

Watts Close, London
Detailed Fire Strategy

30th November 2021

Pellings

Revision History

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1. Introduction

- 1.1.1 BB7 has been commissioned by Pellings to produce a Detailed Fire Strategy for the proposed new build development at Watts Close, London providing residential accommodation.
- 1.1.2 This report details the recommendations for fire safety features to satisfy the functional requirements of Part B of Schedule 1 of the Building Regulations 2010 on the basis of following published fire safety guidance and fire engineering principles.

1.2 Legislation

- 1.2.1 Under the Building Regulations a building owner is required to provide an adequate level of life safety to the building by providing suitable means of escape, means of warning occupants of a fire, limiting internal fire spread, protecting adjacent property from fire, and facilitating Fire Service operations. This can be achieved by the adoption of standard guidance as documented within Approved Document B (ADB) Volume 1/2 2019 Edition. However, ADB further recognises that alternative solutions may provide a more appropriate design. The use of an alternative approach is detailed in ADB, Use of Guidance page 3/4:

“The fire safety requirements of the Building Regulations will probably be satisfied by following the relevant guidance in this approved document. However, approved documents provide guidance for some common building situations, and there may be alternative methods of complying with the Building Regulation requirements.”

- 1.2.2 It should be noted that this report considers the requirements of the Building Regulations only. There may be additional fire safety features requested by the end user or operator. The relevant parties should be consulted to conform if there are any additional non-Building Regulations requirements of the scheme. It has been confirmed that sprinkler protection is to be provided throughout (including escape routes) as part of a client requirement.
- 1.2.3 Unless explicitly stated otherwise in this report, it has been assumed that all aspects of the building are in full accordance with the ADB and/or the relevant British Standards. This report has not yet been approved and should not be used for construction until it is fully approved. It should be noted that the principles detailed in this report must be discussed and agreed with Building Control and the Fire Service.
- 1.2.4 Measures detailed in this report will need to be considered by the responsible person in developing the fire management plan and risk assessment for the development to discharge the operator's responsibility under the Regulatory Reform (Fire Safety) Order 2005 (RRFSO).
- 1.2.5 The following Table 1 outlines the principles to address “The London Plan” publication that is intended to be released by The Greater London Authority. This has been included upon request from Building Control.
- 1.2.6 Measures detailed in this strategy will need to be considered by the Responsible Person in developing the Fire Management Plan and Risk Assessment for the site to discharge the operator's responsibility under The Regulatory Reform (Fire Safety) Order 2005 (RRFSO).

Table 1: Policy D12 Fire Safety

Section	Requirement	Report Reference
A1	Identify suitably positioned unobstructed outside space: a) for fire appliances to be positioned on b) appropriate for use as an evacuation assembly point	Section 8.2
A2	Are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire including appropriate fire alarm systems and passive and active fire safety measures	Section 3
B1	The building's construction: methods, products and materials used, including manufacturers' details	Section 4
B2	The means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach	Section 2
B3	Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans	Section 3.1 provides a summary
B4	Access for Fire Service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and positioning of equipment, firefighting lifts, stairs and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these	Section 8
B5	How provision will be made within the curtilage of the site to enable fire appliances to gain access to the building	Section 8.1
B6	Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.	Section 8.3

1.3 Important Information

- 1.3.1 This report provides the minimum level of protection required regarding compliance for Part B of the Building Regulations. If additional items are required due to property protection or due to the nature of the building, this will need to be advised as soon as possible because changes may be required to be made to the fire strategy.
- 1.3.2 The validity of this report is dependent upon the recommendations being implemented in full and as described. Any subsequent changes to the design by any party which are not agreed with BB7 invalidate the report.
- 1.3.3 It should be noted that all recommendations made in this report are of equal critical importance for life safety and compliance and the report should be read in its entirety. If you have any queries or do not understand anything within this report, please contact us.
- 1.3.4 This report is developed on the basis traditional construction methods i.e. conventional steel or concrete structure being used.
- 1.3.5 It is assumed the most recent iteration of the standards at the date of this report are applicable as we understand it has been and/or confirmed by the Approving Authorities.

- 1.3.6 Any proprietary systems or product used should be confirmed by the manufacturer and installer as appropriate for the use in the application to meet the performance specification of this report.
- 1.3.7 On-going maintenance is critical to life safety systems and all systems referenced in this performance specification should be maintained in full accordance with the manufacturers' recommendations.
- 1.3.8 It is considered that the recommendations in this report will provide sufficient guidance to obtain approval from the relevant authorities and achieve a satisfactory level of safety commensurate with the risks of the occupied premises.
- 1.3.9 This report will be based on compliance with Part B to the Building Regulations as of the date of this report and does not intend on advising on possible changes to the Building Regulations.
- 1.3.10 This report has not yet been approved and should not be used for construction until it is fully approved. It should be noted that the principles detailed in this report must be discussed and agreed with Building Control and the Fire Service.

1.4 Building Description

- 1.4.1 Watts Close involves the demolition of 11 existing bungalows and community building to deliver 18 new homes for council rent. The proposed development will comprise six, two-storey family houses (three and four bedrooms) and 12 apartments (one and two bedrooms) in two, three-storey blocks including two wheelchair user dwellings. The proposals also make provision on-site for two wheelchair parking spaces, amenity and play space, landscaping and cycle and refuse/recycling storage.
- 1.4.2 At ground level, the development has some ancillary areas consisting of a bin store, plant room and general storage.
- 1.4.3 The development has 2 storeys above ground level and is 6.30m in height when measured from the lowest external ground level to the topmost occupied floor.
- 1.4.4 The site plan for the development is detailed in Figure 1.



Figure 1: Development Site Plan

1.5 Project Information

- 1.5.1 Table 2 provides a summary of the information that has been considered to develop this fire strategy. Where the design of the building is referred to in this report, it is based on the drawings listed below only.

Table 2: Drawing Reference

Architects	Description	Drawing Number	Revision
Newground Architects	GA Floor Plan – Level 0	21095-10-001P	-
	GA Floor Plan – Level 1	21095-10-002P	-
	GA Floor Plan – Level 2	20051-10-003P	-
	GA Floor Plan – Roof Plan	20051-10-004P	-
	Proposed Site Plan	21095-00-003P	-

2. Means of Escape

2.1 Evacuation Principle

2.1.1 The principal mode of evacuation for the residential accommodation is a 'defend in place' strategy whereby only the occupants of the apartment of the fire origin will evacuate. This standard approach reflects the high degree of compartmentation present and minimises the impact of false alarms – an important consideration in residential accommodation. The means of escape from the apartments relies on automatic fire detection and protected ventilated corridors. Further evacuation of apartments will not take place automatically and relies on the fire service or the independent action of the occupants.

2.1.2 The evacuation procedure within the ancillary and non-residential accommodation will follow a simultaneous evacuation policy, whereby on the fire alarm activation anywhere in the ancillary areas, all the ancillary accommodation will evacuate simultaneously, without the fire alarm sounding in the residential accommodation.

2.2 Building Population

Apartments

2.2.1 Given that only a single apartment would ever need to evacuate at any one time, the maximum envisaged occupancy in a fire alarm would be c.10 persons, including considerations for guests.

Ancillary Areas

2.2.2 Areas such as plant, storage, refuse stores etc are considered transient spaces as occupants would only be present for a limited period of time. Thus, it is deemed acceptable that the occupancy would not be greater than ten persons.

2.1 Horizontal Means of Escape – Residential Apartments

Standard Apartments

2.1.1 The travel distances within these apartments should be limited to 9.0m in a single direction. Where the internal travel distances are extended over 9.0m from the furthest point in the apartment to the entrance door, protected entrance halls should be provided. Protected entrance halls would consist of a fire rating of REI 30 to the internal corridor, provided with FD 20 fire doors in line with the recommendations of ADB.

2.1.2 An example of this is indicated within Figure 2.

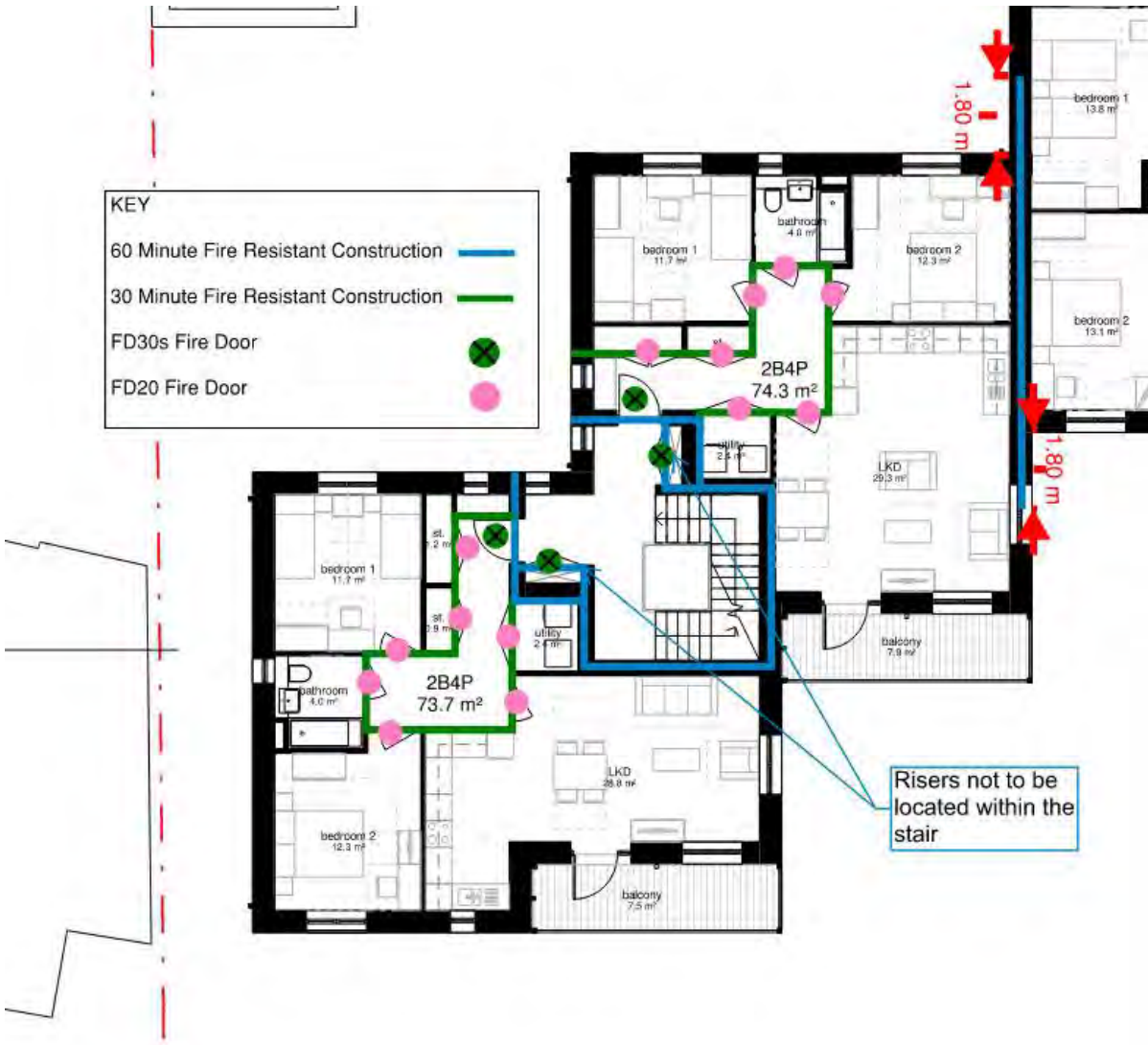


Figure 2: Protected Entrance Hall

Townhouses

2.1.3 In accordance with ADB, townhouses that are less than 4.5m above ground level should be provided with a hallway fire rated to 30 minutes with FD 20 fire doors, with the stair opening into the protected escape route. The proposed layout of the townhouses are indicated within Figure 3.

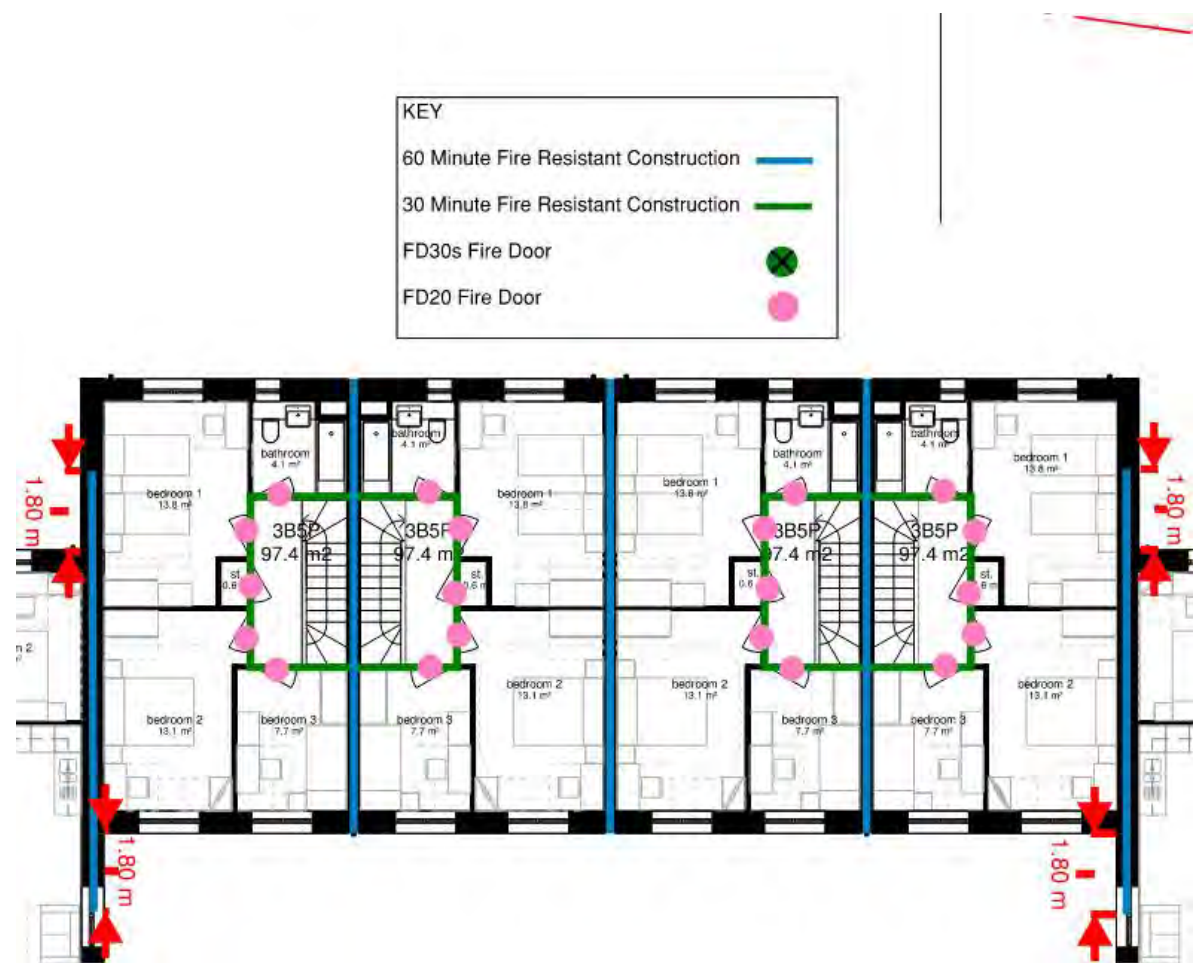


Figure 3: Townhouses

2.2 Common Residential Escape Routes

- 2.2.1 The proposed development is to be designed as a small single stair building as each “block” is served by its own protected stair. The development is required to meet the following requirements:
- No more than three storeys above the ground storey
 - The top storey of the building is a maximum of 11m above ground level
 - The stair does not connect to a covered car park
 - The stair does not serve stores, or other ancillary accommodation. If it does, they shall be accessed through a protected lobby (minimum of REI 30) with a permanent vent of no less than 0.4m² of permanent ventilation that leads direct to the external open air
 - A 1.0m² Openable Vent (OV) at the head of the stair
 - Risers within the stair subject to agreement with Building Control (see Section 2.4.6)
 - If the distance from the furthest apartment to the stair door is more than 4.5m but less than 7.5m, smoke ventilation will be required. However, if the corridor is less than 4.5m, the stair lobby will not require ventilation to be provided.
- 2.2.2 The design guidance of ADB advises that where a single stair building has no more than two apartments per storey, the apartments can be accessed directly off the stair, provided that the

apartments are provided with a protected entrance hall (that achieves a minimum of thirty minutes fire resistance).

2.2.3 Therefore, if the two apartments on each level opening directly into the stair are provided with a protected entrance hall as noted in the previous paragraph, this approach would be considered acceptable.

2.3 Non-residential Escape

2.3.1 The travel distances in the non-residential areas provided to the scheme externally at ground level are to be in accordance with Table 3.

Table 3: Non-Residential Accommodation Travel Distances

Location	One Direction (m)	More than One Direction (m)
Plant Room	9	18
Bike Store	25	45
Bin Store	25	45

2.3.2 The travel distances stated above are achieved throughout the building, unless stated otherwise in the fire strategy report.

2.4 Vertical Means of Escape

- 2.4.1 The building is provided with a single vertical means of escape to each block, which is indicated as achieving a clear width of c.1100mm
- 2.4.2 The protected stairs discharge internally at ground level, into a protected lobby leading to external. The stairs within the townhouses are required to extend to the final exit.
- 2.4.3 Figure 4 shows the final discharge route at ground floor from the apartments and the townhouses.



Figure 4: Final Discharge Route

- 2.4.4 A stair of acceptable width for everyday use will be sufficient for escape purposes. The width of the stair is noted as measuring c.1100mm which is acceptable for use within in the development. This is on the basis that the guidance of ADB only requires the stair to be suitable for everyday use.
- 2.4.5 The protected stair enclosure should be a sterile area, with no services, risers, or similar opening into the protected enclosure. Where letterboxes are intended to be located internally, it will need to be ensured that the compartmentation is fully maintained. As such, any letterboxes will need to achieve 60 minutes fire resistance and be provided with smoke seals, to limit the passage of smoke.
- 2.4.6 The Approved Document (B) notes that in single stair buildings electricity meters maybe located within the stairways. However, these should be securely locked cupboards and should be separated from the escape route by fire resistant construction. Therefore, based on this statement it would be considered acceptable for separate water risers to also be located within the stair, based on the risk of ignition being significantly low. This would need to be discussed and agreed with the Building Control Body.
- 2.4.7 Each of the protected stairs serving the residential apartments is to be provided with a 1.0m² AOV at the head of the stair.

2.5 Evacuation of Non-Ambulant Persons

- 2.5.1 While not required for Building Regulations, but part of the fire safety management plan, it is critical that adequate provisions are provided for the evacuation of any disabled users. The recommendations of the London Plan advise that buildings should be designed to incorporate safe and dignified emergency evacuation for all building users. In all developments where lifts are installed, as a minimum at least one lift per core should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building.
- 2.5.2 On occupation, residents may be present with any combination of disabilities throughout the premises. Visitors to the flats will be the responsibility of the tenants. It is recommended the client informs the future responsible person for the premises (under the Regulatory Reform (Fire Safety) Order 2005) [RRO] to undertake an assessment towards a tenant's ability to react to a fire within the premises on taking up residence.
- 2.5.3 The responsible person under the RRO should provide information and regularly remind tenants on the fire procedures by providing leaflets and where necessary encouraging new tenants to have a home fire safety check by the local Fire Service. Specific measures regarding tenants with any disabilities identified can be discussed and implemented following the home fire safety check in conjunction with relevant local community services. It is advisable that details of any residents who would require assistance in an evacuation by the Fire and Rescue Service should be kept in a premises information box in the entrance foyer which can be obtained on their arrival to allow immediate prioritisation of the affected person(s).
- 2.5.4 The corridors and stair landings would be suitable as a temporary refuge for persons with severe mobility impairment to wait for assistance due to the layout and fire resisting construction (very few occupants should be using the stairs for evacuation at any one time, such that the implications of restrictions in the escape routes would be minimal).

2.6 Doors on Escape Route

- 2.6.1 Access control measures incorporated into the design of the building which restrict access or egress from the building should not adversely affect the means of escape. If some escape routes are secured outside of normal hours, the remaining measures should be sufficient to allow safe egress of any persons left within the building. This should be assessed and detailed as part of the fire strategy, both of which are to be produced by the building operator.

- 2.6.2 When the building is occupied, all electrically powered locking mechanisms are to return to the unlocked position on operation of the fire alarm system or loss of power. The door should also be provided with a manual door release unit complying with BS EN 54-11 on the side approached by people making their escape.
- 2.6.3 All escape routes will have a clear headroom not less than 2m and not less than 1.2m wide.
- 2.6.4 Doors on escape routes should:
- Be hung to open not less than 90 degrees;
 - Should be sufficiently recessed to prevent its swing from encroaching on the required egress route of the escape route or stair;
 - Provided with vision panels if they are provided to sub-divide corridors or where doors are hung to swing both ways; and
 - Only fitted with lock or fastenings which are readily operated, without the use of a key and without having to manipulate more than one mechanism.
- 2.6.5 Doors on escape routes servicing more the sixty people should:
- Be provided with panic fastenings in accordance with BS EN 1125 if locks are required.
 - Should be hung to swing in the direction of escape, if escape is available in both directions these doors should be double swing door sets.
- 2.6.6 Where double doors are provided the width of one of the leaves should be not less than 850mm.
- 2.6.7 Doors on routes that act as a final exit from the stair will need to be the same width.
- 2.6.8 Guidance for measuring door widths is given in Figure 5.

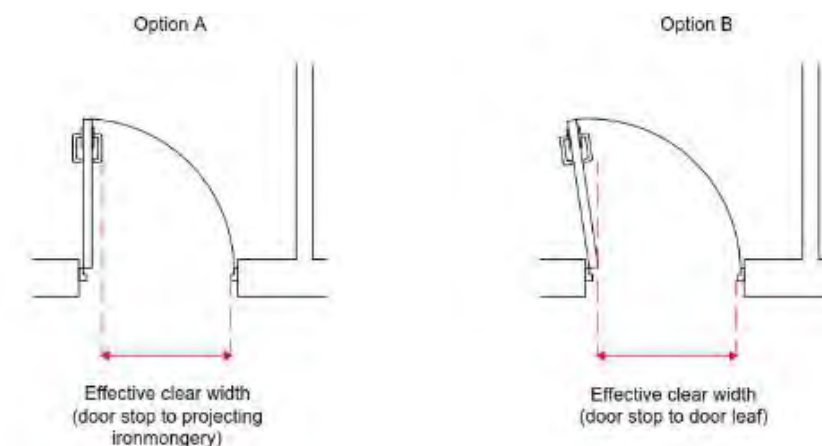


Figure 5: Measuring Clear Widths of Doors

2.7 Emergency Escape Signage

- 2.7.1 Fire escape signs are to be provided to guide occupants from any point in a building via a place of relative safety (the escape route) to the place of ultimate safety (outside the building). Exit and directional signage should be provided in accordance with the requirements of:
- BS ISO 3864-1, BS 5499-4 and BS EN ISO 7010:2012+A7:2017.
- 2.7.2 Signage is provided to identify the primary escape route from each location within the building. To achieve this, the following principles have been adopted.

- At least one escape route or doorway leading to an escape route should be visible from any place within every room or enclosure (with the exception of the internal apartments).
- Where direct sight of the escape route is obstructed, additional signage to be considered.
- Escape route signage is to take precedence over all other signs.
- All changes of direction in corridor, stairways and open spaces forming part of an escape route will be marked with intermediate signs. Each intermediate door or junction will also be similarly signed.
- Signs are not to be fixed to doors or sited where they are obscured by open doors.

2.7.3 Escape route signs are to be sited conspicuously within the normal field of vision. The following principles, which will assist the evacuating occupants to predict the location of successive signs, should be applied:

- Signs above doors or open spaces should be mounted between 2m and 2.5m from floor level, measured to the base of the sign and be sited as close to the centre line of the escape route as practicable.
- Signs sited on walls should be mounted between 1.7m and 2m from floor level to the base of the sign.
- Signs should be sited at the same height throughout the escape route, so far as is reasonably practicable.

3. Fire Safety Systems

3.1 Automatic Fire Detection and Alarm (AFDA)

3.1.1 A summary of the fire alarm and detection required to the Watts Close development has been provided in Table 4, with details on each system listed below. Where referred to in this section, a “Category L” system is a life safety detection system designed in accordance with BS 5839-1 for use in non-domestic areas, a “Category LD” system is a life safety system designed in accordance with BS 5839-6 for use in domestic areas.

Table 4: Fire detection and Alarm Summary

Area	Minimum Coverage	British Standard	Manual Call Points	Sounders
Residential Accommodation	Grade D2, Category LD3	BS 5839-6	No	Yes
Common Corridor	Category L5	BS 5839-1	No	No
Ancillary Areas to Residential	Category L3	BS 5839-1	Yes	Yes

- 3.1.2 ADB states that all apartments should be provided with automatic fire detection and alarm to standard of at least a Grade D2, Category LD3 system, designed and installed in accordance with BS 5839-6
- 3.1.3 A Category L5 fire detection and alarm system will be provided in the stair lobby and stairs to activate the smoke control system. The system is provided to actuate the smoke ventilation only and will not act as a means of warning occupants of a fire. The system will consist of smoke detectors only, with no manual call points or sounders. This is due to the ‘defend in place’ policy to be adopted and therefore, sounders in corridors will cause confusion.
- 3.1.4 It is proposed to provide a Category L3 automatic detection system to all the ancillary areas of the development, which will include sounders and manual call points, to all the ancillary areas in accordance with BS 5839-1.
- 3.1.5 Except for in residential apartments and common stair serving residential accommodation only, Manual Call Points are to be located on escape routes and at all storey exits to open air, including where exits are not specifically designed as fire exits. The distribution of the manual call points should be such that no one needs to travel more than 45m to reach the nearest one. It should be noted that the activation of a manual call point should not trigger any sounders on the residential levels to facilitate the ‘defend in place’ evacuation policy.
- 3.1.6 The position of the fire alarm panels are to be located in such a place that it is visible from the exterior, such that the Fire Service can assess the panel before entering the building.

3.2 Automatic Opening Vent (AOV)

- 3.2.1 A 1.0m² Openable Vents (AOV) is required at the head of each stair to provide ventilation to the stair.
- 3.2.2 AOVs opening to outside air should conform to BS EN 12101-2 and should:
- Be outward opening;
 - Not be top hung;
 - Open to a minimum of 30°;
 - Be clearly identifiable and accessible.

3.2.3 The method to calculate the free area of the OV is highlighted in Figure 6.

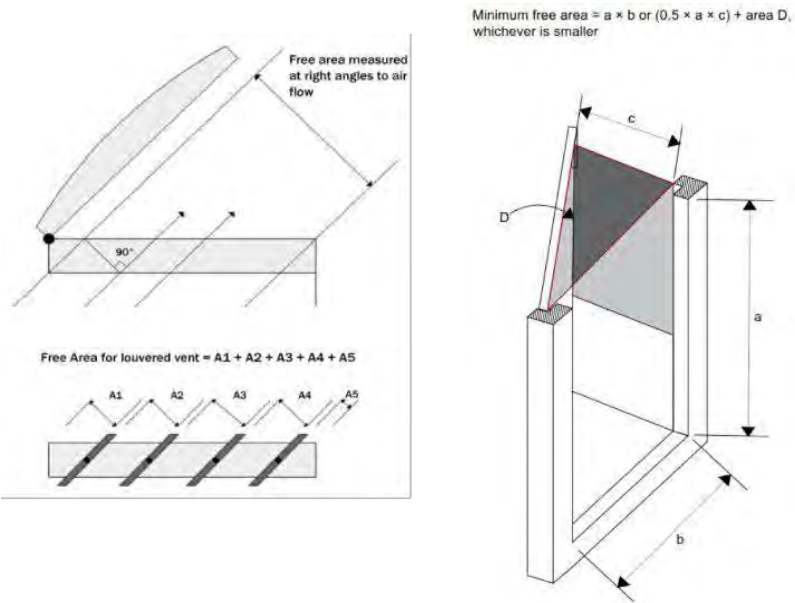


Figure 6: Free Area of Smoke Ventilation

3.3 Automatic Fire Suppression Systems

- 3.3.1 Approved Document B 2019 (with 2020 amendments), requires any residential block or apartment building where the uppermost storey is above 11m from the external ground level to be installed with a sprinkler system throughout. However, as a client requirement sprinkler protection is required to be provided throughout all residential apartments (not townhouses) of the development, which would exceed the minimum requirement of the prescriptive guidance.
- 3.3.2 The sprinkler system provided to the residential areas of the development will be a Category 2 system that will provide a minimum water duration of at least thirty minutes. The proposed residential sprinkler system will be installed in full accordance with BS 9251.
- 3.3.3 Note, revised BS 9251: 2021 implies that communal corridors are to be provided with sprinkler protection.

3.4 Escape Lighting

- 3.4.1 Emergency lighting will be provided in accordance with BS 5266-1 ‘Emergency lighting – Part 1: Code of practice for the emergency lighting of premises’ and BS EN 1838 ‘Lighting applications – Emergency lighting’. This will effectively require the common circulation routes provided with emergency lighting up to a minimum duration of 180 minutes, due to the presence of sleeping accommodation within the development. Emergency lighting should be provided throughout the building in accordance with BS 5266-1 and BS EN 1838. This should be determined as part of the building’s risk assessment.
- 3.4.2 The escape lighting should be sited to provide an appropriate luminance (as per Section 4.2 of BS EN 1838) near each exit door and where it is necessary to emphasise potential danger or safety equipment. The following bullet points indicate some of the critical areas that should be considered:
- At each exit door intended to be used in an emergency.
 - Near stairs so that each flight of stairs receives direct light.

- Near any other change in level.
- Mandatory emergency exits and safety signs.
- At each change of direction.
- At each intersection of corridors.
- Outside and near to each final exit.
- Near each first aid post.
- Near each piece of firefighting equipment and call point.
- Within all stair cores.

4. Internal Fire Spread

4.1 Linings

- 4.1.1 The choice of materials for walls and ceilings can significantly affect the spread of a fire and its rate of growth, even if they are not likely to be the materials fire ignited. It is particularly important in circulation spaces, where the rapid spread of fire is most likely to prevent occupants from escaping. The surface linings are restricted by limiting the surface spread of flames and minimising maximum heat release rates.
- 4.1.2 All surface finishes are to achieve the classification in Table 5 when tested in accordance with the relevant standard and classified in accordance with BS EN 13501-1.

Table 5: Classifications of Internal Linings.

Location	European Class
Small room not more than 4m ² in the residential accommodation i.e. bathrooms	D-s3, d2
Rooms not more than 30m ² in the non-residential areas i.e. storerooms	D-s3, d2
Other rooms i.e. kitchen, bedrooms, living spaces	C-s3, d2
Escape routes, stairs and protected entrance halls	B-s3, d2

- 4.1.3 Parts of walls may be of a poorer performance than specified in the above table; but not less than Class D-s3, d2, provided the total area of those parts in any one room does not exceed on half of the floor area of the room, and is subject to a maximum of 20m² in residential accommodation and 60m² in non-residential areas.

4.2 Structural Requirements

- 4.2.1 Premature failure of the structure can be prevented by provisions for load bearing elements of structure to have a minimum standard of fire resistance, in terms of resistance to collapse or failure of load bearing capacity.
- 4.2.2 The purpose of providing the structure with fire resistance is:
- To minimize the risk to occupants.
 - To reduce the risk to fire fighters who may be engaged on search and rescue operations.
 - To reduce the danger to people in the vicinity of the building.
- 4.2.3 The development is more than 5.0m but less than 18m (6.30m) in height when measured from the lowest external ground level to the top-most occupied floor. Therefore, the development will be required to be provided with sixty minutes applied structural fire resistance.
- 4.2.4 If during the course of the works deficiencies are identified with the structural fire protection, they should be remediated to achieve sixty- minutes fire protection.
- 4.2.5 The period of fire resistance refers to the performance achieved by the structural elements when tested in accordance with the appropriate parts of BS 476 for load bearing elements of structure.

4.3 Elements of the Structure

- 4.3.1 Elements of structure are defined as follows:

- A member forming part of the structural frame of a building or any beam or column.
- A load bearing wall or load bearing part of a wall.
- A floor.
- A gallery.
- An external wall structure supporting fire protected elements for the prevention of external fire spread; and
- A compartment walls.

- 4.3.2 The following are excluded from the definition of elements of structure:

- A structure that only supports a roof, unless:
 - The roof performs the function of a floor such as parking vehicles or as a means of escape; or
 - The structure is essential for the stability of any wall which needs to have fire resistance
- The lowest floor of the building.

- 4.3.3 Where an element of structure forms part of more than one building or compartment, that element should be constructed to the standard of the greater of the relevant provisions.

- 4.3.4 Where one element of structure supports or carries or gives stability to another, the fire resistance of the supporting element should be no less than the minimum period of fire resistance for the other element (whether that other element is load bearing or not).

5. Compartmentation

5.1 Provision of Compartmentation

- 5.1.1 The spread of fire within a building can be restricted by sub-dividing the building into compartments separated from one another by walls and/or floors of fire resisting construction. This is to restrict rapid fire spread, which could trap occupants of the building and to reduce the risk of fires becoming a threatening magnitude.
- 5.1.2 The spread of fire from building to another building can also be restricted by sub-dividing the building in to separate compartments separated from one another by walls and/ or floors of fire resisting construction. Note, these are only indicative as BB7 has not conducted an intrusive survey to any compartmentation within the building. These are intended as guidelines when current legislation has been followed. The exact provisions on site should be confirmed by a specialist Passive Fire Protection subcontractor.

5.2 Compartmentation Requirements

- 5.2.1 The following tables provide a summary of the specific fire compartmentation requirements. These are intended to act as general guidelines.

Table 6: Compartmentation Summary

Floor/Wall Location	Fire Rating (minutes)	European Standard (minutes)
Compartment floors	60	REI 60
Protected Stair	60	REI 60
Walls separating apartments/townhouses	60	REI 60
Protected Entrance Halls	30	REI 30
Walls separating ancillary space from residential accommodation	60	REI 60
Risers	60	REI 60
Bin Store	60	REI 60
Plant Room	60	REI 60
Letter Boxes	60	REI 60
External fire spread – more than 1.0m from the boundary	60	RE60 REI 15
External fire spread – less than 1.0m from the boundary ⁽¹⁾	60	REI 60
Storerooms	30	REI 30
Sub-station	240	REI 240

Notes: (1) please refer to the external fire spread calculation located within Appendix 1 of this report.

Table 7: Fire Door Summary

Door Location	Fire Rating (minutes)	European Standards (minutes)	Self-Closing Device Required?
Protected Stair door	FD 30S	E 30Sa	Yes
Storerooms	FD 30S	E 30Sa	Yes
Risers	FD 30S	E 30Sa	N/A (Keep Closed)
Apartment entrance door	FD 30S	E 30Sa	Yes
Protected Entrance Hall Door	FD 20	E 20	Yes

5.3 Automatic Hold-Open Devices

- 5.3.1 Where automatic hold-open devices are to be installed in the development it is essential that these hold-open devices release automatically in activation of the fire alarm system and failsafe to release the door in the event of a power failure. These hold open devices should comply with BS 5839 Part 3.

5.4 Protection of Openings and Fire Stopping

- 5.4.1 To ensure all fire separating elements are effective, every joint or imperfection of fire, or opening to allow services to pass through the element suitable fire protection is to be provided by sealing or fire stopping so that the fire resistance of the element is not impaired. If bathroom pods are being provided, the bathroom pod risers should be fire stopped at floor level and the pod walls themselves should not be used to provide any fire-resistance for either compartmentation or structural fire protection.

Fire Stopping

- 5.4.2 All openings for pipes, ducts, conduits or cables that pass through and/or any joints between fire separating elements should be appropriately fire stopped with consideration for a potential thermal movement of pipes and ducts. Where non-rigid materials are adopted or unsupported spans exceeding 100mm are adopted, the fire stopping material should be reinforced with materials of limited combustibility.

Openings of Pipes

- 5.4.3 Where services pass through a fire separating element, the following three fire stopping measures will need to be considered to evaluate the most appropriate fire protection measure.

Method 1 – Proprietary Seals

- 5.4.4 Provide a proprietary sealing system e.g. intumescent collar which has been tested to maintain the fire resistance of the walls, floor or cavity barrier for a pipe of any diameter.

Method 2 – Pipes with a restricted diameter

- 5.4.5 On the provision that the type and internal diameter dimension satisfies the requirements in Table 8, fire stopping such as cement mortar or intumescent mastic may be used around the pipe.

Method 3 – Sleeving

- 5.4.6 A pipe of lead, aluminium alloy, fibre cement or uPVC with a maximum nominal internal diameter of 160mm may be used with a sleeving of non-combustible pipes. The specification for non-combustible and uPVC are given in Table 8.

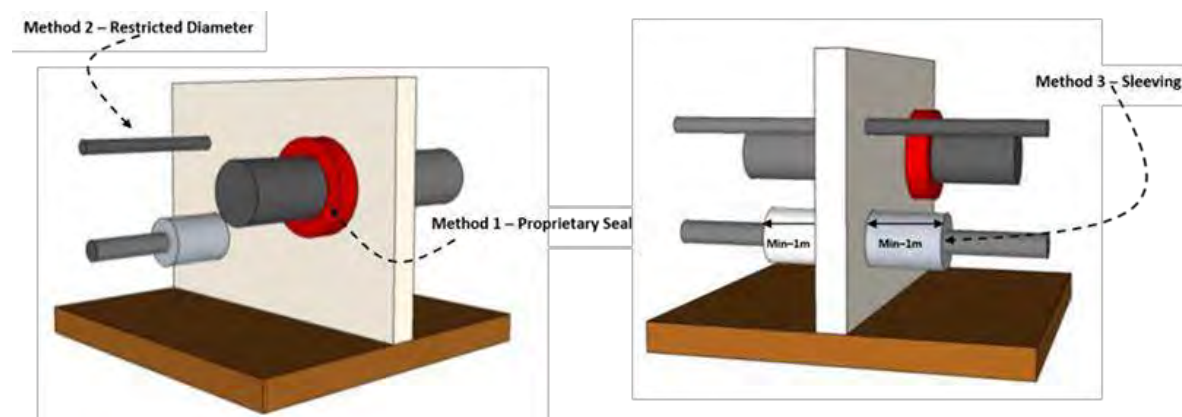
Table 8: Maximum Nominal Internal Diameter of Pipes Passing Through a Compartment Wall/Floor

Situation	Pipe material and maximum nominal internal diameter		
	Non-combustible material ¹	Lead, aluminium, aluminium alloy, uPVC ² , fibre cement	Any other material
Structure enclosing a protected shaft which is not a stairway or lift shaft	160	110	40
Compartment wall or compartment floor between apartments	160	160 (stack pipe) ³ 110 (branch pipe) ³	40
Any other situation	160	40	40

Note 1: Any non-combustible material (such as iron, copper or steel) which if exposed to a temperature of 800 degrees 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 complying with BS 4514 and uPVC pipes complying with BS 5255

Note 3: These diameters are only in relation to pipes forming part of an above ground floor drainage system and enclosed in Method 3. In other cases the maximum diameters against situation 3 apply.

**Figure 7: Service Breaches to Compartment Walls**

5.5 Fire and Smoke Dampers

- 5.5.1 Where necessary, fire dampers should be provided in accordance with ADB, BS 9999 and ASFP Grey Book: Fire and smoke resisting dampers. The fire dampers should be appropriate for the duct and location as recommended in the above guidance documents. Fire dampers should have an E classification (integrity) and leakage-rated fire dampers should be provided with an ES classification (integrity and smoke).
- 5.5.2 Fire dampers are to be operated by smoke detection and thermal fusible link if ducts access or leave a compartment (corridor/stair/riser/etc.)
- 5.5.3 All fire and smoke dampers are to be tested to BS EN 1366-2 and be classified to BS 13501-3. The dampers are to have the same fire resistance (integrity) as the wall or floor they penetrate (subject to a minimum fire resistance of 60 minutes)
- 5.5.4 In ancillary accommodation or other non-residential accommodation, fire dampers should be provided on compartment boundaries. Where ductwork crosses an escape route, fire dampers should be actuated by automatic smoke detection.
- 5.5.5 Where dampers cannot be provided in general ductwork for any reason, the duct should be fire-rated or enclosed in fire-resisting construction (integrity and insulation) to the highest period of fire-rated construction through which it passes. The ductwork would need to be fire rated from

the point it penetrates the compartment wall of the compartment it serves (or furthest compartment it serves if multiple compartments are served) to the point it terminates.

5.6 Fixing of Cables – Fire-resisting Cable Supports

- 5.6.1 It is noted the latest edition of the IET Wiring Regulations (BS 7671:2018) has been release and came into force in January 2019. The previous version includes a requirement that wiring systems in escape routes shall have fire-resisting supports and in the latest edition this extends the requirement to all areas, i.e. any wiring in the building that could fall prior to Fire Service arrival should be restrained to prevent entanglement.
- 5.6.2 All wires need to be supported such that they would not present an entanglement risk to firefighters, it's not just a requirement for wires serving life safety equipment. Cables run along walls should be fixed with metallic ties/clips rather than plastic.

5.7 Cavity Barriers

- 5.7.1 Concealed spaces or cavities in the construction of a building provide a route for smoke and flame spread. This is particularly in the voids above and below the construction of the building e.g. walls, floors, ceilings, roofs, around the windows and compartment walls. The provision of cavity barriers within the voids is intended to restrict the spread of smoke and flames.
- 5.7.2 Fire resistant cavity barriers are to be installed in cavity spaces exceeding 20m in any direction. The cavity barriers will offer a minimum of 30 minutes fire resistance integrity and 15 minutes fire resistance insulation (European Standard E30 & EI15).
- 5.7.3 See Table 9 for a summary of cavity barrier locations and the differentiation between cavity barriers and fire stopping.
- 5.7.4 Table 9 indicates the maximum dimensions of undivided concealed spaces for the different classifications of cavity barriers.

Table 9: Maximum Dimensions of Cavities

Location of Cavity	Class of surface / product exposed in cavity	Maximum dimensions in any direction (m)
		European
Between rood and ceiling	Any	20
Any other cavity	Class A1 Class A2-s3, d2 Class B-s3, d2 Class C-s3, d2	20
	Not any of the above classes	10

- 5.7.5 Any exclusion from Table 9 should be in full accordance with the recommendations and specifications with ADB.
- 5.7.6 Cavity barriers are required at all floors, compartment walls and openings (e.g. windows and doors). Additional cavity barriers are required where a compartment walls meets an external wall of the building.
- 5.7.7 Where a concealed space is undivided area which exceeds 40m in either or both directions on plan there is no limit to the size of the cavity if:
- The room and the cavity together are compartmented from the rest of the building

- An automatic detection system compiling to BS 5839-1 is installed. Detectors are only required in the cavity to satisfy BS 5839-1.
- The cavity is used as a plenum and the recirculation air distribution systems in BS 5588-9 are followed.
- The surface of the material/product used on the construction of the cavity is Class B-s3, d2 or better (European class) and the supports and fixings on the cavity are non-combustible.
- The flame spread rating of any pipe insulation system is Class 1 (National class) or Class C-s3, d2 or better (European class)
- Any electrical wiring in the voids is laid in metal trays, or in a metal conduit
- Any other materials in the cavity are of limited combustibility or Class A2 or better (European class)

5.8 Construction and Fitting of Cavity Barriers

5.8.1 Cavity barriers should be constructed to provide 30 minutes fire resistance (E30, EI15 when exposed from each side separately). The cavity barriers should be tightly fitted to a ridged construction and mechanically fixed in position. Where this is not possible (e.g. junctions with slates, tiles, corrugated etc.) the junction should be fire stopped in accordance with Section 5.4 of this report. Cavity barriers should also be fitted so that their performance is unlikely to be made ineffective by movement of the building due to subsidence, temperature change etc. failure of their fixings, material or construction they abut or collapse of any services penetrating them.

5.8.2 Cavity barriers in a stud wall or partition or provided around openings may be constructed from:

- Steel at least 0.5mm thick
- Timber at least 38mm thick
- Polythene sleeved mineral wool slab, in either case under compression when installed in the cavity
- Calcium silicate, cement-based or gypsum-based boards at least 12mm thick

5.8.3 It should be noted that cavity barriers provided around openings may be formed by the window or door frame if the frame is constructed of steel or timber of the minimum thickness above. Any openings in a cavity barrier should be limited to those for:

- 30-minute fire rated doors
- The passage of pipes which meet the provisions set out in Section 0 of this report
- The passage of cables or conduits
- Openings or ducts (unless fire rated) fitted with a suitable automatic fire damper where they pass through the cavity barrier.

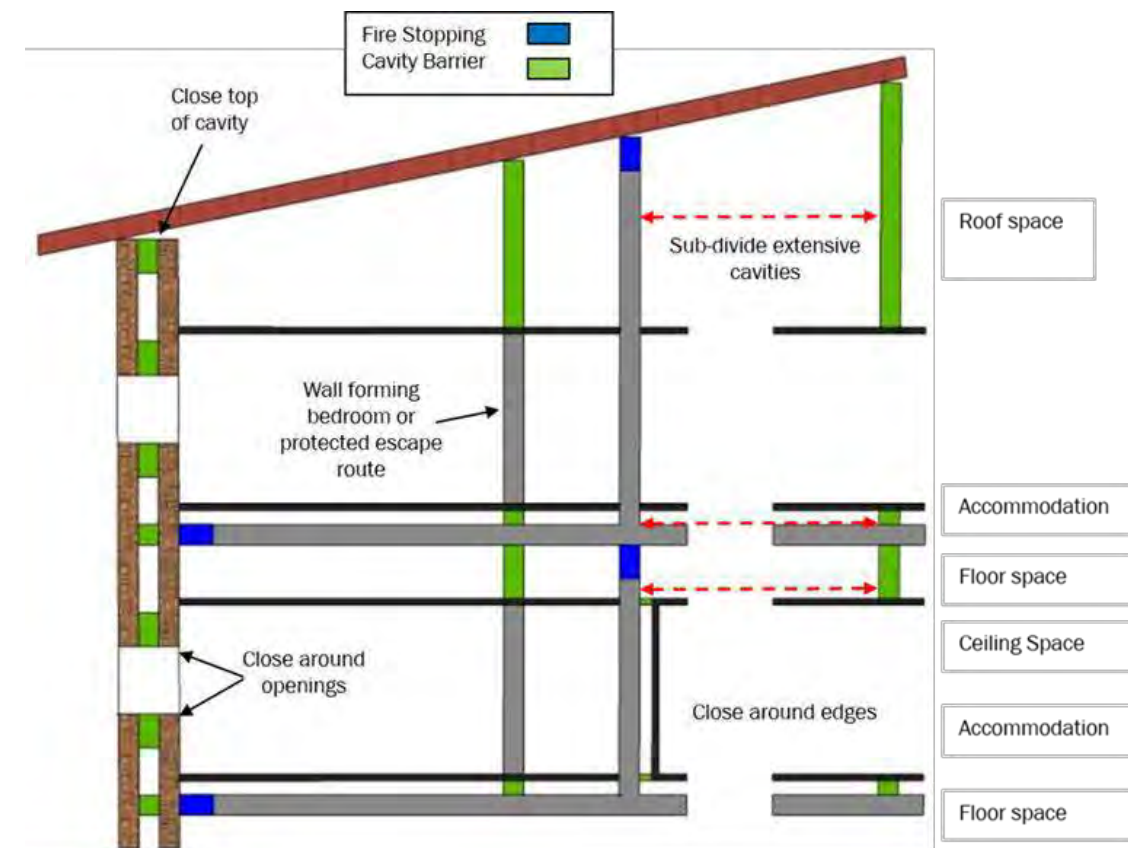


Figure 8: Typical Provision of Cavity Barriers

5.9 Junction of Compartment Wall with the Roof

5.9.1 A compartment wall should achieve both of the following:

- Meet the underside of the roof covering or deck, with fire-stopping to maintain the continuity of fire resistance.
- Be continued across any eaves.

5.9.2 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, should have a covering classified as B_{ROO}-(t4), on a substrate or deck of a material rated class A2-s3, d2 or better, as set out in Figure 9a.

5.9.3 Thermoplastic rooflights that, are regarded as having a B_{ROO}-(t4) classification are not suitable for use in that zone.

5.9.4 As an alternative to the provisions of paragraphs above, the compartment wall may extend through the roof for a minimum of either of the following (see Figure 9c).

5.9.5 Where the height difference between the two roofs is less than 375mm, 375mm above the top surface of the adjoining roof covering.

- 200mm above the top surface of the adjoining roof covering where either of the following applies:
 - The height difference between the two roofs is 375mm or more.
 - The roof coverings either side of the wall are of a material classified as B_{ROO}-(t4).

5.9.6 The requirements for junction of compartment walls with the roof has been highlighted below in Figure 9.

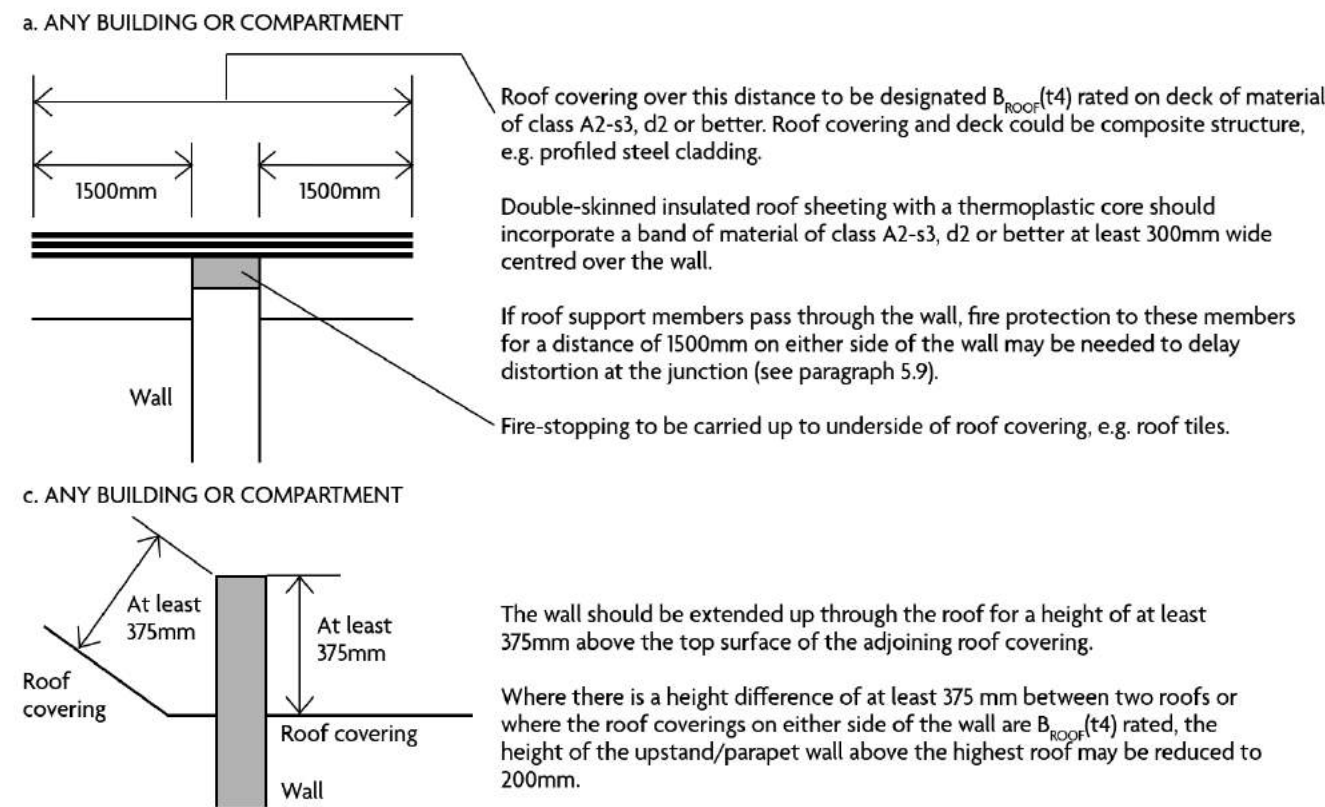


Figure 9: Junction of Compartment Wall with the Roof

6. External Fire Spread

6.1 Introduction

6.1.1 The fundamental requirements of B4 which will need to be met are:

- The external walls are to be constructed so that the risk of ignition from an external source and the spread of fire over their surfaces, is restricted, by making provision for them to have low rates of heat release;
- The amount of unprotected area in the facade is restricted to limit the amount of thermal radiation that can pass through the wall, taking the distance between the wall and the boundary into account; and
- The roof is to be constructed so that the risk of spread of flame and/or fire penetration from an extreme fire source is restricted.

6.2 BR 187

6.2.1 ADB specifies two simple methods for calculating the acceptable amount of unprotected areas in an external wall.

- Method 1 – For small residential buildings which do not belong to Purpose Group 2a (Institutional type premises)
- Method 2 – for most buildings or compartments for which Method 1 is not appropriate.

6.2.2 ADB also references a more precise method described in a BRE report External Fire Spread: Building Separation and Boundary Distances (BR 187, BRE 1991 First Edition) which includes the 'Enclosing Rectangle' and 'Aggregate Notional Area' methods. An update to BR 187 was published in 2014 which has been used to calculate the external fire spread of this building detailed below.

6.3 Site Boundary

6.3.1 Figure 11 highlights the relevant boundary for the site, shown by the red line. Where the site opposes an area unlikely to be developed upon, the relevant boundary has been taken as halfway across that boundary. Areas unlikely to be developed upon include roads, railways and rivers.

Notional Boundary

6.3.2 Generally, the separation distance between buildings on the same site operated/managed by the same organisation are not considered in the external fire spread assessment and would only be required for property protection purposes.

6.3.3 A notional boundary is assumed to exist where:

- Either or both the buildings concerned are in Residential or Assembly and Recreation Purpose Groups; or
- More than one building is constructed on the same site but is to be managed by different organisations.

6.4 Space Separation

6.4.1 The space separation of the building from their relevant boundaries has been assessed in relation to preventing external fire spread. This is achieved by limiting the area of non-fire rated elements of the façade where the separation is less than the minimum requirement within BR 187 – External Fire Spread, Building Separation and Boundary Distances.

6.4.2 The UPA permit for each compartment was calculated considering the distance from the relevant boundary, the compartment height and width along with the occupancy profile.

6.4.3 Calculating the boundary distance was done so, in accordance with BR 187, which illustrates that the boundary distance being taken from out the building. The distance has been taken from outside the building on the basis of a window failing during a fire. When determining the boundary distance, the short distance has been taken.

6.5 Calculating Protected Areas

6.5.1 External fire spread, calculations are based on the alternative approach included in Appendix A of BR 187, 1st edition (now 2.2.4 & 2.2.5 in the 2nd edition) which uses specific calculation rather than indicative tables to provide a precise measurement of unprotected area. An example of the calculation performed for each compartment can be seen below.

$$u = \frac{(d/f)^2}{(wh)}$$

Where:

- d = distance to boundary
- h = height of compartment
- w = width of compartment
- f = factor from Table 3 (in BR 187)

6.5.2 See Appendix 1 for the detailed analysis. Where a compartment size is not included it can be assumed no protection is required.

6.5.3 Table 10 shows the protected area requirements.

Table 10: Protected area requirements

Distance to Boundary	Loadbearing	Integrity (Minutes)	Insulation (Minutes)
More than 1.0m	60	60	15
Less than 1.0m	60	60	60

6.6 Unprotected Area

6.6.1 Small unprotected areas in an otherwise protected area of wall construction are considered to pose negligible risk of fire spread and may be disregarded. Figure 10 highlights the permitted openings in relation to each other and to the lines of compartmentation inside the building.

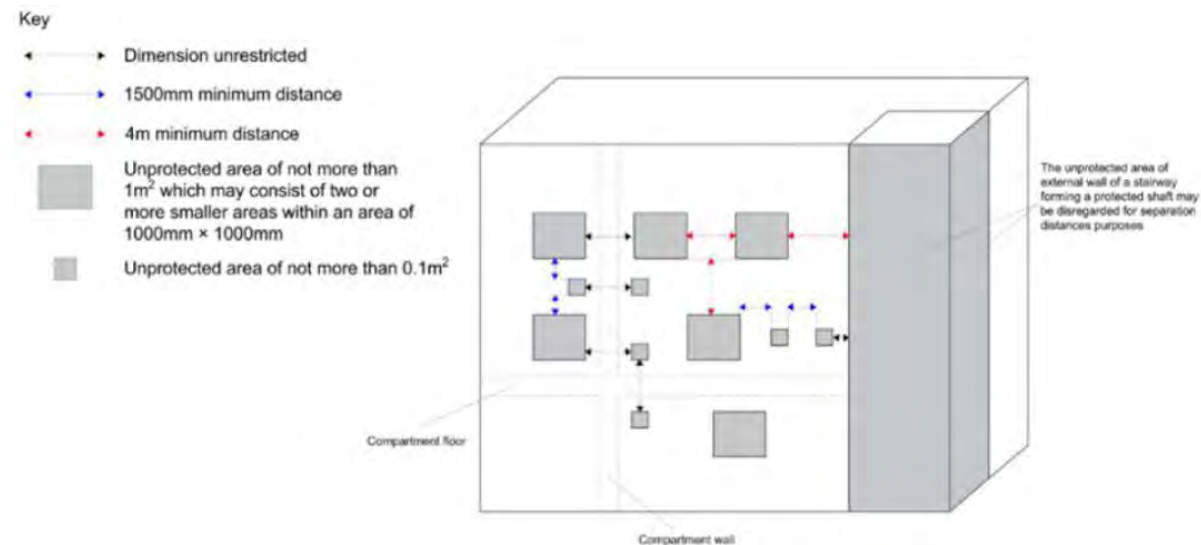


Figure 10: Unprotected Areas

6.7 Cladding, Insulation Materials/Products

Regulation 7(2) of Building Regulations 2010

- 6.7.1 The fire safety guidance would permit combustible materials on buildings with a topmost storey below 18m in height; however, BB7 would recommend against the use of combustible materials in any part of the external walls of the buildings. This is based on recent industry events. Key events including:
- Hackitt Report: no specific recommendation to ban combustible insulation on any building. It identified that the current industry practice did not pay sufficient cognisance to fire safety guides and so proposed an overhaul of the approvals process to ensure that buildings are designed in accordance with the Building Regulations.
 - Public Consultation: following public response to the Hackitt Report "stopping short" of recommending a ban of combustible insulation, the Government issued a public consultation on the use of combustible insulation, with consideration given to banning combustible insulation on a whole, regardless of building height or use;
 - Announcement of the Ban: following the public consultation, the Government announced that combustible insulation would be banned on private residential, student residential, hospital, care home and school buildings over 18m in height. This has been met with some criticism again, with Fire Brigades expressing disappointment that the ban does not include buildings fewer than 18m in height.
- 6.7.2 As the conclusions to the investigation into Grenfell and the review of the Building Regulations have changed significantly from:
- Ensuring that the current framework is followed correctly, with combustible insulation still permitted provided it is tested appropriately and the system installed on a building is the tested system rather than a variation of it; to
 - A total ban on combustible materials on the aforementioned buildings following a lack of faith of the public and Fire Service in the construction industry to follow the proposed framework.
- 6.7.3 Notwithstanding the above, BB7 are not an approvals authority, and currently there is no restriction on the use of combustible insulation on buildings less than 18m. However, we would

advise that due consideration is given to using alternative Limited Combustibility products to allow for reasonably foreseeable changes which could affect the design.

External Wall Survey Form 1 (EWS1)

- 6.7.4 The client should note that upon completion of the building, the mortgage lenders may request an EWS1 form to be completed even though the height of the uppermost occupied storey is less than 18m.
- 6.7.5 As part of the EWS1 assessment, a competent person should use reasonable skill and care to determine the risk of fire spread based on the combustibility of materials present within the external wall. Although there is no specific regulatory guidance that suggests combustible materials cannot be used within the external wall of a building under 18m, there is a risk that the EWS1 assessor will conclude that there is a risk of fire spread due to the presence of combustible materials and consequently they may conclude that remedial work is required.
- 6.7.6 It is therefore strongly recommended that consideration is given to the provision solely materials achieving a classification of at least A2-s1, d0 or better within the external wall build-up to reduce the risk outlined above. It should also be noted that should an EWS1 form be requested this would only be valid for five years following which a reassessment will need to be undertaken.



Figure 11: Site Plan

7. Roof Coverings

- 7.1.1 A roof is defined as having a slope less than 70°. As such, any part of a roof greater than 70° will be classified as forming part of the wall as should follow the guidance in section 5.1 above.
- 7.1.2 The provisions limit the use of roof coverings which will not give adequate protection against the spread of fire over them based on the proximity of the roof to the boundary. The term roof covering is used to describe constructions which may consist of one or more layers of material but does not refer to the roof structure as a whole. The provisions in this section are principally concerned with the performance of roofs when exposed to a fire from outside.
- 7.1.3 Limitations of the roof covering are to be in accordance with ADB, as detailed in Table 11. It should be noted that the classifications in Table 11 have been converted to the European Classification.
- 7.1.4 As the building is within 6m of the relevant boundary, the roofs will require a classification of B_{ROOF}(t4) in accordance with BS EN 13501-5. This is to be confirmed.
- 7.1.5 In residential buildings roofs within 1500mm of compartment walls horizontally should have a covering classified as B_{ROOF}(t4), on a substrate or deck of a material rated class A2-s3, d2 or better.

Table 11: Limitations on Roof Coverings

Designation of covering of roof or part of roof (European Class)	Minimum distance from any point on relevant boundary			
	Less than 6m	At least 6m	At least 12m	At least 20m
B _{ROOF} (t4)	Acceptable	Acceptable	Acceptable	Acceptable
C _{ROOF} (t4)	Not Acceptable	Not Acceptable	Not Acceptable	Not Acceptable
D _{ROOF} (t4)	Not Acceptable	Not Acceptable	Not Acceptable	Not Acceptable
E _{ROOF} (t4)	Not Acceptable	Not Acceptable	Not Acceptable	Not Acceptable
F _{ROOF} (t4)	Not Acceptable	Not Acceptable	Not Acceptable	Not Acceptable

7.2 Roof Photovoltaic (PV) Panels

- 7.2.1 There is currently no prescriptive guidance in relation to Part B of the Building Regulations in relation to PV Panels located on the roof of a building. However, there are research data issued by government/BRE for fire incidents involving PV Panels:
- <https://www.gov.uk/government/publications/fire-incidents-involving-solar-panels>.
- 7.2.2 Also, RISC Authority RC62: Recommendations for fire safety within PV panel installations provides guidance on their design, installation, maintenance etc.
- 7.2.3 The materials considered under the PV panel, should be carefully considered if it is proposed to site PV Panels on a combustible roof such as a timber roof and roofs incorporating combustible roof overlay. If the roof is intended to be of timber, as per the extension construction material, this should be avoided.
- 7.2.4 Generally, these recommendations are given with regards of electrical safety which is to be confirmed by the M&E. In relation to fire safety, the guidance provides the following recommendations but is not limited to:
- Metal roofs are generally conductive and may present hazard.
 - The PV systems on the roof should not extend over compartment lines.

- A suitable and sufficient fire risk assessment should be undertaken in compliance with the Regulatory Reform (Fire Safety) Order 2005 (This would be undertaken post-occupation).
- Consideration for means of isolating power to the installation by Fire Brigade in suitable location. Fire crews need a method of making the PV system as safe as possible on arrival at the scene.
- Some elements of a photoelectric panel installation represent significant potential sources of ignition and these should be addressed in an assessment under the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) by a specialist.

8. Fire Fighting Access & Provisions

8.1 London Fire Brigade (LFB) – Premises Information Box

8.1.1 It is advisable that the end-user ensures a Fire Service Information Box is provided adjacent to entrance to the building in accordance with LFB's Fire Safety Guidance Note GN70. It is essential that only Fire Service information is stored in the box. The following are essential items:

- Operational Contingency Plans
- Simple single line plans and/or schematic representations of the building and any relevant information relating to equipment/fixed installations design and operation provided for means of escape or firefighting operations (fire resistance, access, firefighting facilities, equipment, services, hazards etc.)
- Basic operating instructions for fire protection and fixed firefighting equipment

8.1.2 Systems on any of these plans should be labelled. Where plan symbols are to be used, they should follow the system outlined in the LFB guidance and include a key with a suitable description alongside.

8.1.3 When one or more of the same types of system is installed, they should be individually identified.

8.2 Vehicle Access

8.2.1 Access to the site should be designed in such a way that the fire service can easily access the site in the event of a fire. Provision should be made at the design stage to ensure any new build scheme is provided with adequate and sufficient means for the Fire Service to enter the site.

8.2.2 The specific requirements of Guidance Note 70 (GN70) will be detailed in the forthcoming fire strategy to demonstrate compliance.

8.2.3 Access to the site can be seen in Figure 12 via Crescent Road/Crescent Road. The fire service would access the building at ground level, into the firefighting shaft where they can access each level internally.

8.2.4 The requirements for the pump alliance access to the development has been provided within Table 10, that takes into account the requirements of Guidance Note 29; should any works be undertaken to the existing highways.

Table 12 – Fire Appliance 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	14.0 ⁽¹⁾

Note: (1) Although Guidance Note 29 (GN29) states that the minimum carrying capacity is 14 ton, this above table is subject to agreement with the local Fire Service, as some Fire Services have appliances of greater weight or different sizes

8.3 Fire Service Provisions

8.3.1 As each of the residential apartment blocks within the development are less than 18m in height to the topmost occupied floor when measured from Fire Service access level, the development does not require firefighting shafts to be provided. However, the development is provided with a

protected stair serving each of the residential apartments, which will be provided with the following:

- A protected stair (enclosed in sixty minutes fire resistance); and
- A 1.0m² AOV at the head of the stair.

8.3.2 This is indicated in Figure 12, the Fire Service access the site from Seaford Road and Greenfield Road.

8.3.3 No fire mains are considered to be required within the development as every part of each level within the development can be reached within 45m of the fire appliance. Should all areas not be accessible within 45m of the fire appliance a dry rising main will be required,

8.4 Fire Hydrants

8.4.1 A building requires additional fire hydrants if both of the following apply:

- It has a compartment if an area of more than 280m²
- It is being erected more than 100m from an existing fire hydrant.

8.4.2 If a hydrant is within 100m to the closest entrance of the building and the building has no compartment with an area exceeding 280m² no additional fire hydrants are required.

8.4.3 Each fire hydrant should be clearly indicated by a plate, fixed nearby in a conspicuous position, in accordance with BS 3251.

8.4.4 The location of the nearest hydrant is shown in Figure 12. This hydrant is located just outside the development on Seaford Road. Additional fire hydrants would not be required.



Figure 12: Fire Service Access

9. Emergency Power

9.1.1 Fire protection systems designed to operate in a fire require enhanced provisions to ensure a secure supply is available. The guidance of Approved Document B does not cover secondary power in great detail; therefore the guidance of BS 9991 has been considered.

9.2 Secondary Power Supply

9.2.1 To reduce the risk of the loss of the electrical supply to critical fire safety systems a secondary power system is required to maintain a continuous power supply during a fire condition in accordance with BS 9991.

9.2.2 The secondary power supplies are required to be provided to the following:

- Smoke Control System.
- Emergency lighting.
- Automatic Fire Detection and Alarm Systems

9.2.3 Where secondary power supplies are recommended, these should have a primary supply taken from a public supply and a secondary supply from either

- An alternative utility supply from another substation
- A generator
- An uninterruptible power supply (UPS)
- Batteries

9.3 Wiring

9.3.1 The wiring systems (for both primary and secondary power supply) for the smoke control systems and/or data communication systems that link fire safety systems are required to conform with the following specifications:

- The wiring should consist of either
 - a. Mineral-insulated, copper-sheathed cables conforming to BS EN 60702-1 and meeting the relevant life safety and/or fire safety performance objectives given in BS 7346-6; or
 - b. Cables meeting the relevant life safety and/or fire safety performance objectives given in BS 8491; or
 - c. Be protected against exposure to the fire by separation from any significant fire risk by a wall, partition or floor with a fire resistance of not less than that required of the building.
- The wiring systems should be separate from any circuit provided for any other purpose;
- Jointing and termination methods for cables conforming to BS EN 60702-1 should in addition conform to BS EN 60702-2;
- The wiring systems should be protected from mechanical damage.

9.3.2 Any wiring shall have fire resisting supports as required by BS 7671:2018 (IET Wiring Regulations 18th Edition).

10. Fire Safety Management

Regulatory Reform (Fire Safety) Order

- 10.1.1 The Regulatory Reform (Fire Safety) Order came into force on 1st October 2006. The order consolidates nearly all previous fire safety legislation revoking the Fire Precautions Act and the Workplace Regulations. The Order places a general duty of fire safety care on employees, occupiers and/or owners of businesses to provide and maintain adequate fire precautions.
- 10.1.2 The legislation is supported by requiring a fire risk assessment and a fire safety plan.
- 10.1.3 The fire risk assessment is to be undertaken of the required business by a designated 'responsible person' who is liable to the legislation. This process looks to:
- Identify potential fire hazards.
 - Evaluate the risk from the hazards
 - Identify who would be at risk
 - Identify an adequate level of fire precautions to compensate for the risk
- 10.1.4 The fire risk assessment is to be fully documented if the building has an occupancy of five or more persons.
- 10.1.5 The fire safety management plan details the arrangements to implement, control, monitor and review fire safety standards and to ensure those standards are maintained. The plan describes the arrangements for effectively managing fire safety so as to prevent fire occurring and, in the event of fire, to protect people and property.
- 10.1.6 Both the fire safety management plan and fire risk assessment documentation should have been completed before occupation of the building.
- 10.1.7 A fire safety management plan should be completed on occupation of the building and a fire risk assessment should be undertaken following the occupation of the premises to comply with Article 9 of The Regulatory Reform (Fire Safety) Order 2005.
- 10.1.8 The responsible person on occupation should provide adequate fire safety information to all eventual residents of the flats. This could be in the form of a home user guide to include basic prevention measures and the fire evacuation strategy and procedures. Further information on advice to occupiers of dwellings in residential buildings including an example fire evacuation plan is provided in Annex F of BS 9991:2015.
- 10.1.9 The fire emergency plan ought to be communicated to each resident on occupation of the premise. Residents ought to have a clear understanding of what actions to take should a fire situation change, and they need to evacuate the building.

10.2 Regulation 38

- 10.2.1 Regulation 38 requires that, where work involves the erection or extension of a relevant building, or relevant changes of use of a building, fire safety information shall be given to the responsible person at the completion of the project or when the building or extension is first occupied. The information will facilitate the production of the risk assessment, a requirement under the Regulatory Reform Order. This fire strategy should be maintained throughout the building works and accurately reflect the complete design. Table 13 provides a précis of the active and passive systems provided within the building.
- 10.2.2 It will need to be ensured that the building fabric and fire protection measures are maintained throughout the life cycle of the premises. All fire safety systems, installations and equipment should be maintained in accordance with the manufactures recommendations.

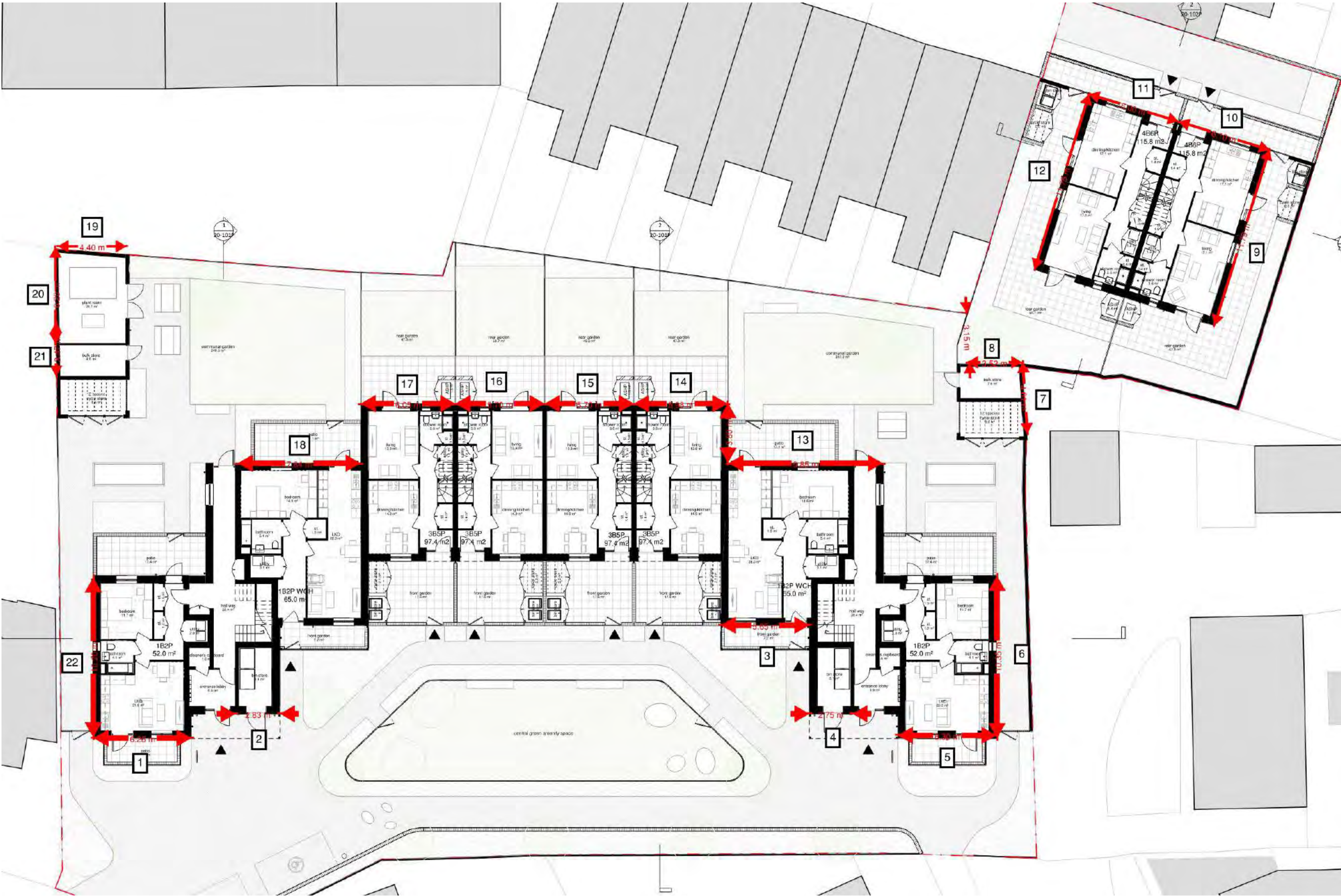
Table 13: Active & Passive Systems

Passive System	Provision	Reference in Strategy
Compartmentation	In accordance with the recommendations of ADB.	Section 5
Fire Doors	In accordance with the recommendations of ADB.	Section 5.2
Internal Linings	In accordance with the recommendations of ADB	Section 4.1
Structural Elements	Each building is to be afforded with 60 minutes applied structural fire protection.	Section 4.2
Roof Coverings	In accordance with the recommendations of ADB. Roof coverings to achieve B _{ROO} - (t4)	Section 7
Cavity Barriers	In accordance with the recommendations of ADB. Fire resistant cavity barriers are to be installed in cavity spaces exceeding 20m in any direction. The cavity barriers will offer a minimum of 30 minutes fire resistance integrity and insulation (European Standard E30 & EI15).	Section 5.7
Signage	In accordance with BS ISO 3864-1, BS ISO 7010 and BS 5499: Part 1, 4 and 5	Section 2.7
Active System	Provision	Reference in Strategy
Alarm & Detection	In accordance with the recommendations of ADB. Apartments – Grade D2, Category LD3 Common Corridor – Category L5 Ancillary Areas – Category L3	Section 3.1
Emergency Lighting	In accordance with BS 5266 and BS EN 1838.	Section 0
Dampers	All fire dampers are to be tested to BS EN 1366-2 and be classified to BS 13501-3. The dampers are to have the same fire resistance (integrity) as the wall or floor they penetrate (subject to a minimum fire resistance of sixty minutes).	Section 5.5
Ventilation	1.0m ² AOV to be provided at the head of each stair, serving a block of apartments.	Section 3.2
Secondary Power	In accordance with the recommendations of BS 9991	Section 9.2
Firefighting System	Provision	Reference in Strategy
Fire Service Access	The firefighting provisions with consist of • A protected stair • 1.0m² AOV at the head of the stairs	Section 8
Hydrants	An existing fire hydrant is located within Figure 12	Section 8.4

11. Conclusion

- 11.1.1 The design of the overall scheme, in general, meets with prescriptive requirements. The key prescriptive requirements have been stated within this report as a performance specification and shall be adhered to by the design team in the design of the project. Unless explicitly stated otherwise all aspects are to be in full accordance with the relevant British Standards and codes of practice. Where codes of practice are restrictive to the design, an alternative (fire engineering solution) has been considered.
- 11.1.2 It is considered that between a culmination of the prescriptive requirements and fire engineering approach, a solution will be provided which is adequate to address the risk, therefore providing a detailed strategy how compliance with the functional requirements of the Building Regulations can be met if the strategy is adopted in full.
- 11.1.3 This report will be discussed with the design team for comment before being issued to the appointed Building Control representative and the Fire Service.

Appendix 1. External Fire Spread



Compartment	Floor	Description	Use	Width of Panel (m)	Height of Panel (m)	Distance to Boundary (m)	Sprinklered?	Unprotected Area (%)	Protected Area (%)
1	Ground	Residential Apartment	Residential	6.25	3.15	10.66	Yes	100%	0%
2	Ground	Refuse Store	Other Non-Residential	2.83	3.15	12.41	No	100%	0%
3	Ground	Residential Apartment	Residential	5.65	3.15	14.69	Yes	100%	0%
4	Ground	Refuse Store	Other Non-Residential	2.75	3.15	8.88	No	100%	0%
5	Ground	Residential Apartment	Residential	6.3	3.15	7.43	Yes	100%	0%
6	Ground	Residential Apartment	Residential	10.35	3.15	1.81	Yes	77%	23%
7	Ground	Bike Store	Other Non-Residential	4.61	3.15	0	No	0%	100%
8	Ground	Bike Store	Other Non-Residential	3.52	3.15	3.15	No	90%	10%
9	Townhouse	Townhouse	Residential	11.79	6.3	3.08	Yes	77%	23%
10	Townhouse	Townhouse	Residential	6.1	6.3	3.6	Yes	100%	0%
11	Townhouse	Townhouse	Residential	6	6.3	3.77	Yes	100%	0%
12	Townhouse	Townhouse	Residential	11.75	6.3	3.23	Yes	82%	18%
13	Ground	Residential Apartment	Residential	9.85	3.15	10.48	Yes	100%	0%
14	Townhouse	Townhouse	Residential	5.98	6.3	7.95	Yes	100%	0%
15	Townhouse	Townhouse	Residential	5.7	6.3	8.8	Yes	100%	0%
16	Townhouse	Townhouse	Residential	5.7	6.3	9.62	Yes	100%	0%
17	Townhouse	Townhouse	Residential	6.05	6.3	8.24	Yes	100%	0%
18	Ground	Residential Apartment	Residential	7.84	3.15	12.21	Yes	100%	0%
19	Ground	Plant	Other Non-Residential	4.4	3.15	0	No	0%	100%
20	Ground	Plant	Other Non-Residential	6.2	3.15	0	No	0%	100%
21	Ground	Bulk Store	Other Non-Residential	4.43	3.15	0	No	0%	100%
22	Ground	Residential Apartment	Residential	10.2	3.15	2.17	Yes	97%	3%

Appendix 2. Compartmentation Drawings

KEY

60 Minute Fire Resistant Construction

30 Minute Fire Resistant Construction

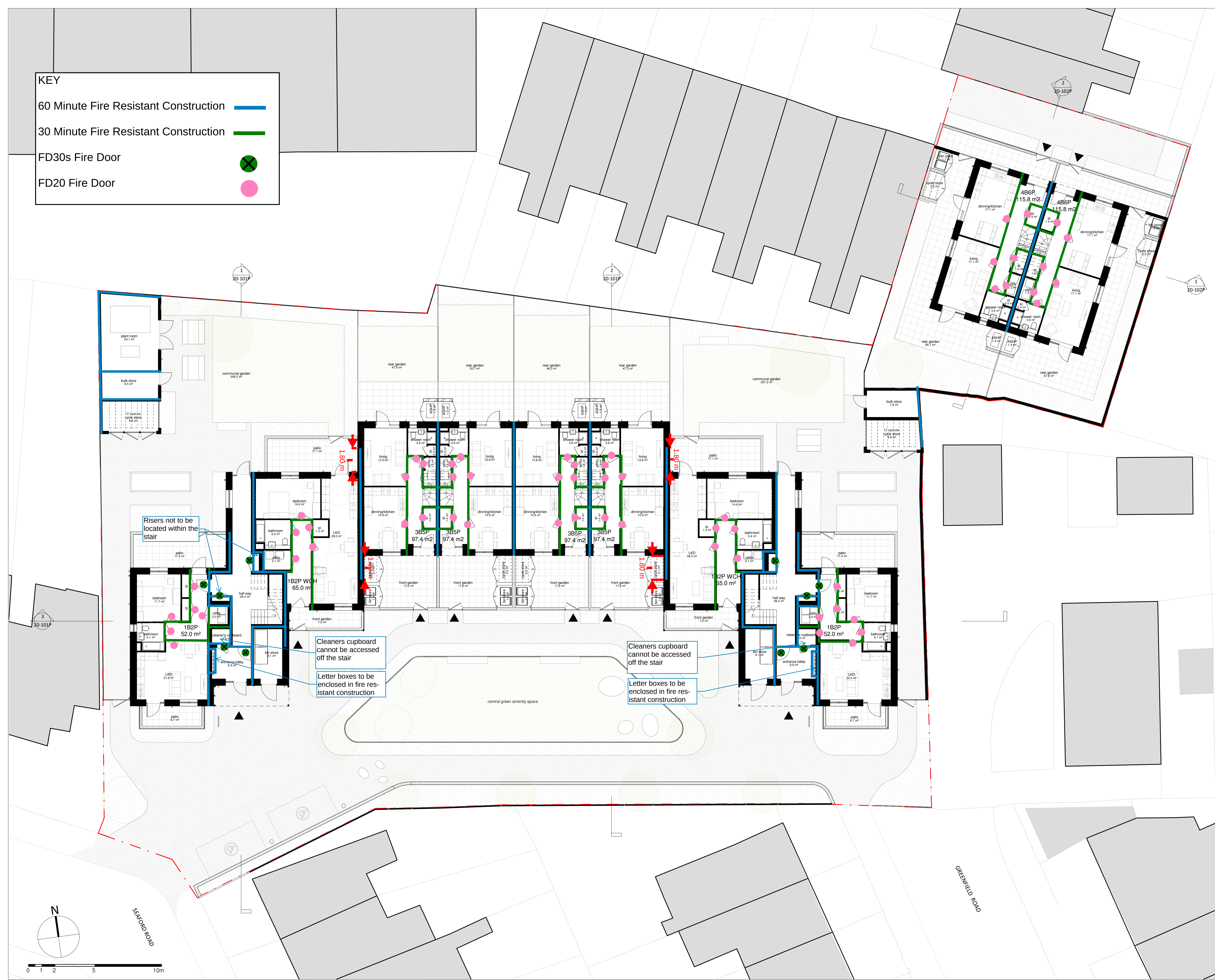
FD30s Fire Door

FD20 Fire Door

Notes

- Do not scale from this drawing.
- Verify all dimensions on site.
- Any discrepancy to be reported to the architect for clarification.
- Drawing and specifications to be read in conjunction with information from all other design consultants and contractors.
- Drawings and specifications to be read in conjunction with Designer's Hazard and Environment Assessment Record in accordance with current CDM regulations.

Application boundary



11/11/21

rev details date

project Watts Close Haringey - N15

drawing GA Floor Plan - Ground Floor Plan

job no 21095 series no 10 drawing no 001 rev -

status Planning

date 11/11/21 scale @ A1 1 : 125 scale @ A3 1 : 250

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KEY

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30 Minute Fire Resistant Construction

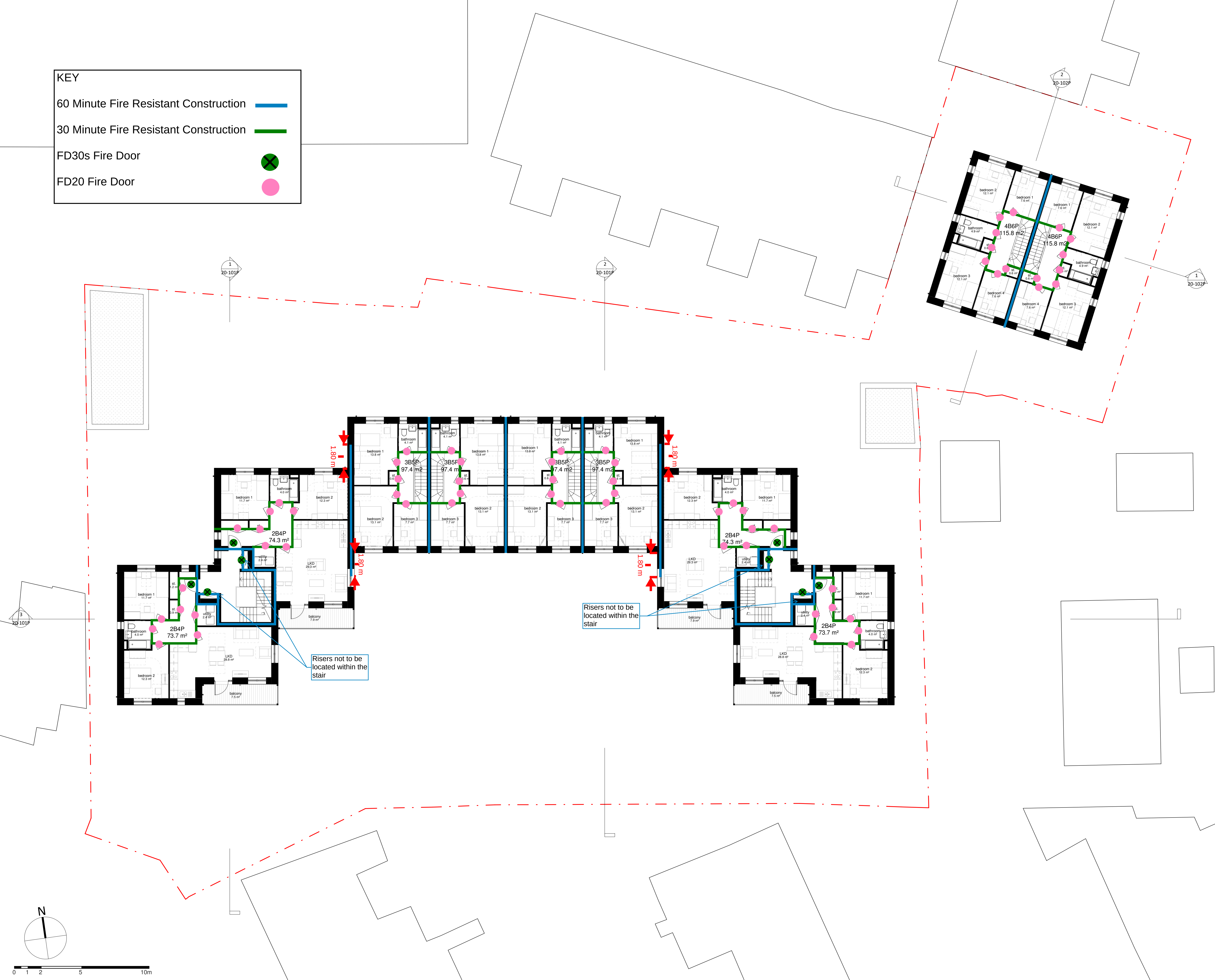
FD30s Fire Door

FD20 Fire Door

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Application boundary



11/11/21

rev	details	date	
project			
Watts Close		Haringey - N15	
drawing			
GA Floor Plan - First Floor Plan			
job no	series no	drawing no	rev
21095	10	002	-
status			
Planning			
date	11/11/21	scale @ A1	scale @ A3
		1 : 125	1 : 250

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KEY

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FD30s Fire Door

FD20 Fire Door

- Notes
- Do not scale from this drawing.

• Verify all dimensions on site.

• Any discrepancy to be reported to the architect for clarification.

• Drawing and specifications to be read in conjunction with information from all other design consultants and contractors.

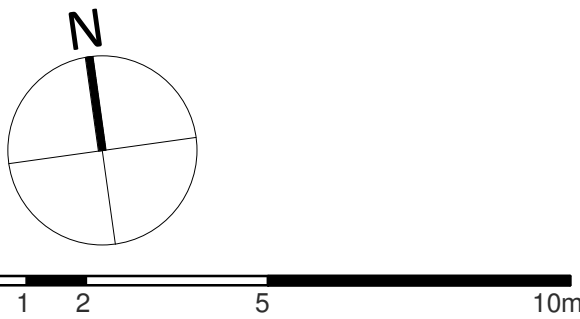
• Drawings and specifications to be read in conjunction with Designer's Hazard and Environment Assessment Record in accordance with current CDM regulations.

Application boundary

Risers not to be located within the stair

Risers not to be located within the stair

1.0m² AOV at the head of the stair



11/11/21			
rev	details	date	
project			
Watts Close		Haringey - N15	
drawing			
GA Floor Plan - Second Floor Plan			
job no	series no	drawing no	rev
21095	10	003	-
status			
Planning			
date	11/11/21	scale @ A1	scale @ A3
		1 : 125	1 : 250
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