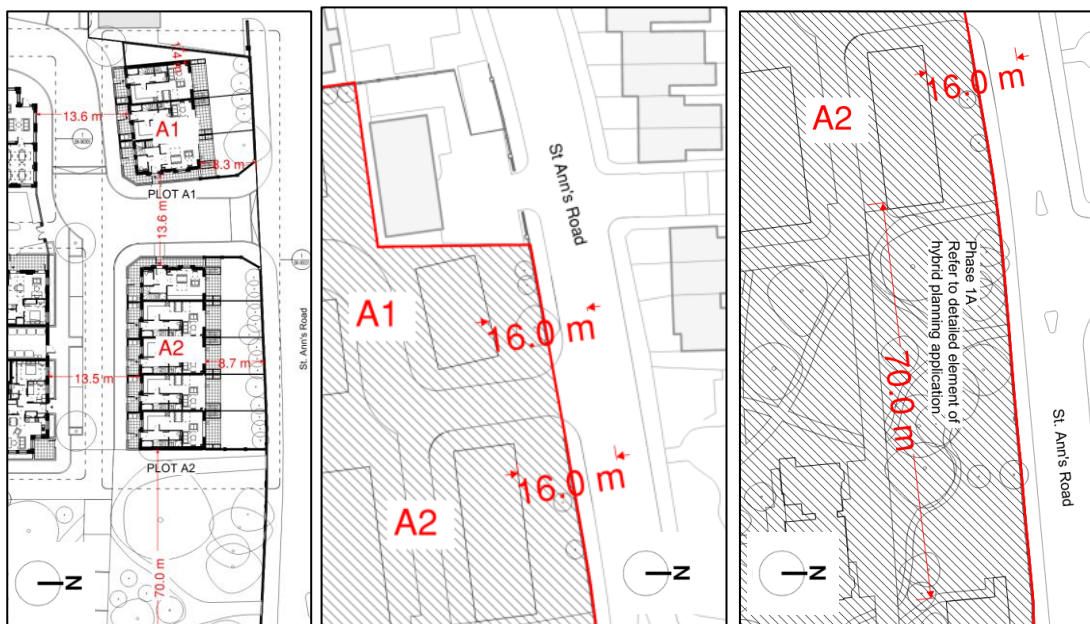


Figure 11: Boundary Distance Assessment Block A (left), Eastern Boundary Conditions (centre) and Southern Boundary A2 (right)

Note: The figure above does not show the notional boundary to buildings on the same site, which are taken at 1/2 the actual distance between the buildings.

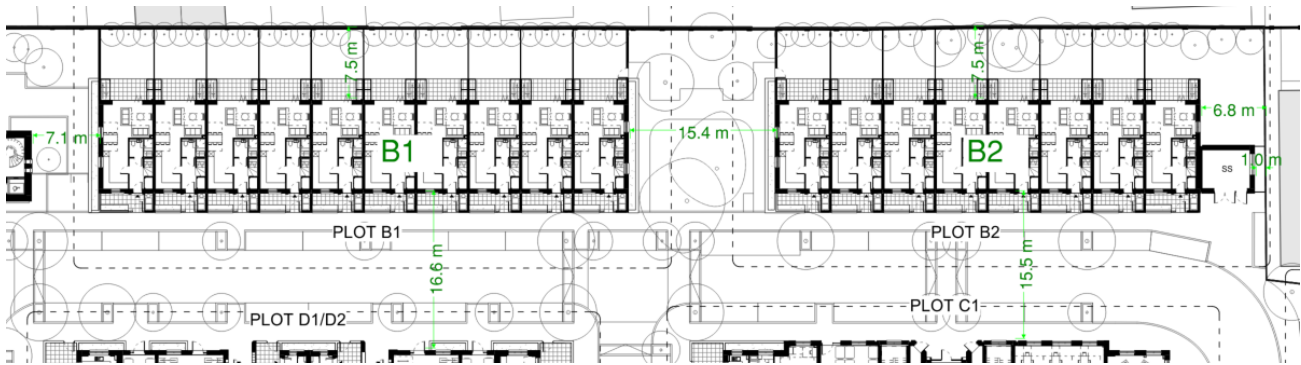


Figure 12: Boundary and Notional Boundary Distance Assessment B1 and B2

Note: The figure above does not show the notional boundary to buildings on the same site, which is half the actual boundary distance.

6.1.2 Fire Resistance of External Wall

Table 12 below summaries the results of the external fire spread assessment in accordance with the methodologies of BR 187.

Table 12: External Fire Spread

Building	Elevation/Emitting Unit	Receiving Boundary	Width (m)	Height (m)	Distance to boundary (m)	Maximum unprotected Area %	Allowable unprotected Area (m ²)
Block A1	West/Residential Unit	West Boundary	9.0	10.2	1.4	10	9.2
	East/Residential Unit	Block A2	9.0	10.2	6.8	100	92
	North/Residential Unit	North Boundary	5.2	10.2	16.0	100	53
	South/Residential Unit	Block C1	5.2	10.2	6.8	100	53
Block A2	West/Residential Unit	Block A1	9.0	10.2	6.8	100	92
	East/Residential Unit	Peace Garden	9.0	10.2	35.0	100	92
	North/Residential Unit	North Boundary	5.2	10.2	16.0	100	53
	South/Residential Unit	Block C2	5.2	10.2	6.8	100	53

Building	Elevation/Emitting Unit	Receiving Boundary	Width (m)	Height (m)	Distance to boundary (m)	Maximum unprotected Area %	Allowable unprotected Area (m ²)
Block B1	West/Residential Unit	West Boundary	5.2	9.2	7.5	100	47.9
	East/Residential Unit	Block D1& 2	5.2	9.2	8.3	100	47.9
	North/Residential Unit	Block B2	9.0	9.2	7.7	100	82.8
	South/Residential Unit	Water Tower	9.0	9.2	3.6	38.4	31.8
Block B2	West/Residential Unit	West Boundary	5.2	9.2	7.5	100	47.8
	East/Residential Unit	Block C1	5.2	9.2	7.8	100	47.8
	North/Substation	North Boundary	4.0	9.2	1.0	0	0
	South/Residential Unit	Block B1	9.0	9.2	7.7	100	82.8

Where identified in **Table 12** above, the elevation should be provided with fire resistance rating where less than 100% unprotected area is achieved. The protected area needs to achieve 60/60/60min.

NOTE: The northern side of Block B2 needs to achieve 240/240/240min, as this elevation is part of the substation and is within 1m of the relevant boundary. Currently, ventilation is shown on the northern elevation. This should be relocated and should not be present on the Northern Elevation.

6.1.3 Roof Coverings

Roof coverings should meet the requirements listed in **Table 13** below, depending on their distance from the relevant boundary.

Table 13: Classification of Roof Coverings

Distance of Roof (or Part of Roof) to Relevant Boundary (m)	Designation of Roof Covering				
	B _{Roof} (t4)	C _{Roof} (t4)	D _{Roof} (t4)	E _{Roof} (t4)	F _{Roof} (t4)
<6m	●	○	○	○	○
>6m but <12m	●	●	●	●	○
>12m but <20m	●	●	●	●	○

Distance of Roof (or Part of Roof) to Relevant Boundary (m)	Designation of Roof Covering				
	B _{Roof} (t4)	C _{Roof} (t4)	D _{Roof} (t4)	E _{Roof} (t4)	F _{Roof} (t4)
>20m	●	●	●	●	●

Key:

● Acceptable ○ Not Acceptable

Notes:

1. Separation distances do not apply to enclosed/covered walkways.
2. Polycarbonate and uPVC rooflights that achieve a class C-s3, d2 rating may be regarded as having a B_{Roof}(t4) designation.

To reduce the risk of fire spreading over the roof from one compartment to another, a 1500mm wide zone of the roof, either side of the wall, must have a covering classified as B_{ROOF}(t4), on a substrate or deck of a material rated class A2-s3, d2 or better, as set out in the figure below.

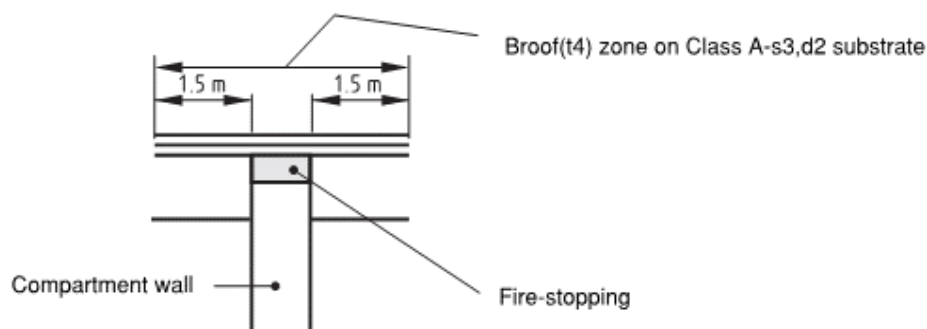


Figure 13: Junction of a Compartment Wall with the Roof

6.2 External Fire Spread

6.2.1 Combustibility of Construction

Under the basis that the buildings are <11m in height, it is determined that a Reaction to Fire Classification C-S3,D2 may be utilised, under the following considerations:

- The external wall provision may present a route for the spread of fire past compartmentation permitting the fire to spread beyond the intent of the building compartmentation.

This recommendation is an additional measure, as current guidance provides no minimum Reaction to Fire Classification under the basis that the external wall is >1m from the relevant boundary.

7 B5 ACCESS AND FACILITIES FOR THE FIRE SERVICE

7.1 Vehicle Access

7.1.1 Access Requirement

The building is provided with fire service access on the basis that all parts of the building can be reached from the fire tender access road by a 45m hose.

The fire tender access as well as the hose laying distance to the dwelling entrances is shown in **Figure 14** below.

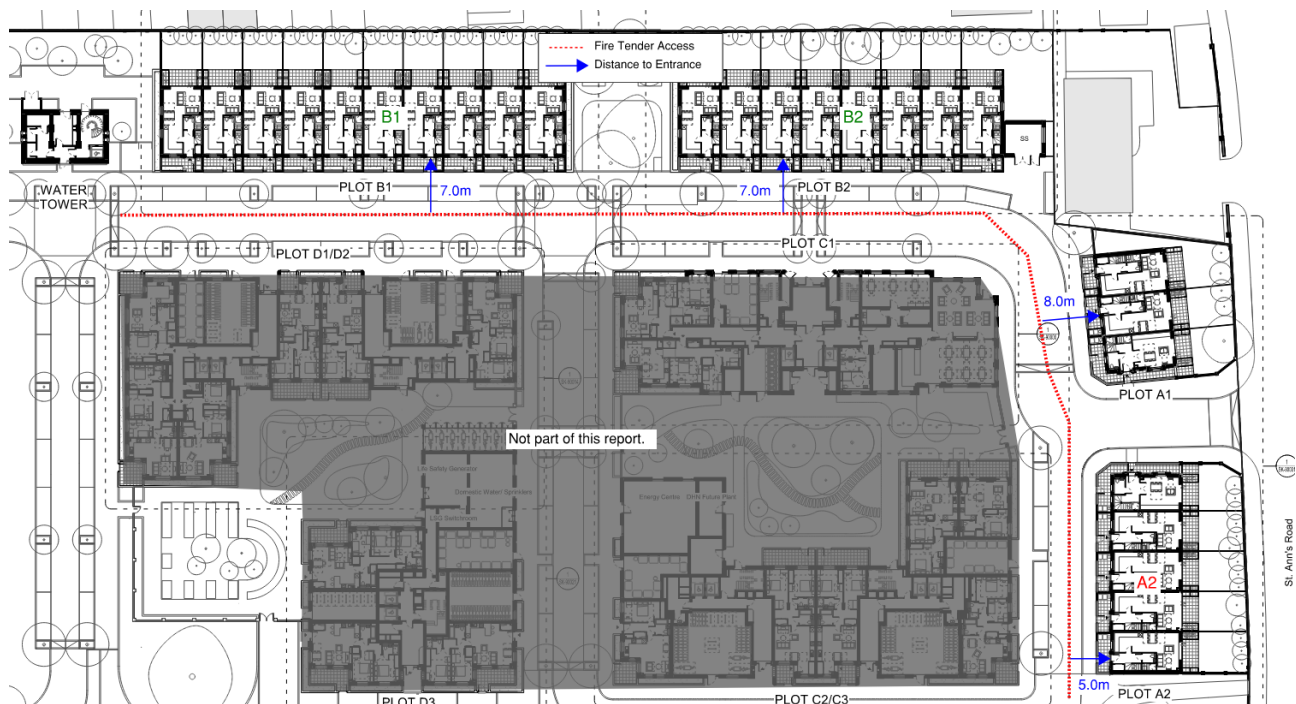


Figure 14: Perimeter Access Assessment Blocks A and B

7.1.2 Access Routes

Under the basis that the building is measured at <11m in building height (see **Section 2.1.2**) tender access is to be designed for pump type appliances taking into account London Fire Brigade GN 29 (10). Accordingly, all roadways required to achieve the access requirements are to be designed to achieve the following dimensions:

Table 14: Roadway Criteria for Pump Appliance

Location	Guidance
Width of Road between Kerbs	3.7m
Width of Gateways	3.1m

Location	Guidance
Turning Circle Between Kerbs	16.8m
Turning Circle Between Walls	19.2m
Clearance Height	3.7m
Minimum Carrying Capacity	14 tonnes ^A
Maximum Dead-End Travel Distance	20m

Note A: In accordance with London Fire Brigade GN 29.

7.2 Water Supply

The water supply for firefighting intervention is provided by public hydrants. Hydrants should be provided within 90 m of an entry point to the buildings and not more than 90 m apart.

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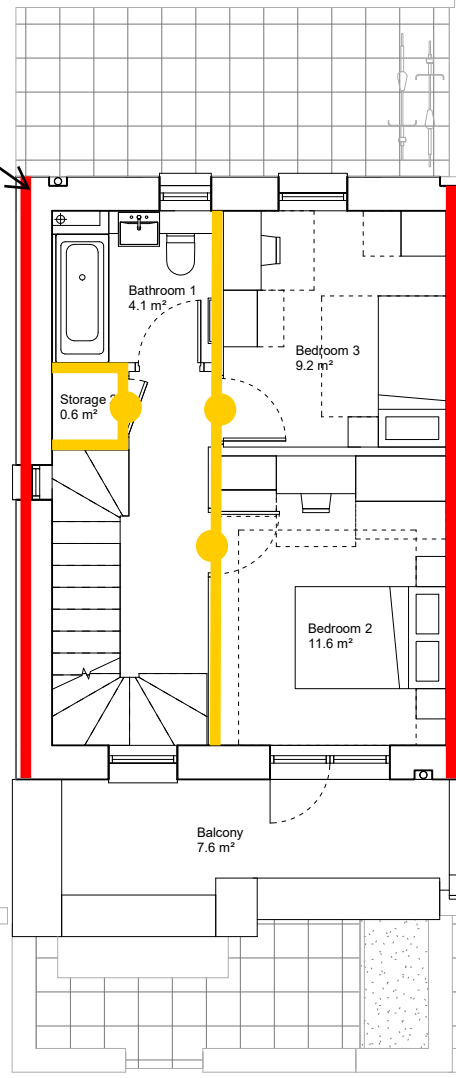
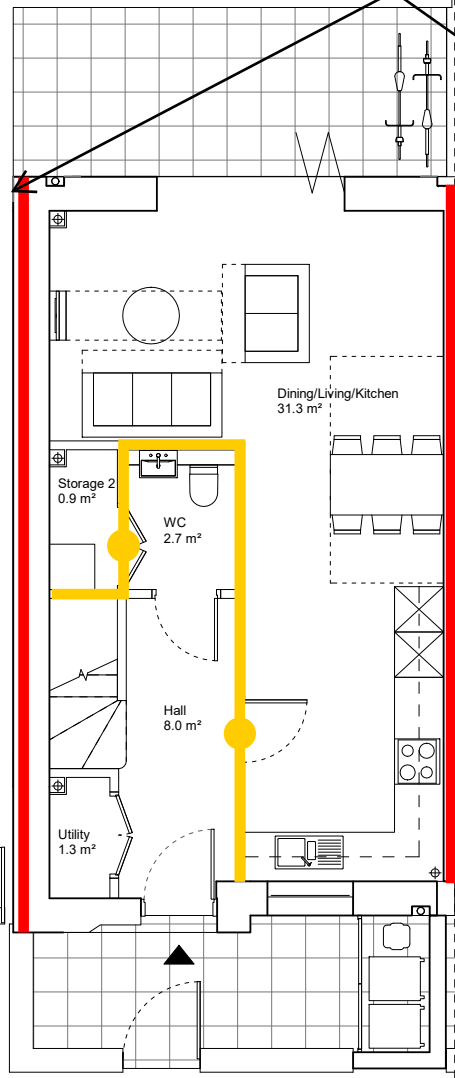
Appendix A

FIRE STRATEGY DRAWINGS



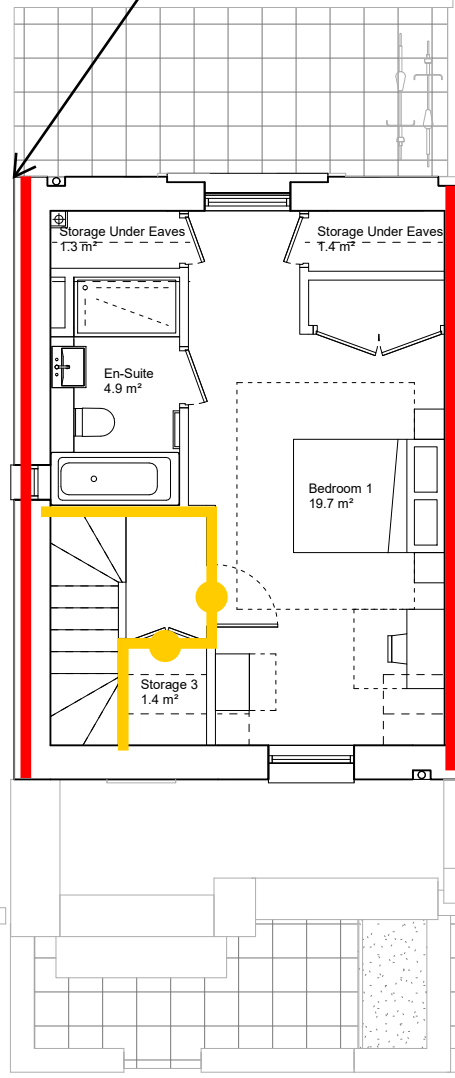
Affinity Fire Engineering UK Ltd
120 Aldersgate St, Barbican, London, EC1A 4JQ
+44 (0) 20 3384 0050
enquiries@affinity-fire.com
www.affinity-eng.com

External wall to achieve 60/60/60min in accordance with Section 6.1.2 of the Fire Strategy Report.

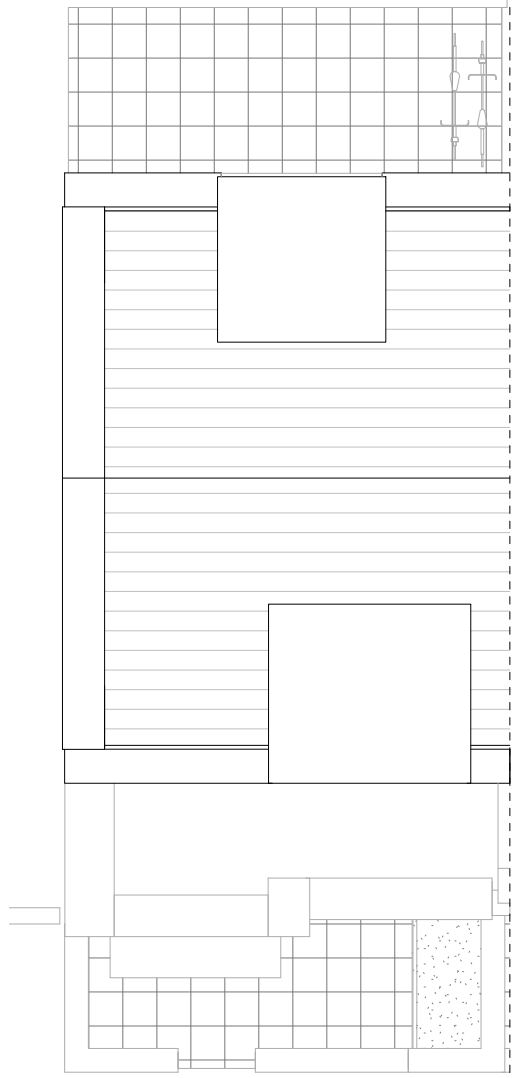


2 Unit Type 3B5P-A-01 - First Floor Plan
1: 50

External wall to achieve 60/60/60min in accordance with Section 6.1.2 of the Fire Strategy Report.



3 Unit Type 3B5P-A-01 - Second Floor Plan
1: 50



4 Unit Type 3B5P-A-01 - Roof Plan
1: 50

SUMMARY

Unit Type	3B5P-A-01
Unit Size	3B5P
Tenure	Private Sale
Building	A
Accessibility	M4(2)
Total Floor Area (NIA)	120.64 m²
Number of Units	1

Project Name:		St Ann's New Neighbourhood					
Drawing Name:		Block A Unit Type 01					
Drawing Reference:		AFF_20708_04_St Ann's New Neighbourhood_Block A_FSD_02					
Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By	JO

Legend:

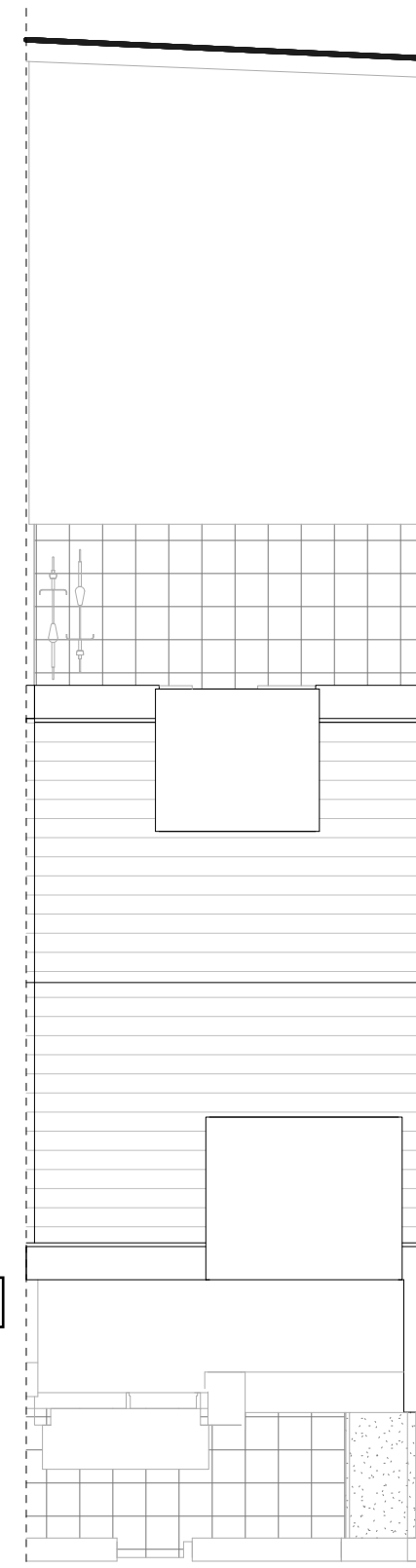
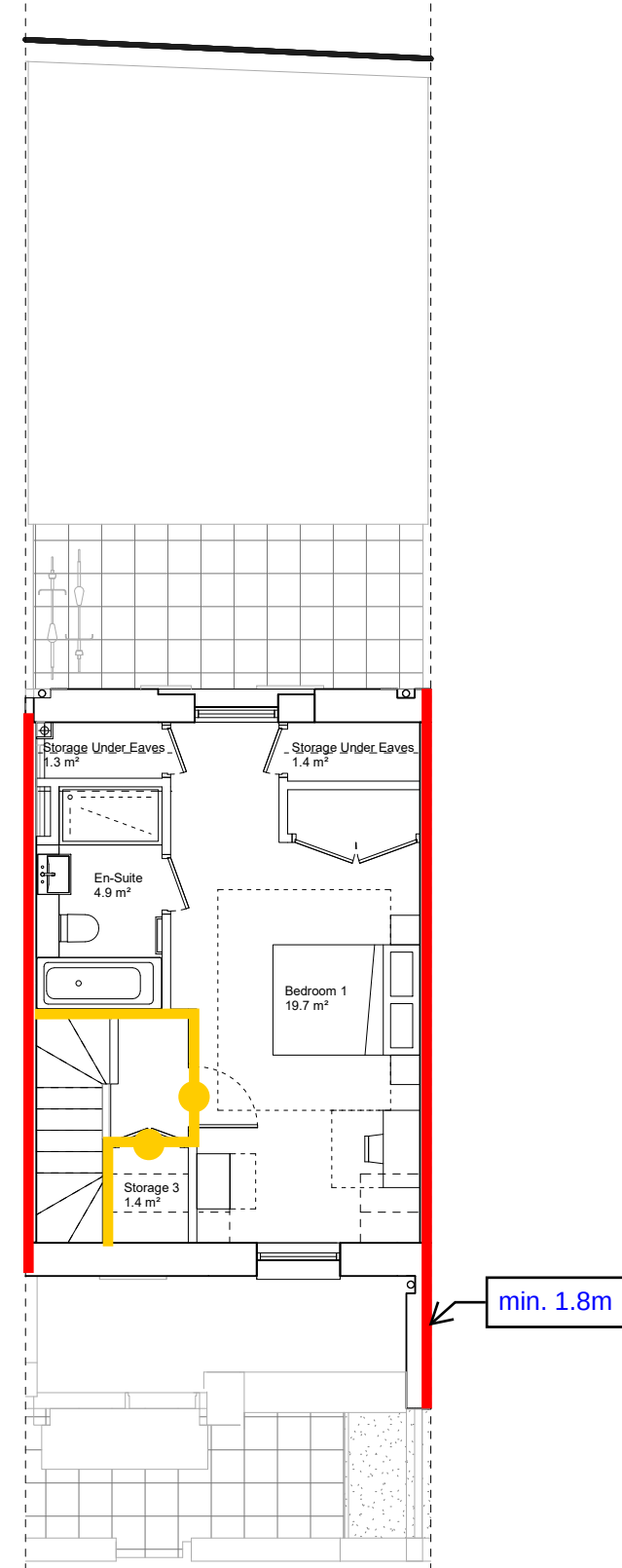
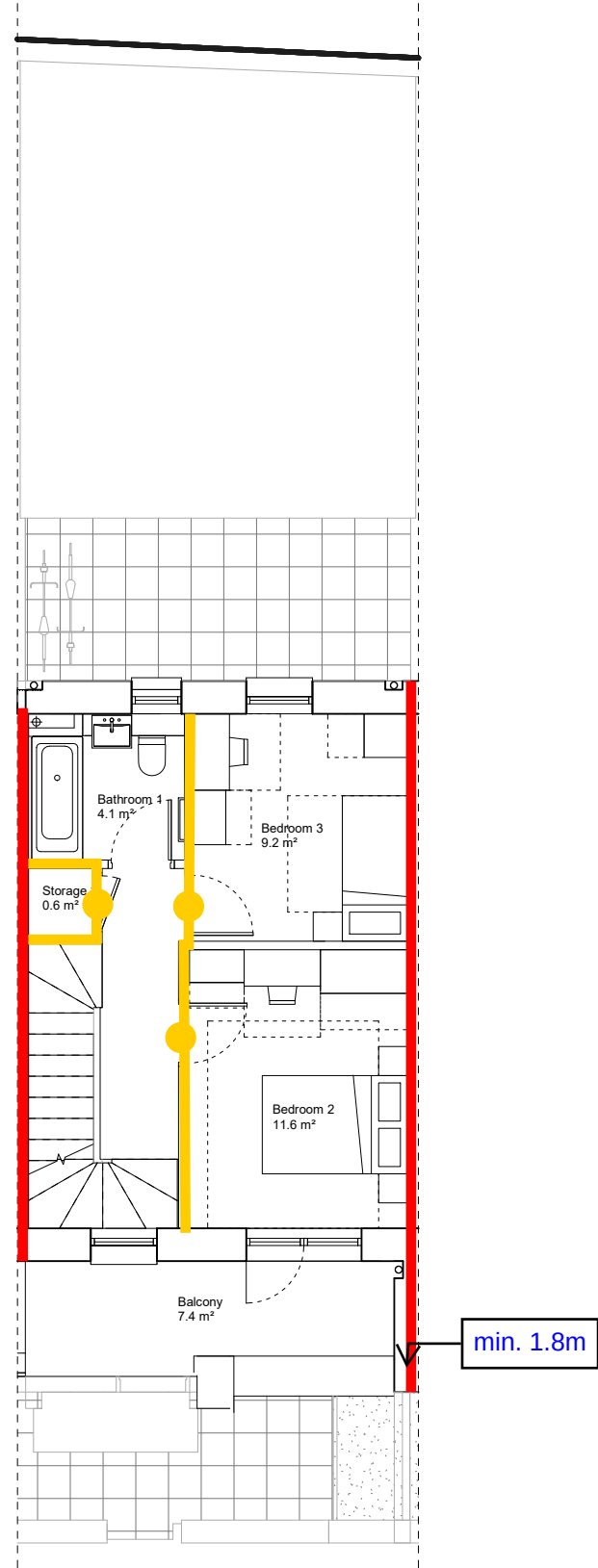
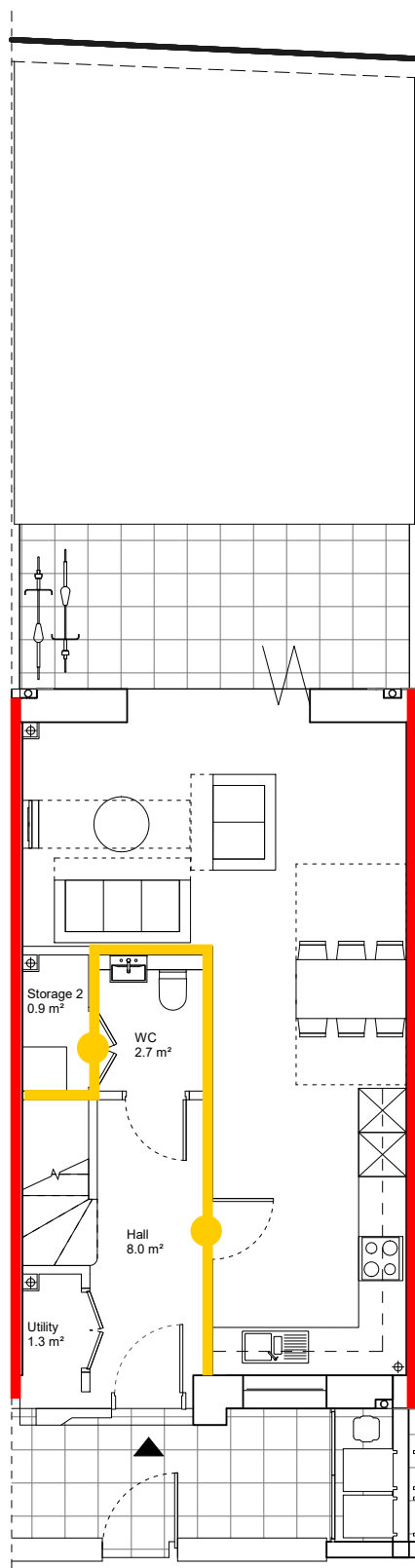
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- FD60 Door
- FD90 Door
- FD120 Door

- FD30S Door
- FD60S Door
- FD90S Door
- FD120S Door

- 30/30/30 FRR
- 60/60/60 FRR
- 90/90/90 FRR
- 120/120/120 FRR

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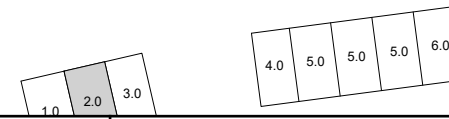
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3 Unit Type 3B5P-A-02 - Second Floor Plan
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4 Unit Type 3B5P-A-02 - Roof Plan
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SUMMARY

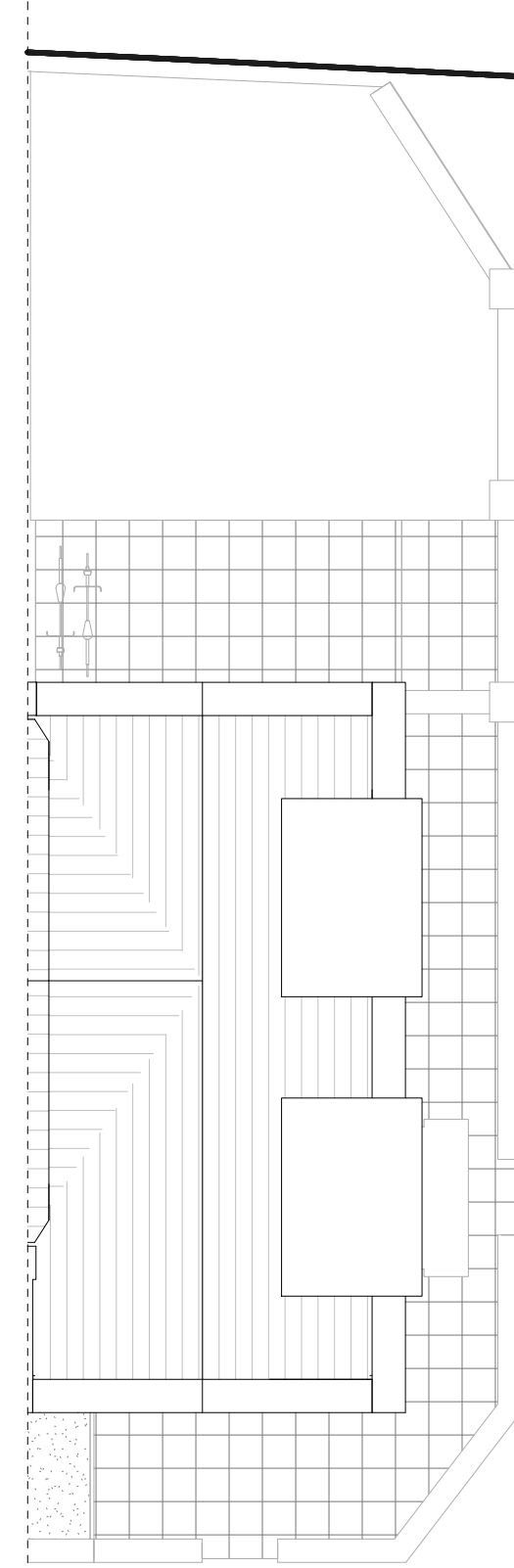
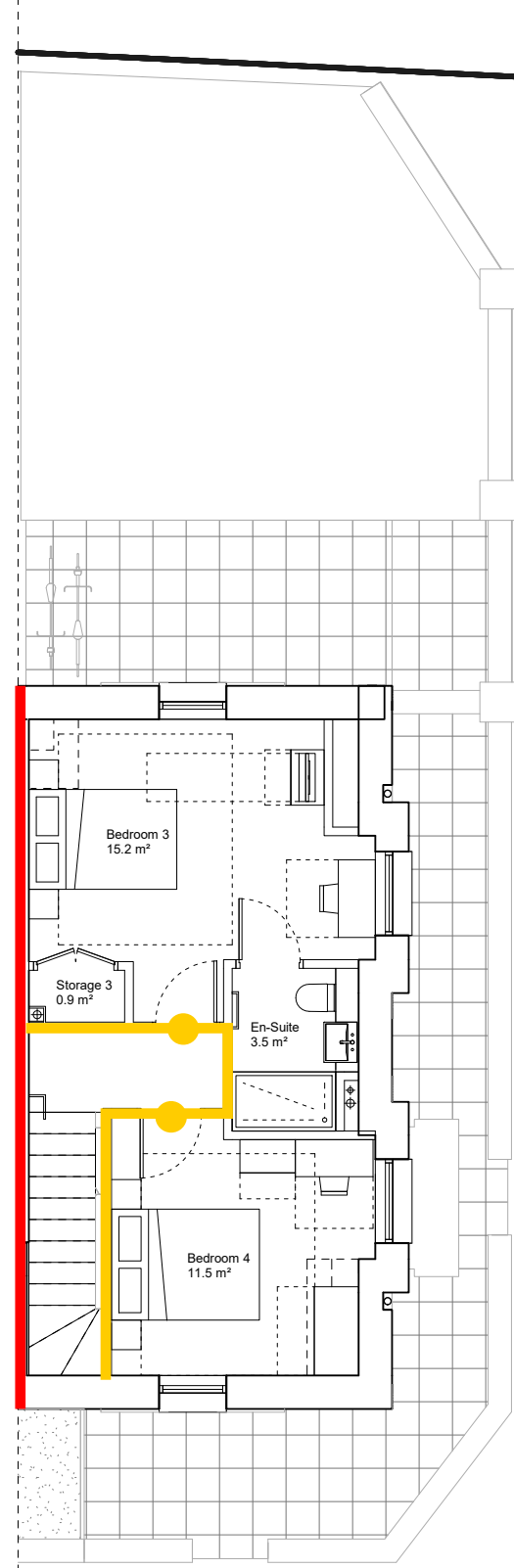
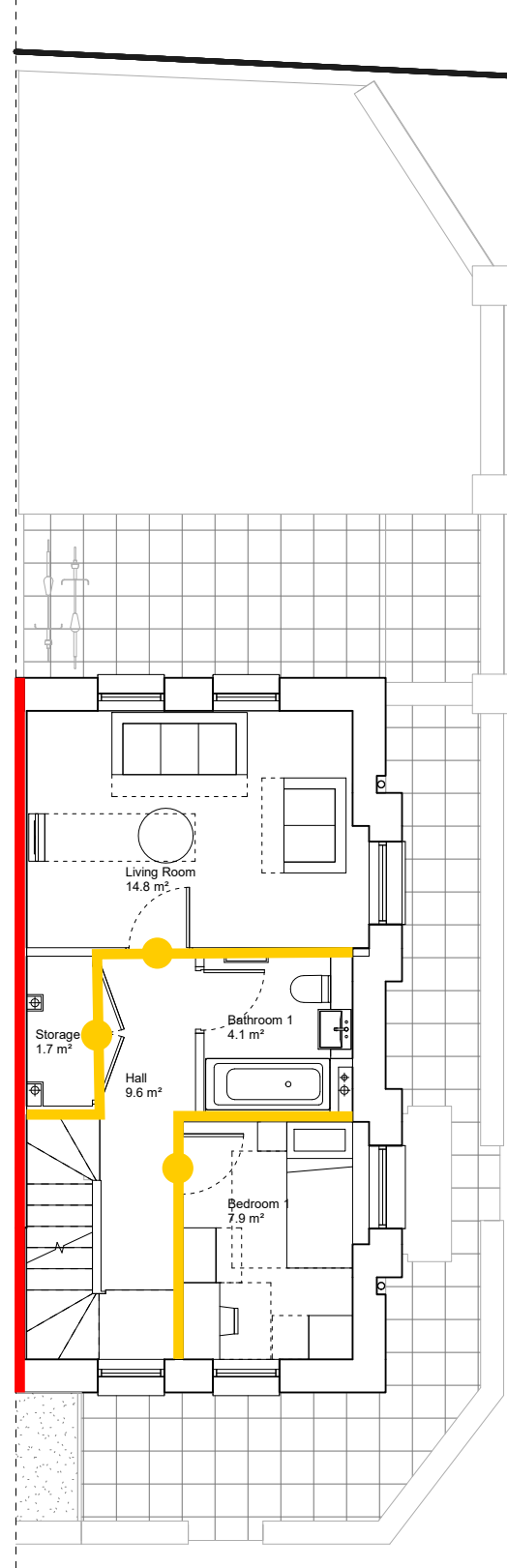
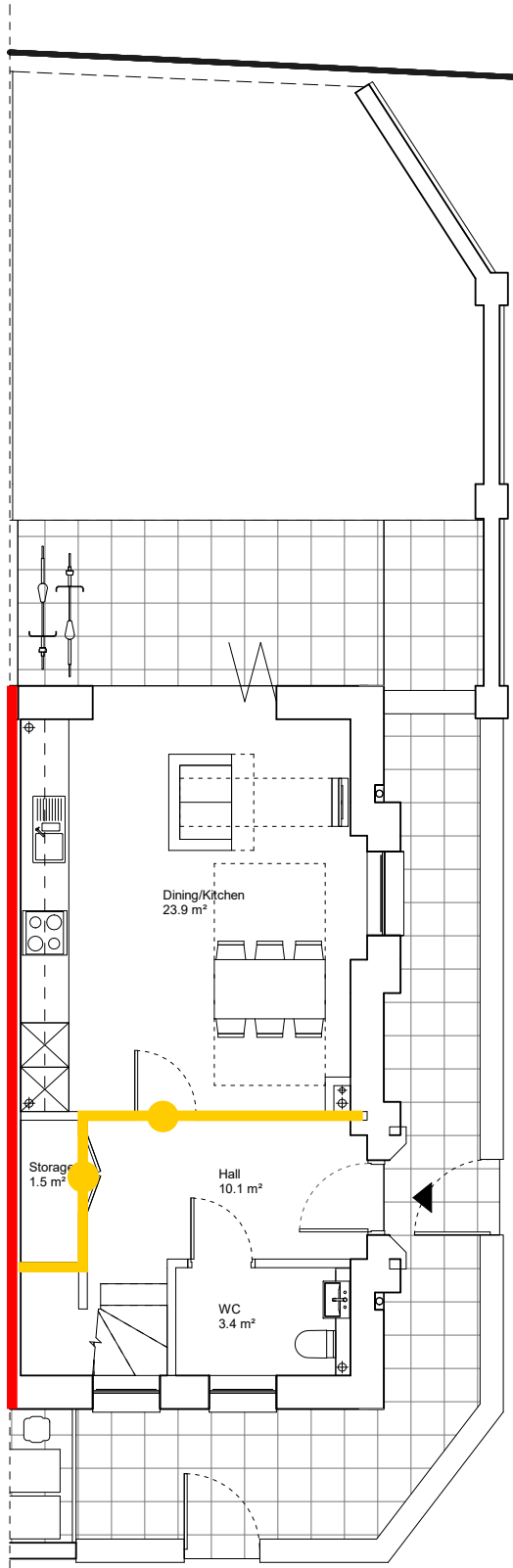
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Unit Size	3B5P
Tenure	Private Sale
Building	A
Accessibility	M4(2)
Total Floor Area (NIA)	120.64 m²



Legend:

	FD30 Door		FD30S Door		30/30/30 FRR
	FD60 Door		FD60S Door		60/60/60 FRR
	FD90 Door		FD90S Door		90/90/90 FRR
	FD120 Door		FD120S Door		120/120/120 FRR

Project Name:		St Ann's New Neighbourhood						
Drawing Name:		Block A Unit Type 02						
Drawing Reference:		AFF_20708_04_St Ann's New Neighbourhood_Block A_FSD_02						
Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By	JO	



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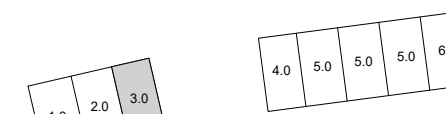
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4 Unit Type 3B5P-A-03 - Roof Plan
1:50

SUMMARY

Unit Type	3B5P-A-03
Unit Size	3B5P
Tenure	Private Sale
Building	A
Accessibility	M4(2)

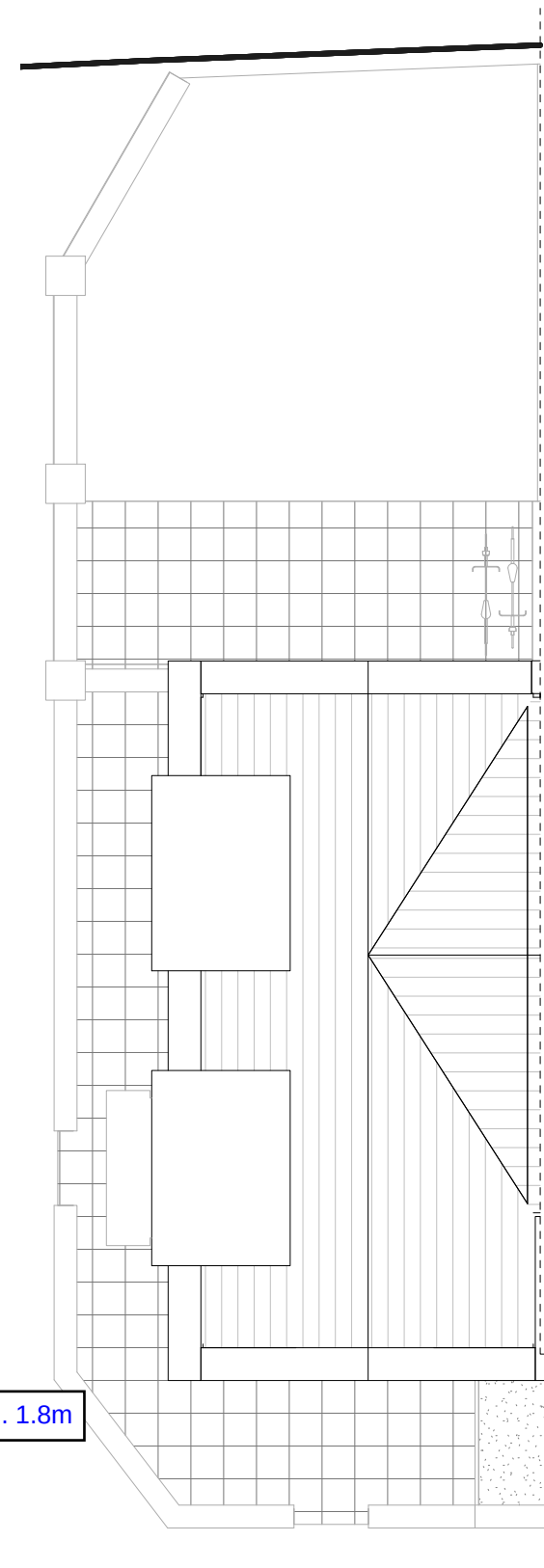
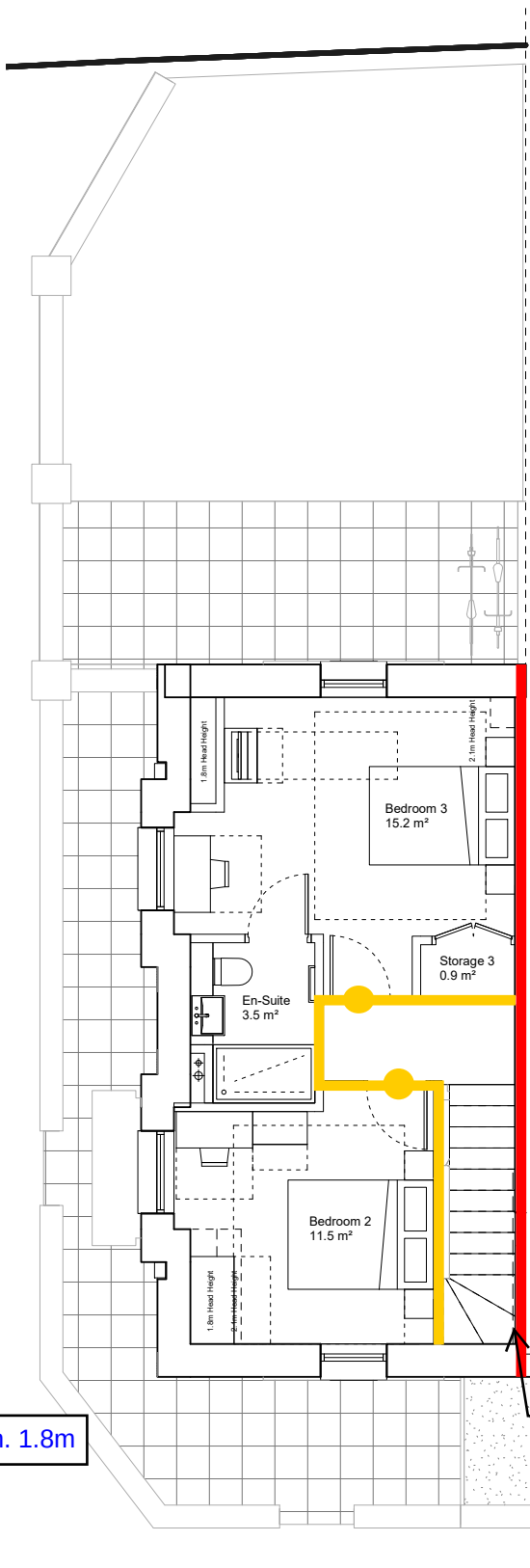
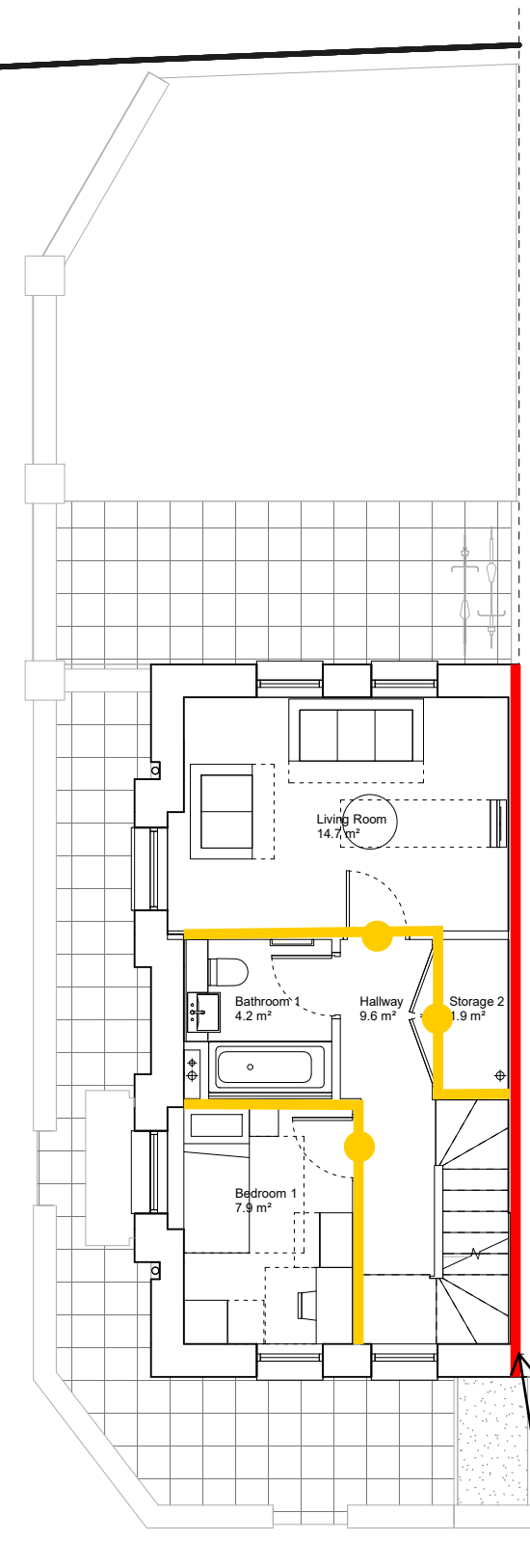
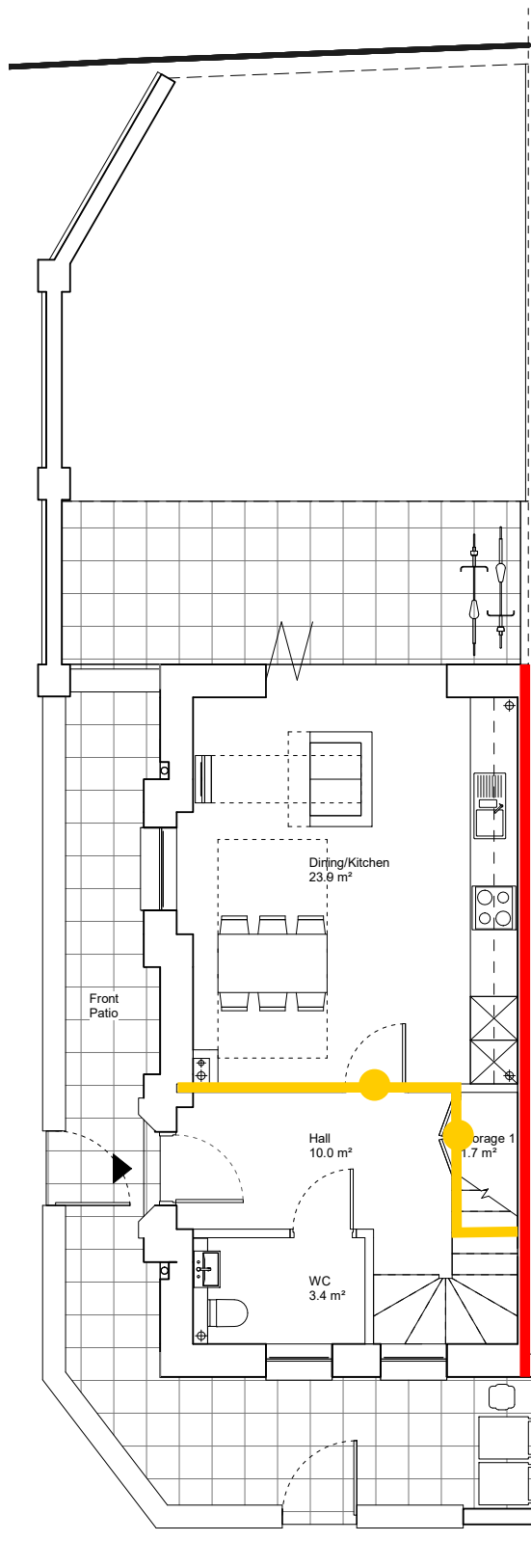
101.00 m²



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Drawing Reference:		AFF_20708_04_St Ann's New Neighbourhood_Block A_FSD_02					
Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By	JO

Legend:	FD30 Door	FD30S Door	30/30/30 FRR
	FD60 Door	FD60S Door	60/60/60 FRR
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	FD120 Door	FD120S Door	120/120/120 FRR

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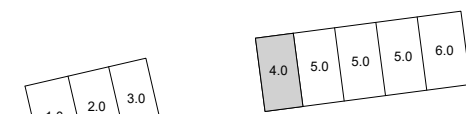
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SUMMARY

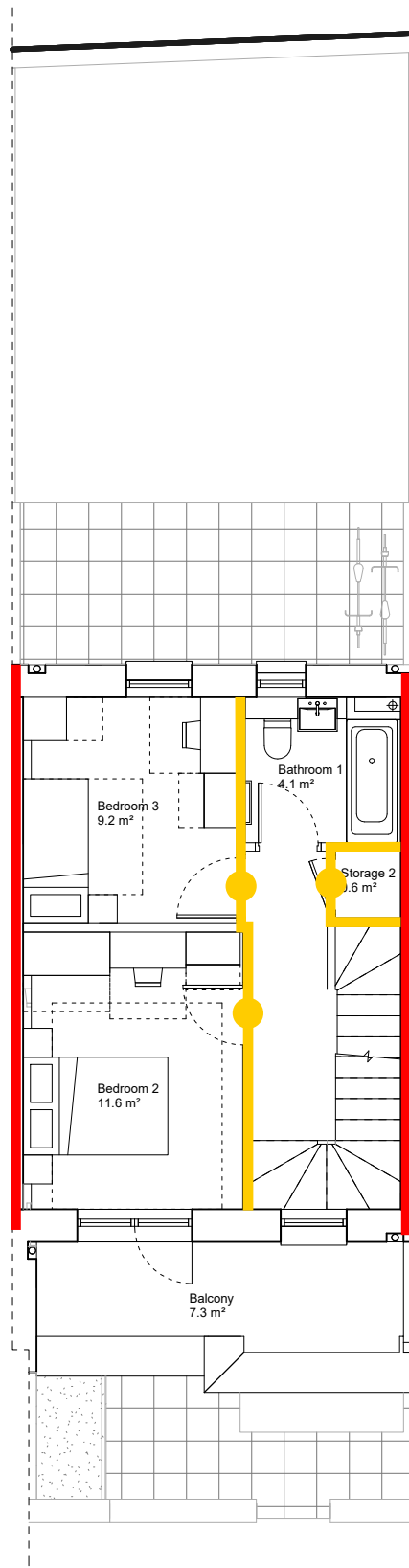
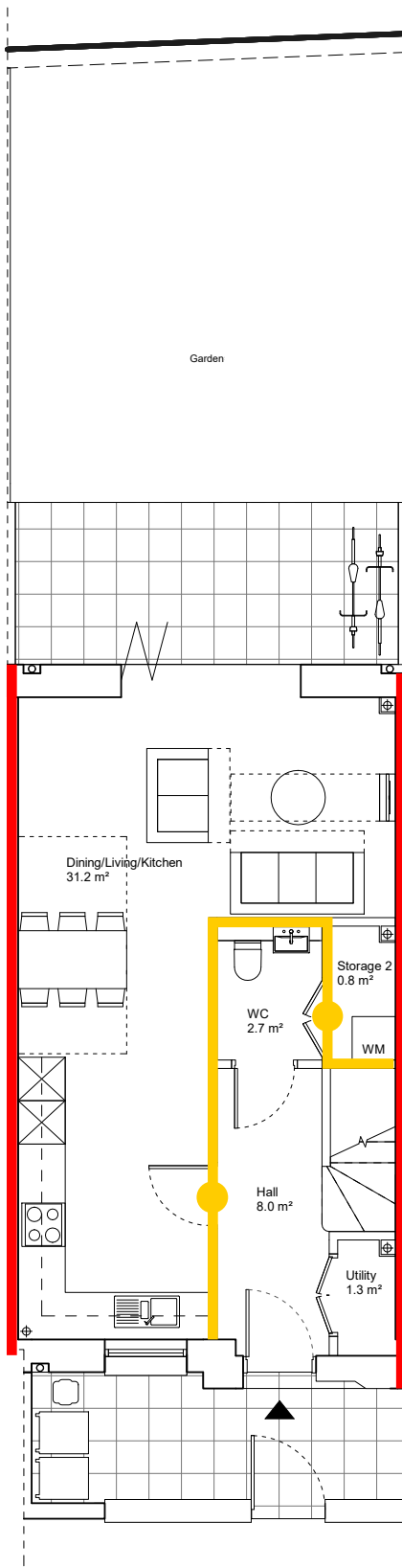
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Unit Size	3B5P
Tenure	Private Sale
Building	A



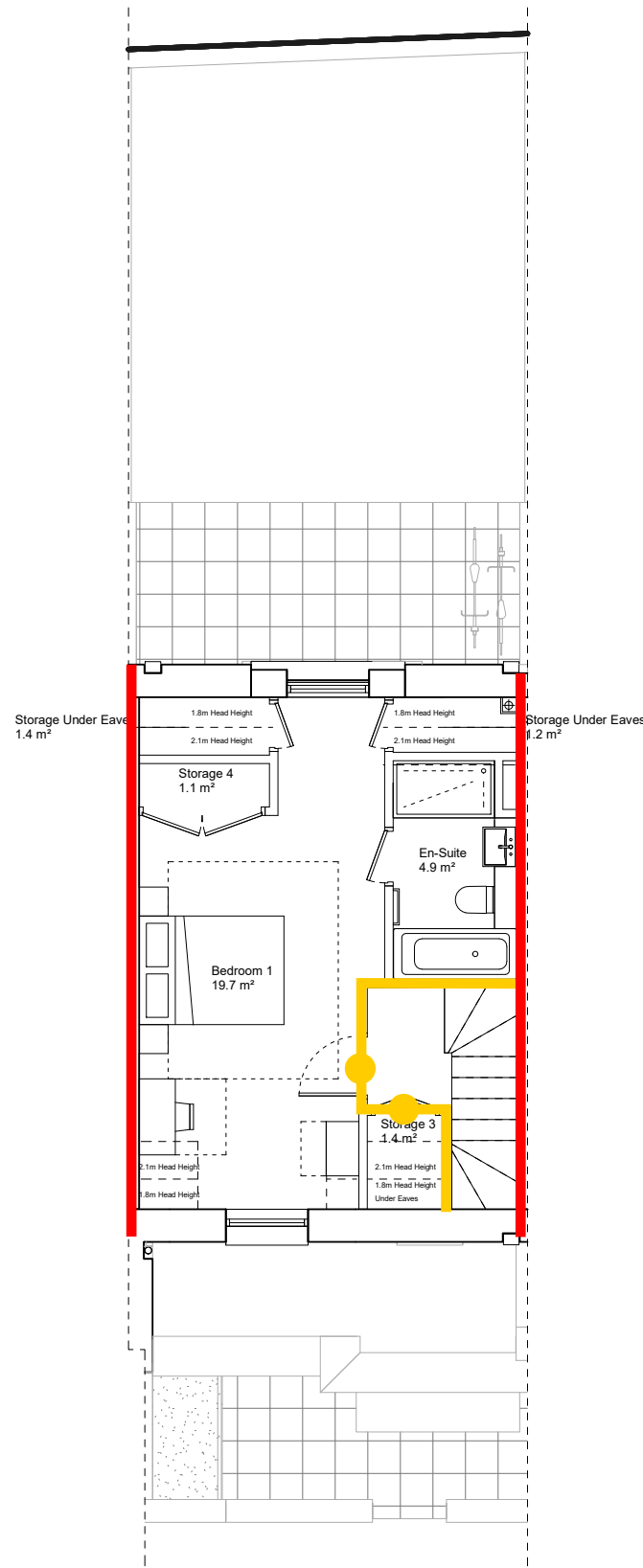
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Drawing Name:		Block A Unit Type 04					
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Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By	JO

Legend:	FD30 Door	FD30S Door	30/30/30 FRR
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	FD90 Door	FD90S Door	90/90/90 FRR
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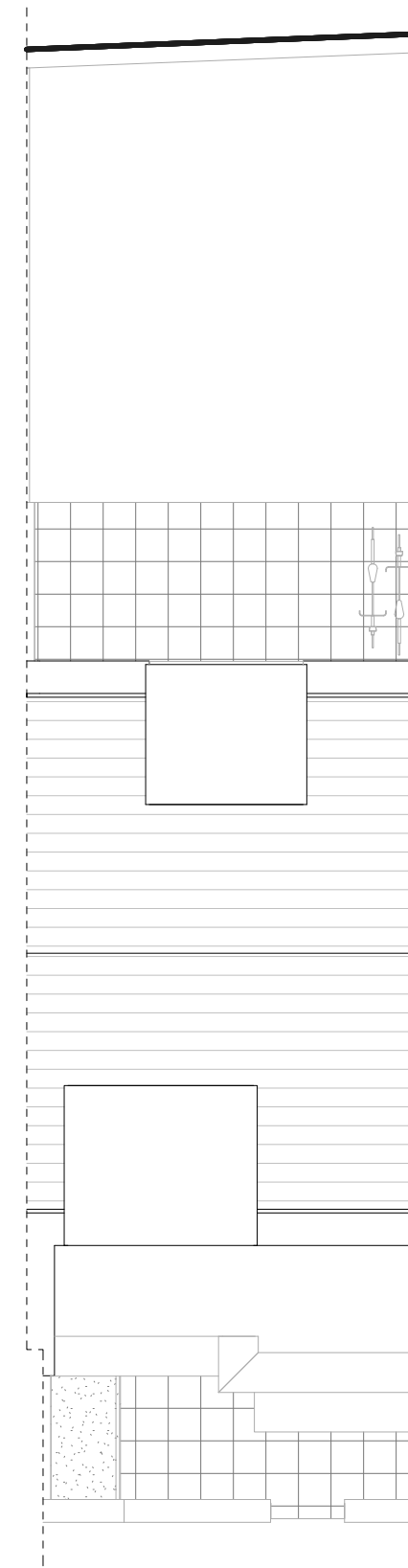
AFFINITY
FIRE ENGINEERING



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3 Unit Type 3B5P-A-05 - Second Floor Plan
1:50



4 Unit Type 3B5P-A-05 - Roof Plan
1:50

SUMMARY

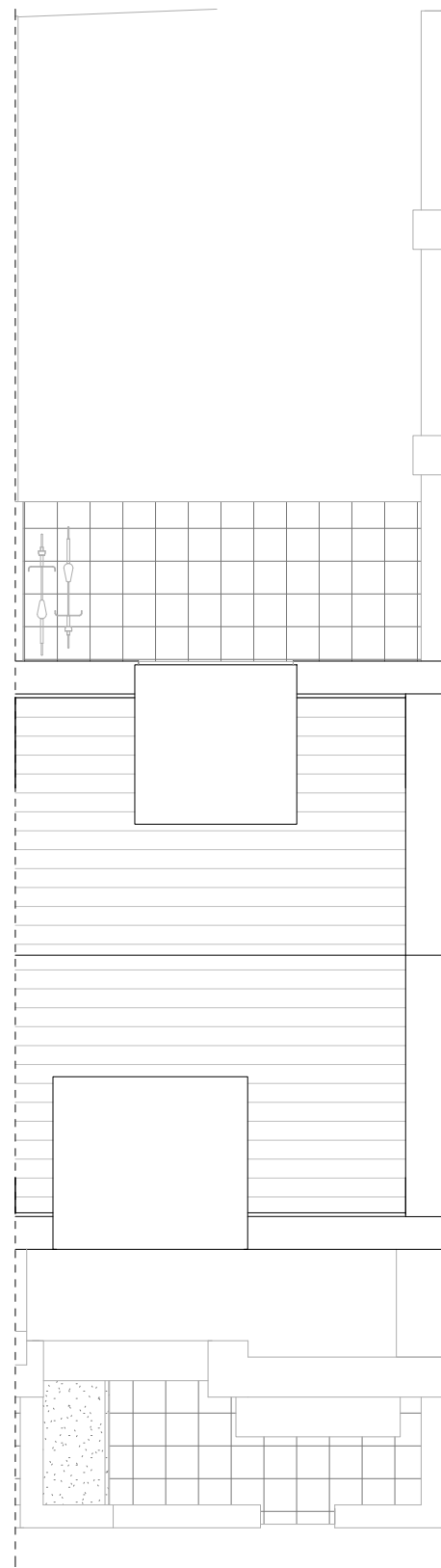
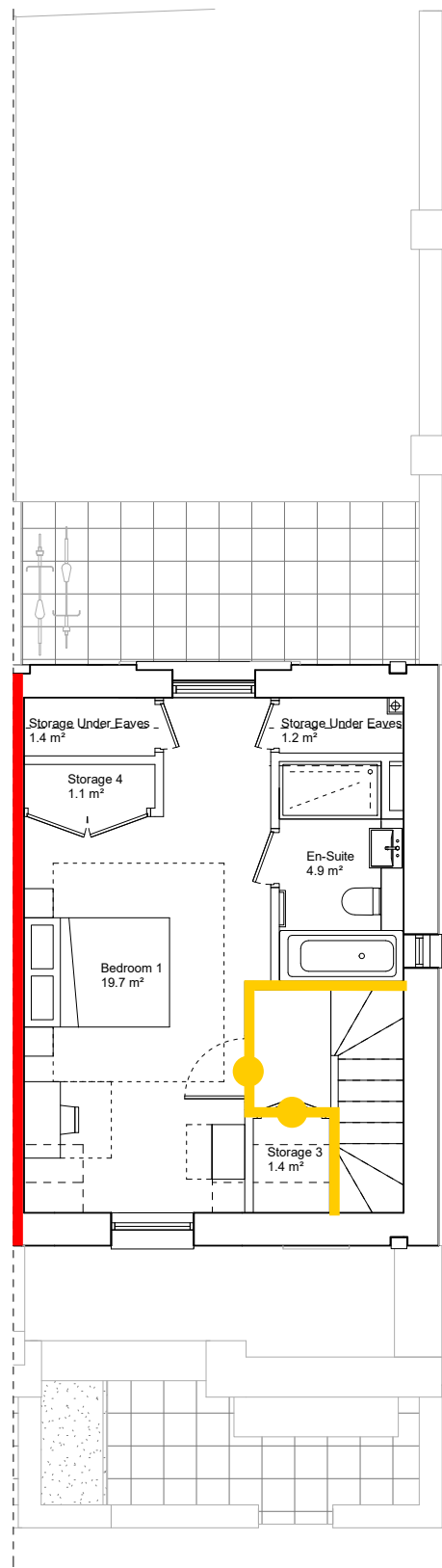
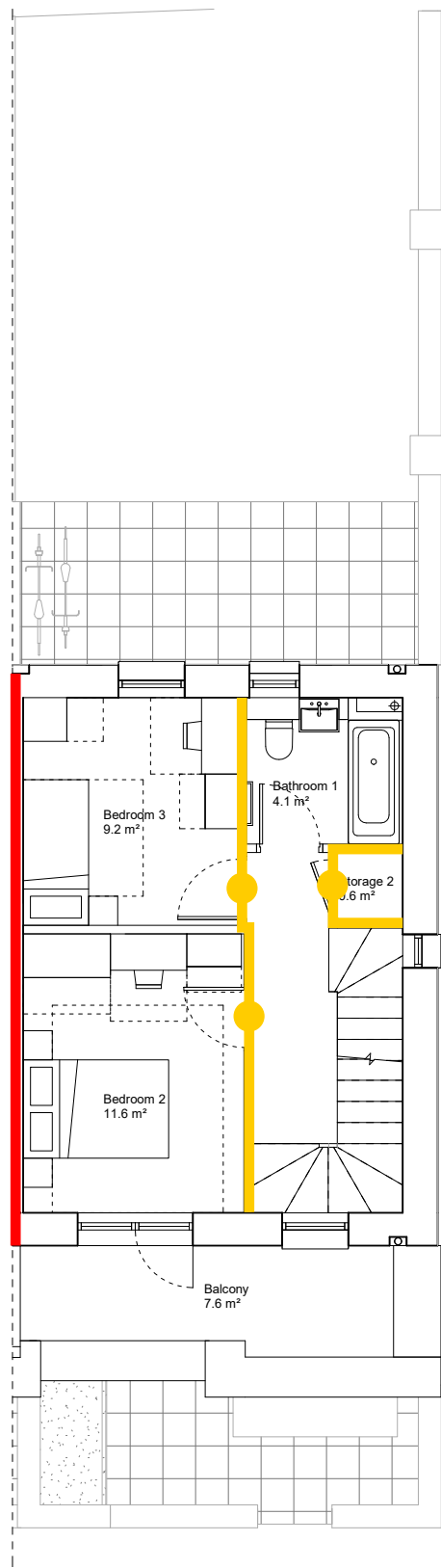
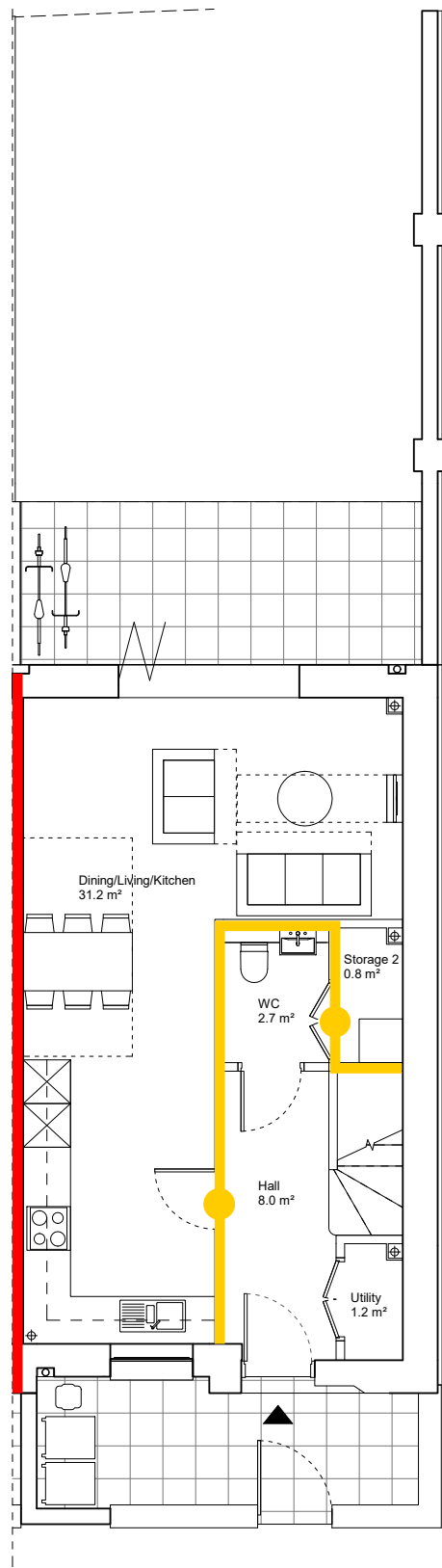
Unit Type	3B5P-A-05
Unit Size	3B5P
Tenure	Private Sale



Project Name:		St Ann's New Neighbourhood					
Drawing Name:		Block A Unit Type 05					
Drawing Reference:		AFF_20708_04_St Ann's New Neighbourhood_Block A_FSD_02					
Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By	JO

Legend:	FD30 Door	FD30S Door	30/30/30 FRR
	FD60 Door	FD60S Door	60/60/60 FRR
	FD90 Door	FD90S Door	90/90/90 FRR
	FD120 Door	FD120S Door	120/120/120 FRR

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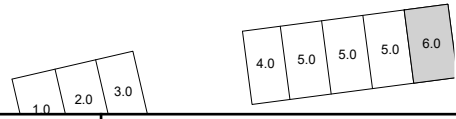
2 Unit Type 3B5P-A-06 - First Floor Plan
1:50

3 Unit Type 3B5P-A-06 - Second Floor Plan
1:50

4 Unit Type 3B5P-A-06 - Roof Plan
1:50

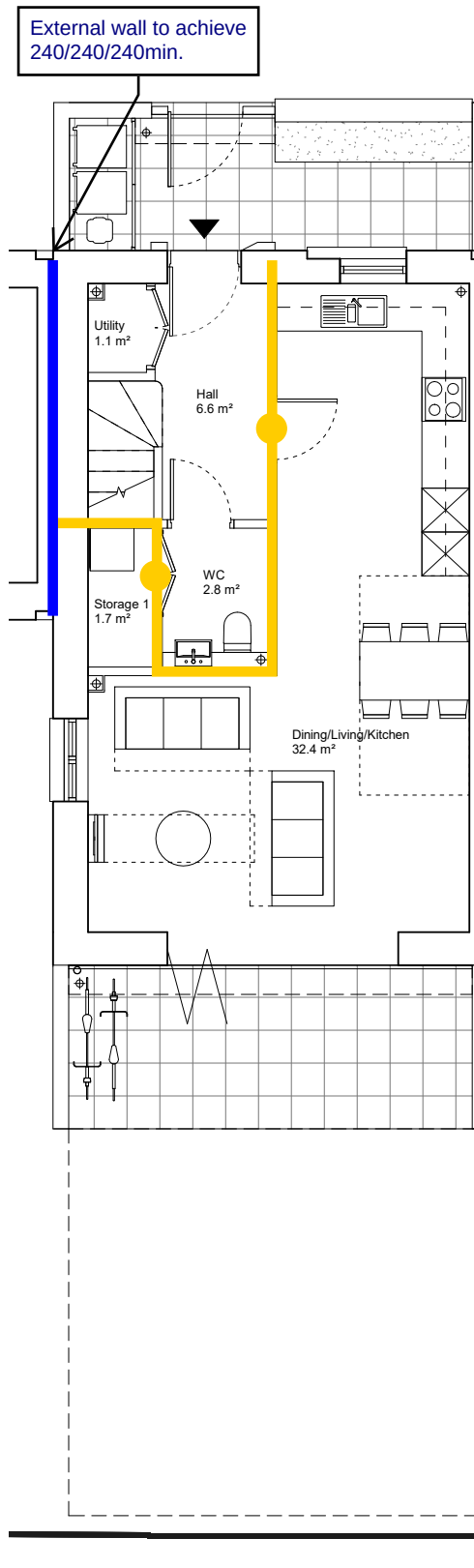
SUMMARY

Unit Type	3B5P-A-06
Unit Size	3B5P
Tenure	Private Sale
Building	A
Accessibility	M4(2)
Total Floor Area (NIA)	120.64 m²

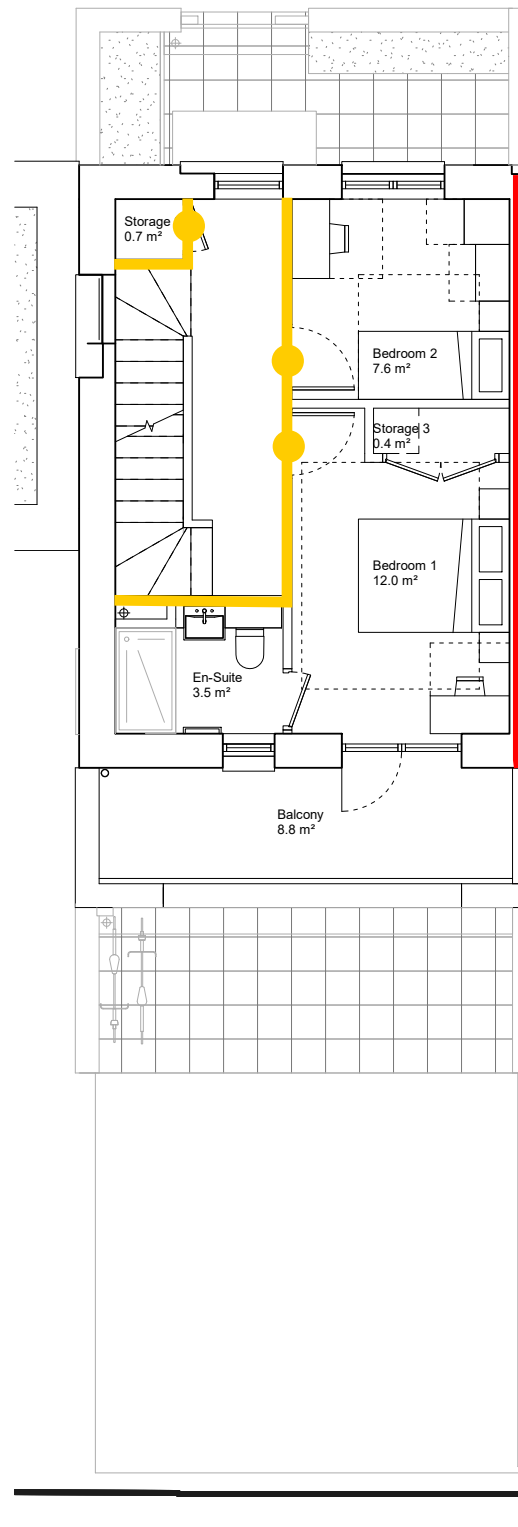


Project Name:	St Ann's New Neighbourhood						
Drawing Name:	Block A Unit Type 06						
Drawing Reference:	AFF_20708_04_St Ann's New Neighbourhood_Block A_FSD_02						
Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By	JO

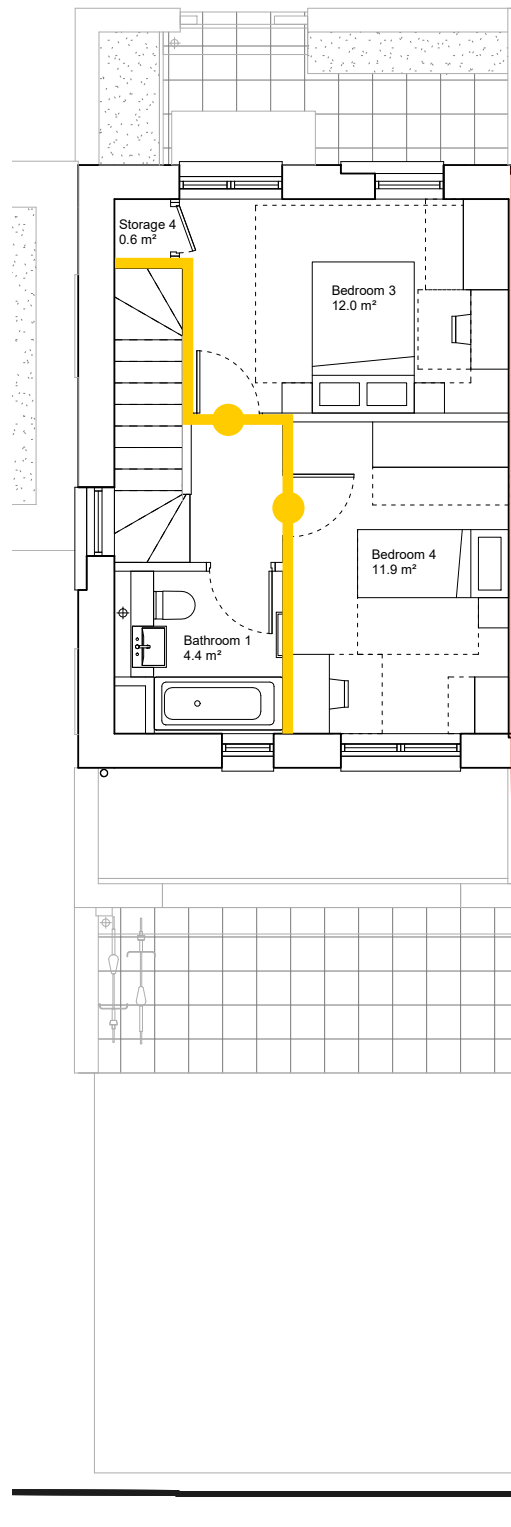
Legend:	FD30 Door	FD30S Door	30/30/30 FRR
	FD60 Door	FD60S Door	60/60/60 FRR
	FD90 Door	FD90S Door	90/90/90 FRR
	FD120 Door	FD120S Door	120/120/120 FRR



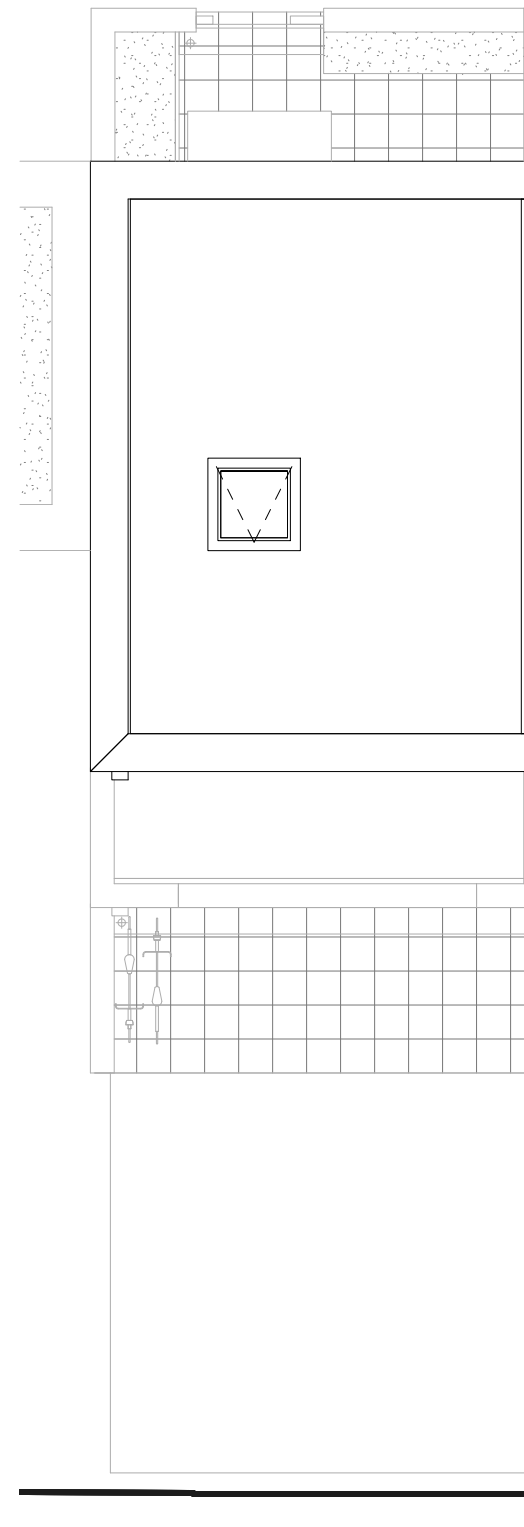
2 Unit Type 4B6P-B-01 - First Floor Plan
1:50



3 Unit Type 4B6P-B-01 - Second Floor Plan
1:50



4 Unit Type 4B6P-B-01 - Roof Plan
1:50



SUMMARY

Unit Type	4B6P-B-01
Unit Size	4B6P
Tenure	Private Sale
Building	B
Accessibility	M4(2)

Legend:

- FD30 Door
- FD60 Door
- FD90 Door
- FD120 Door

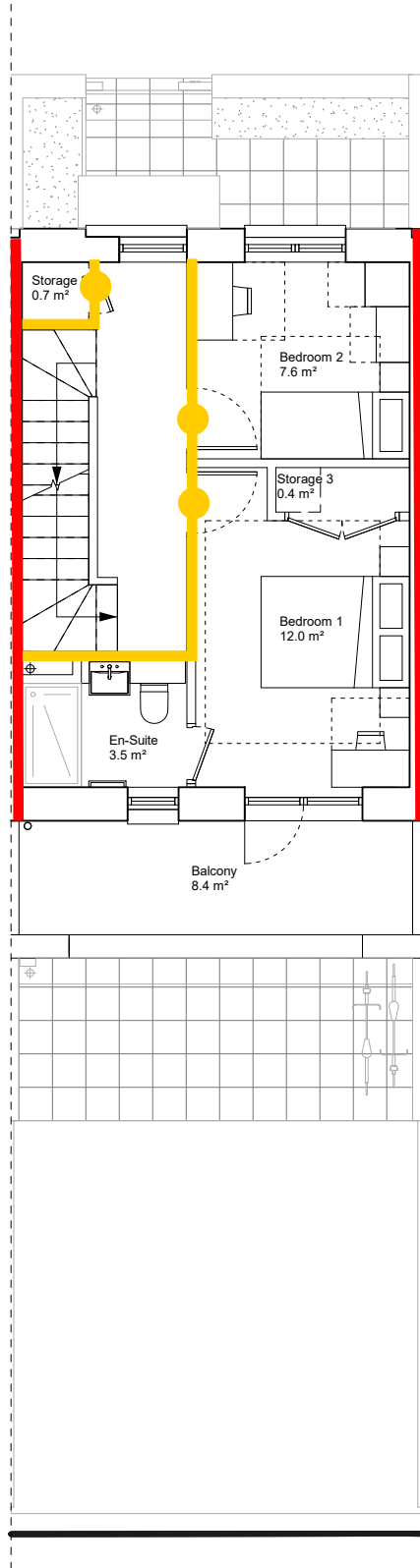
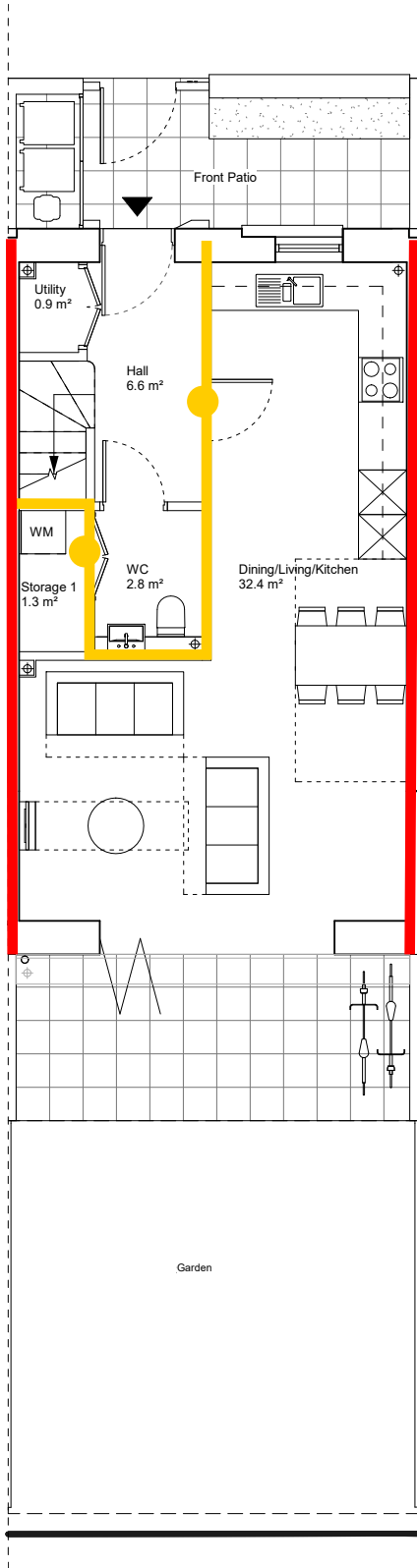
- FD30S Door
- FD60S Door
- FD90S Door
- FD120S Door

- 30/30/30 FRR
- 60/60/60 FRR
- 90/90/90 FRR
- 120/120/120 FRR

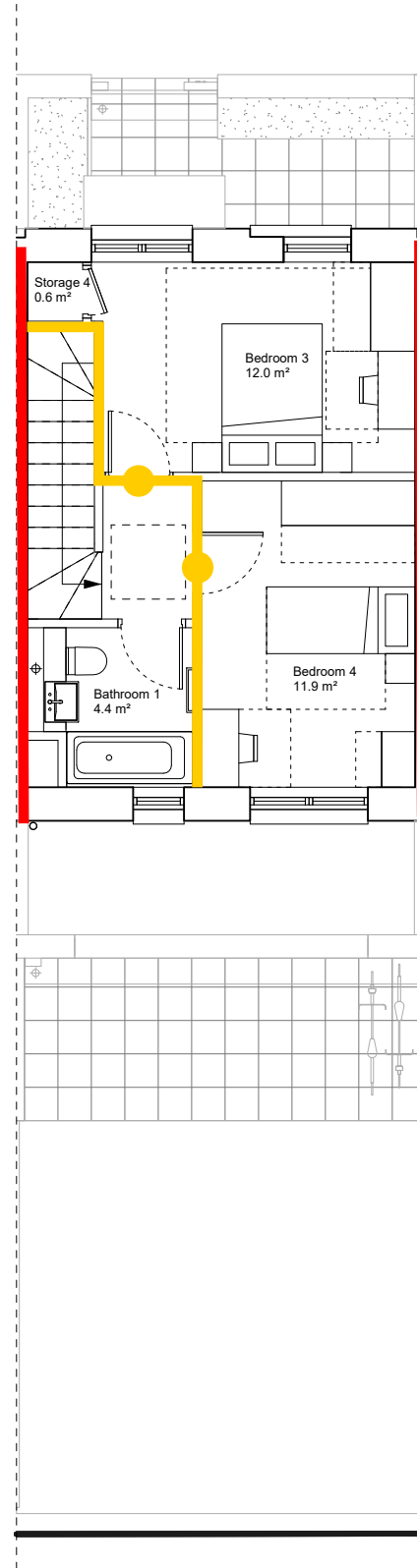
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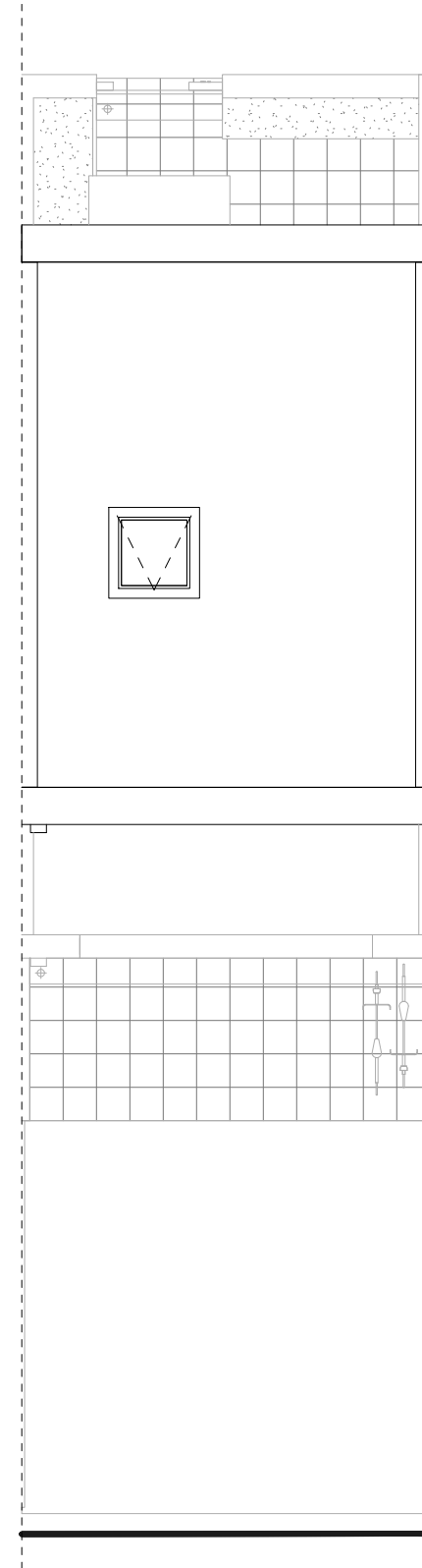
Project Name:	St Ann's New Neighbourhood						
Drawing Name:	Block B Unit Type 01						
Drawing Reference:	AFF_20708_04_St Ann's New Neighbourhood_Block B_FSD_02						
Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By	JO



2 Unit Type 4B6P-B-02 - First Floor Plan
1 : 50



3 Unit Type 4B6P-B-02 - Second Floor Plan
1 : 50



4 Unit Type 4B6P-B-02 - Roof Plan
1 : 50

SUMMARY

Unit Type	4B6P-B-02
Unit Size	4B6P
Tenure	Private Sale

Project Name:		St Ann's New Neighbourhood					
Drawing Name:		Block B Unit Type 02					
Drawing Reference:		AFF_20708_04_St Ann's New Neighbourhood_Block B_FSD_02					
Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By	JO

Legend:

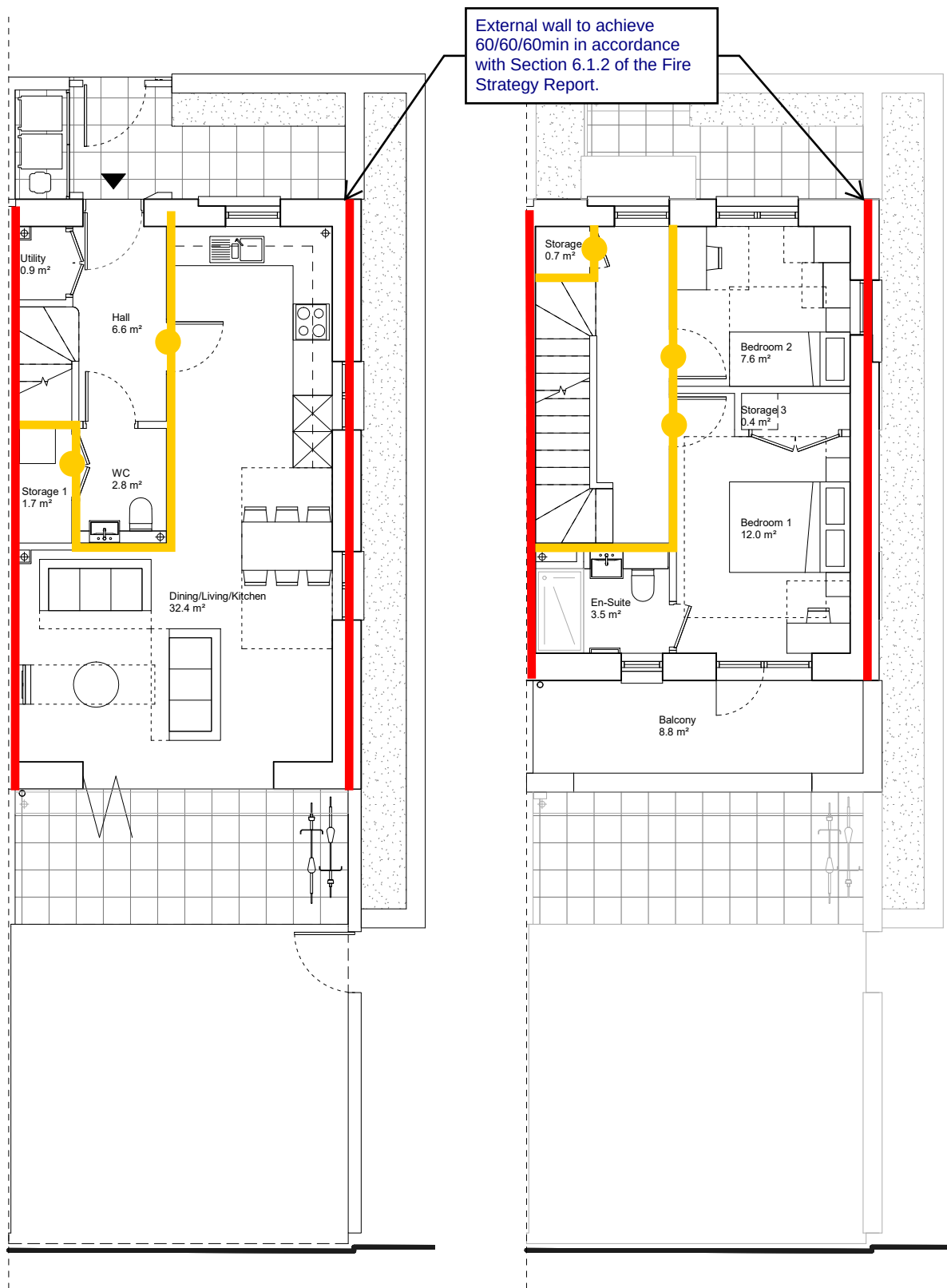
- FD30 Door
- FD60 Door
- FD90 Door
- FD120 Door

- FD30S Door
- FD60S Door
- FD90S Door
- FD120S Door

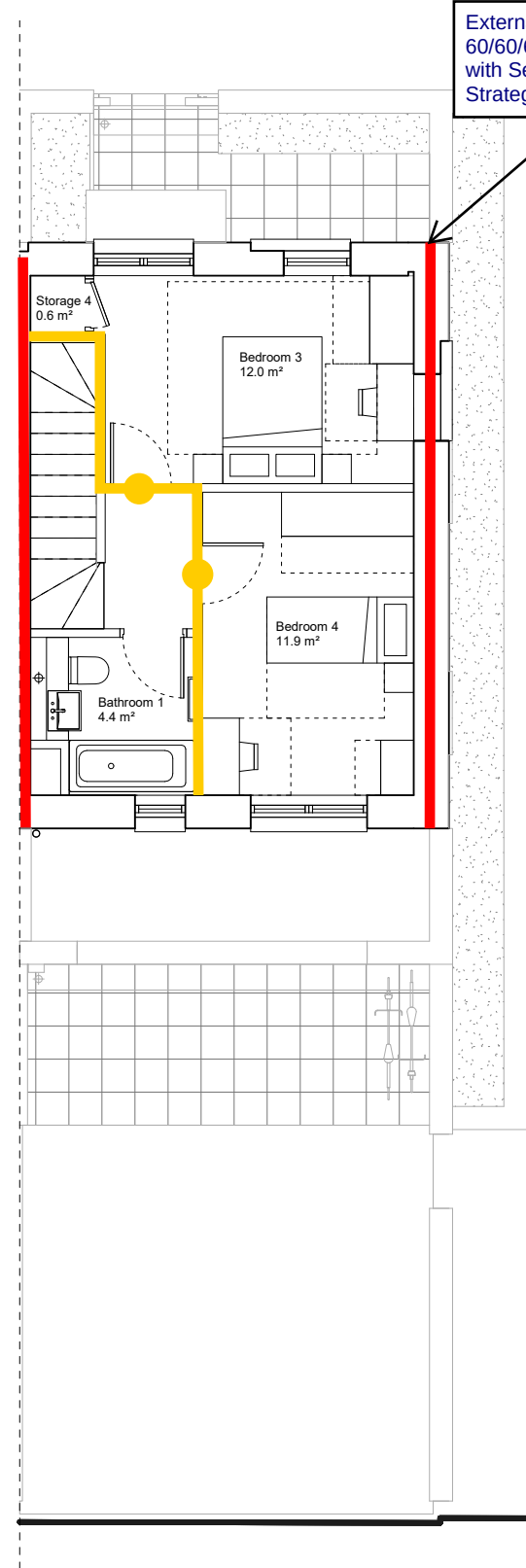
- 30/30/30 FRR
- 60/60/60 FRR
- 90/90/90 FRR
- 120/120/120 FRR

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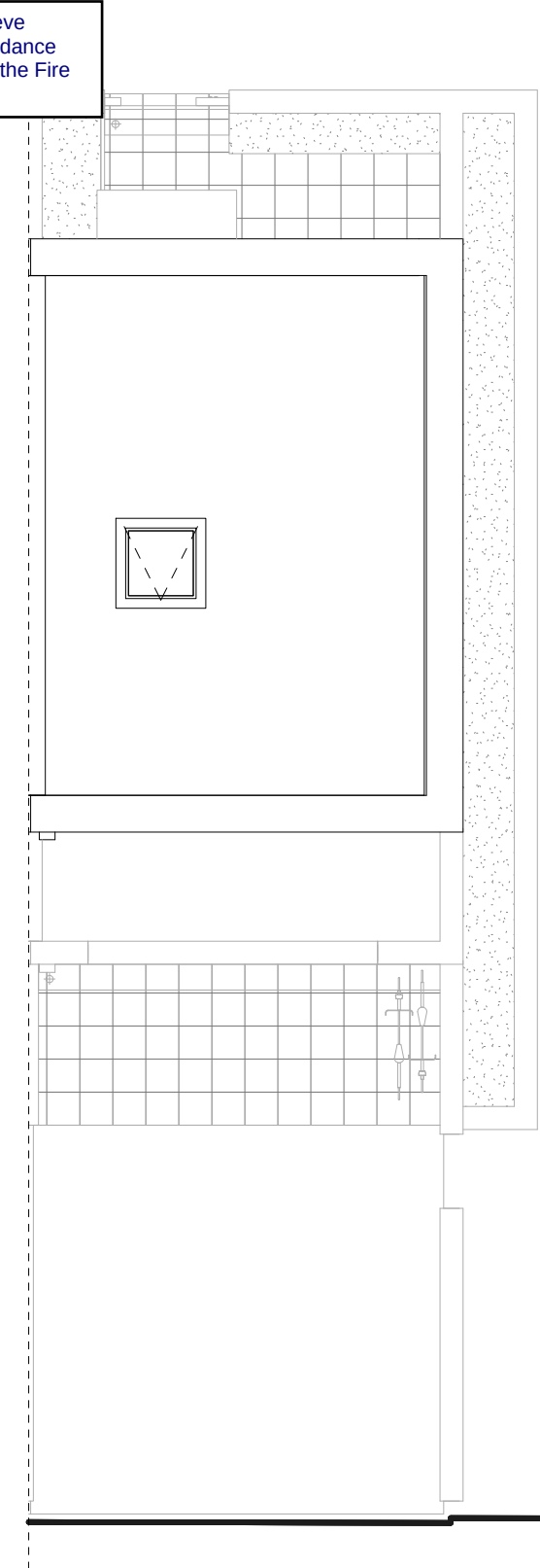




2 Unit Type 4B6P-B-03 - First Floor Plan
1 : 50



3 Unit Type 4B6P-B-03 - Second Floor Plan
1 : 50



4 Unit Type 4B6P-B-03 - Roof Plan
1 : 50

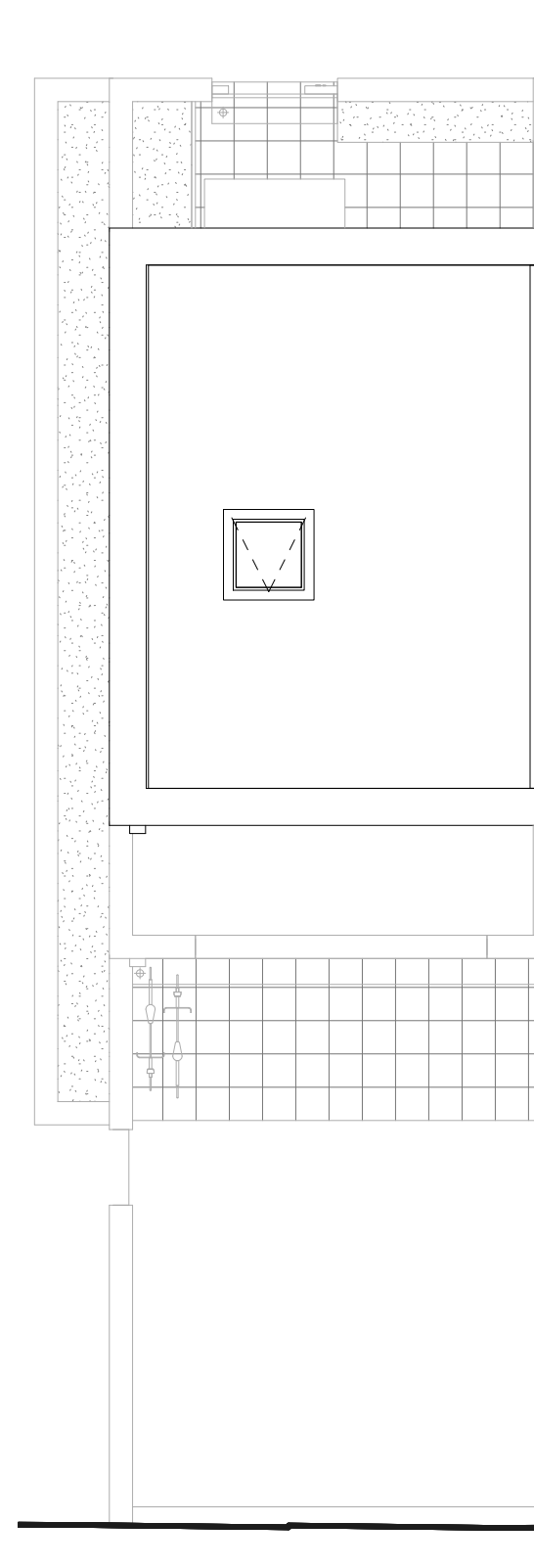
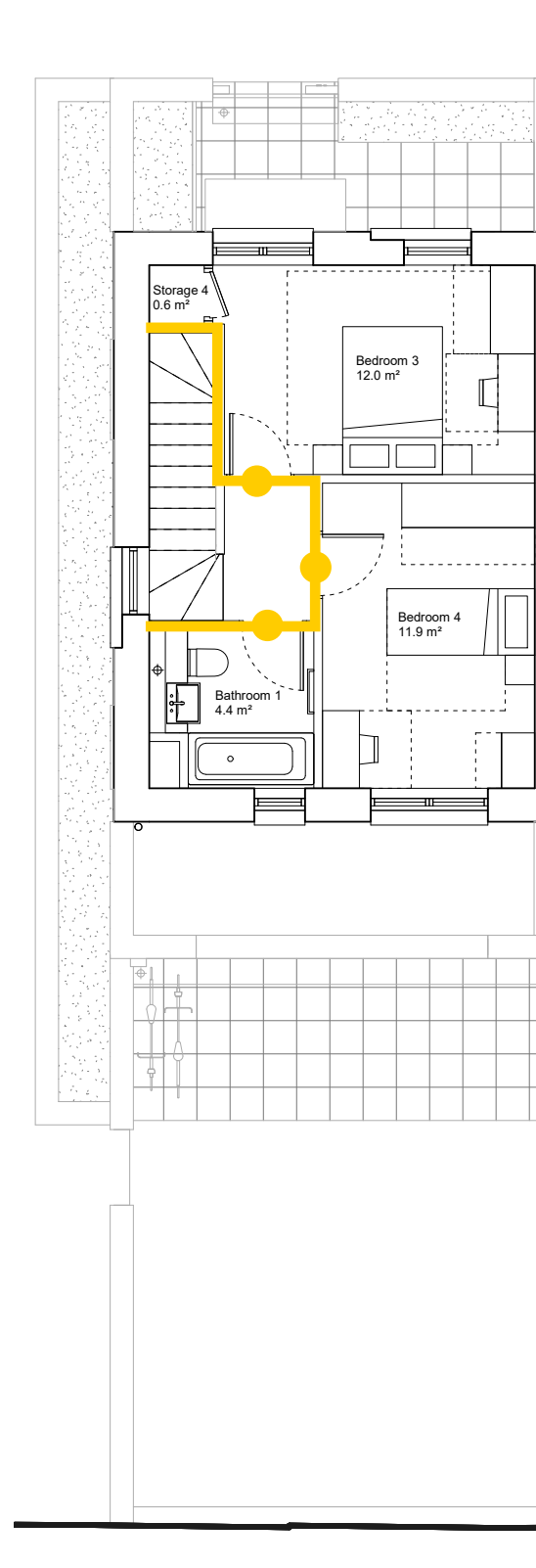
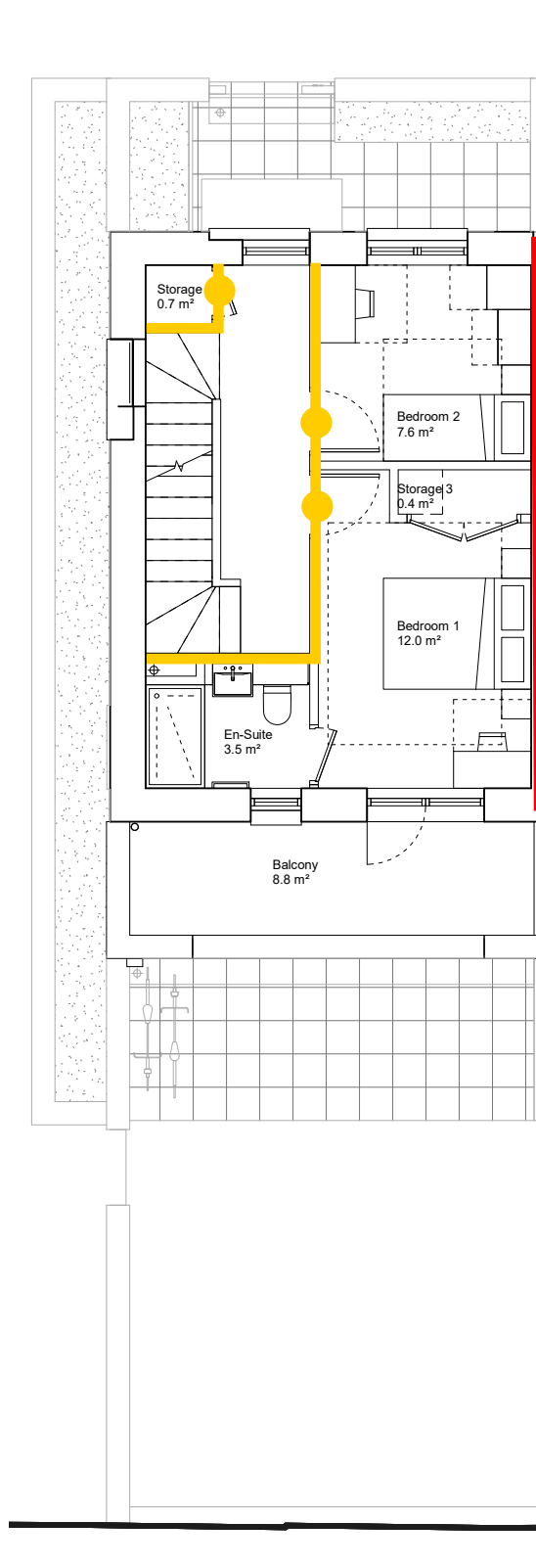
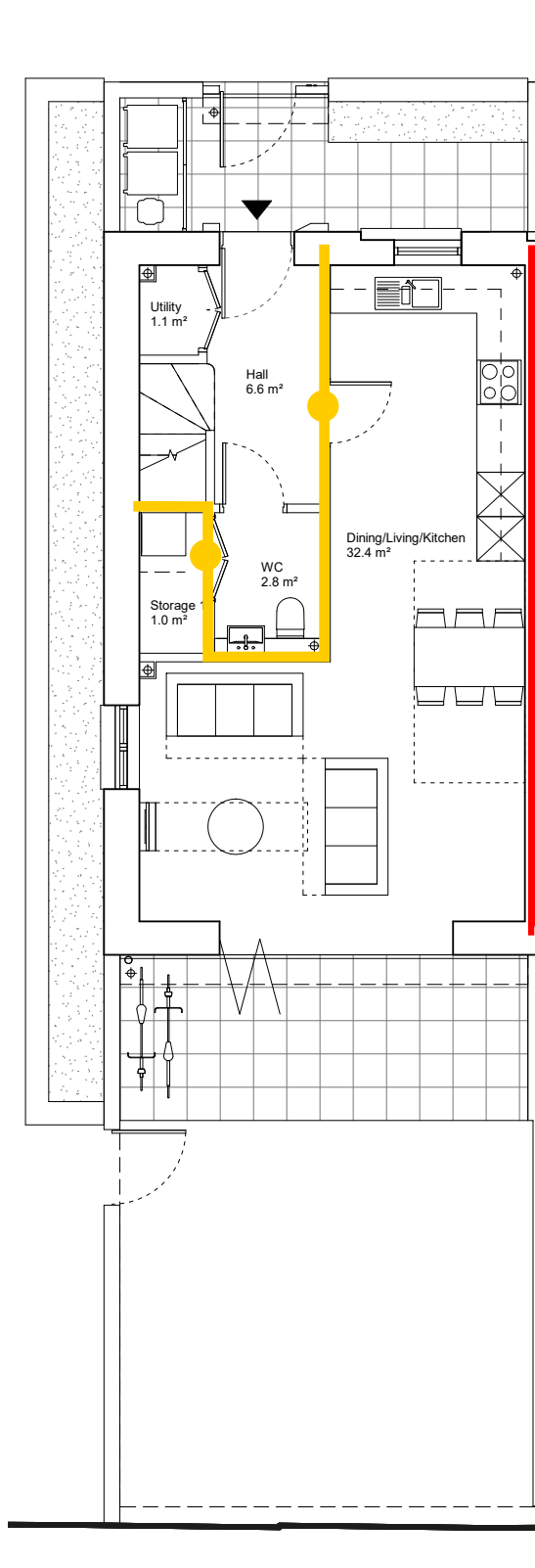
SUMMARY

Unit Type	4B6P-B-03
Unit Size	4B6P
Tenure	Private Sale
Building	B
Accessibility	M4(2)
Total Floor Area (NIA)	120.15 m²

Legend:

	FD30 Door		FD30S Door		30/30/30 FRR
	FD60 Door		FD60S Door		60/60/60 FRR
	FD90 Door		FD90S Door		90/90/90 FRR
	FD120 Door		FD120S Door		120/120/120 FRR

Project Name:	St Ann's New Neighbourhood					
Drawing Name:	Block B Unit Type 03					
Drawing Reference:	AFF_20708_04_St Ann's New Neighbourhood_Block B_FSD_02					
Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By JO



2 Unit Type 4B6P-B-04 - First Floor Plan
1:50

3 Unit Type 4B6P-B-04 - Second Floor Plan
1:50

4 Unit Type 4B6P-B-04 - Roof Plan
1:50

SUMMARY

Unit Type	4B6P-B-04
Unit Size	4B6P
Tenure	Private Sale
Building	B
Accessibility	M4(2)

Legend:

- FD30 Door
- FD60 Door
- FD90 Door
- FD120 Door

- FD30S Door
- FD60S Door
- FD90S Door
- FD120S Door

- 30/30/30 FRR
- 60/60/60 FRR
- 90/90/90 FRR
- 120/120/120 FRR

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Project Name:		St Ann's New Neighbourhood						
Drawing Name:		Block B Unit Type 04						
Drawing Reference:		AFF_20708_04_St Ann's New Neighbourhood_Block B_FSD_02						
Date:	11/09/23	Drawn By	HL	Checked By	MD	Approved By	JO	