RYAN & ASSOCIATES

Project Title: Fire Safety Strategy for the proposed change of use of the existing double height roof plant spaces of the existing North and central blocks of Abbey Gardens for use as a residential block at Kings Road, Reading, RG1 3BA
Date: 15.07.25

Report outlining compliance with Part B of Building Regulations, Building Regulations (Fire Safety)

Date: 18/02/2025
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1.0 AUTHOR QUALIFICATIONS- DECLARATION OF COMPETENCY

This report has been compiled by Eoghain Ryan MSc (Fire Safety) BE (Hons) CENG Chartered Engineer.

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Eoghain has presented at the Fire Officers council on a number of occasions on Building Regulations.

Eoghain is the founder and director of Ryan & Associates. A leading Fire Safety Consultancy established 18 years ago.

Ryan and Associates is a multi-disciplinary chartered engineering consultancy specialising in all your building certification needs.

We are experts in Fire Safety ,Energy and Accessibility and can provide you with a cost effective design while achieving your compliance requirements.

Ryan & Associates are member of Construct Innovate a new government body to ensure MMC meets all of the Building regulations and creating standards for same.

He has over twenty year's experience of applying and assessing Part B of the Building Regulations in Ireland and the UK.

This has worked on on a range of residential and non-residential developments over £100M.

Professional Associations and Education

- BE University of Galway 1999
- MSc Fire Safety University of Ulster Jordanstown 2004
- Member of the Institute of Engineers 2004
- Chartered Member Institute of Engineers 2006

Foreword

The function of the following report is to outline the means by which compliance with BS 9991 2024 where relevant is achieved for the proposed change of use of the double height attic roof plat areas over the north and central blocks for use as duplex accommodation

The building is in three blocks the North, Central and the South block, this strategy pertains to the North and Central blocks which will be fully separated at all levels from the South block. The North and Central blocks are connected at all levels other than lower ground.

A previous PD permission has been granted for the lower floors for the change of use to residential accommodation.

Both blocks are accessed from the lower ground floor.

The attic space of the North block will now form duplex apartments with means of Escape to Stairs 1 and Stairs 2 and will become the 5th floor of the North Block.

The attic space of the Central block will now form duplex apartments with means of Escape to Stairs 3 and Stairs 2 and will become the 6th floor of the Central Block.

Please note all Duplex apartments will be provided with domestic sprinklers and be provided with a protected internal stair.

The upper floors to which this application relates will be served by three number escape stairs two of which also provide the function of a fire fighting stairs in a fire fighting shaft . Vehicle access is off the Kings Road.

The blocks comprise 5 and 6 floors over basement with the height of the top floor/roof space over 20m above ground. The existing basement is provided with commercial sprinklers.

Please note Stairs 1 and 2 will be firefighting shafts due to the floor area however there is no requirement for a third escape stairs and it is proposed that stairs 3 is only an escape stairs however it can be used for means of escape if required.

The proposed development comprises of the following:

Ground Floor:

Provision of 5 number residential units served by two means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This area is compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with two number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

First Floor:

Provision of 9 number residential units served by two means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance

- Adequate means of escape is provided from this level with two number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Second Floor:

Provision of 23 number residential units served by two means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with three number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Third Floor:

Provision of 23 number residential units served by two means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with three number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Fourth Floor:

Provision of 23 number residential units served by two means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with three number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Fifth Floor North Block:

Provision of 11 new Duplex Units number residential units number residential units in the attic space over the north block served by three means of escape. There is also existing attic plant at this level however this does not form part of the strategy and is compartmented from the residential accommodation.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with two number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Sixth Floor Central Block:

Provision of 6 (6 new Duplex Units) number residential units in the attic space over the central block served by two means of escape i.e Stairs 3 and Stairs 2. There is also existing attic plant at this level however this does not form part of the strategy and is compartmented from the residential accommodation.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with two number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

The required fire resistance in accordance with Table 4 of BS 9991 is 90 minutes.

1.1 This document is intended to form part of the Building Regulation submission for consultation with the relevant authorities.

1.2 The proposal is to separate the residential accommodation at lower ground, ground and first floors from the existing Ministry of Justice accommodation and provide dedicated access from lower ground floor to the residential accommodation from ground and sixth floor levels over. The Ministry of Justice accommodation and the Southern block will be fully separated from the residential accommodation at all levels.

1.3 The flats will be accessed by way of protected corridors and the upper floors will be provided with three number stairs for means of escape purposes.

1.4 No changes are proposed to the existing elements of structure as part of this strategy and these will achieve a minimum of 60 minutes 'Table 6 BS 991 2024 as the building is sprinklered') fire resistance, this strategy is for the internal fit out and provision of apartment accommodation to the upper levels and common escape routes. The proposed new works to the Ministry of Justice accommodation will form part of a separate

1.5 The height above ground to the floor of the topmost flats is greater than 11m so all apartments will be provided with domestic sprinklers. The flats will be provided with sprinkler protection. Ancillary accommodation at ground floor will be provided with domestic sprinklers as per Table 3 of BS 9251 2021.

1.6 The change of use will be done in one phase and this report demonstrates compliance of the layouts with Part B of the Building Regulations. On completion the North and Central blocks residential accommodation will be handed over together.

The Fire Safety Strategy report is to accompany the application for Building Control approval please also see accompanying drawings.

INTRODUCTION

This Fire Safety Strategy is for the proposed change of use of the premises known as North and Central Blocks of Abbey Gardens, Kings Road, Reading for use as a residential accommodation comprising 92 apartments as part of a Permitted Development.

There was a previous Fire Statement for Conversion to Residential Usage for the building by Eoghain Ryan of Ryan & Associates which was submitted as part of Gateway 1 to the Building Safety Regulator for approval.

The building is in three blocks the North, Central and the South block, this strategy pertains to the North and Central blocks which will be fully separated at all levels from the South block. wo blocks connected at all levels and accessed from lower ground floor which has been office accommodation prior to the PD permission. The upper floors will be served by three number escape stairs two of which will also provide the function of a fire fighting stairs in a fire fighting shaft . Vehicle access is off the Kings Road.

We are of the opinion the building will fully comply with the requirements of BS 9991 2024 and any additional requirements of the BSR.

The basis of compliance for the proposed change of use is:

- BS 9991 2024

This fire safety statement details how, at this stage of design, the development proposal is in intended to function in terms of:

- the building's construction: methods, products and materials used, including manufacturers' details
- the means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach
- features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans
- access for fire service personnel and 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
- how provision will be made within the curtilage of the site to enable fire appliances to gain access to the building.
- ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.

Please note the following fire protection measures which will ensure the safety of occupants and fire personnel:

- All external cavity walls will be provided with non combustible insulation
- The occupancy numbers for the proposed change of use will be less than the current use.
- The new use will provide increased compartmentation with sprinkler protection in compliance with BS 9251 2021 ensuring fire spread will not be beyond the unit of source.
- The building is of mass concrete and will achieve the required 60 minutes fire resistance for elements of structure.
- The upper floors are provided with two fire fighting stairs and an escape stair. Please note all travel distances will comply with the requirements of BS 9991 2024. Please note there will be a smaller occupancy on each floor plate given the new use and

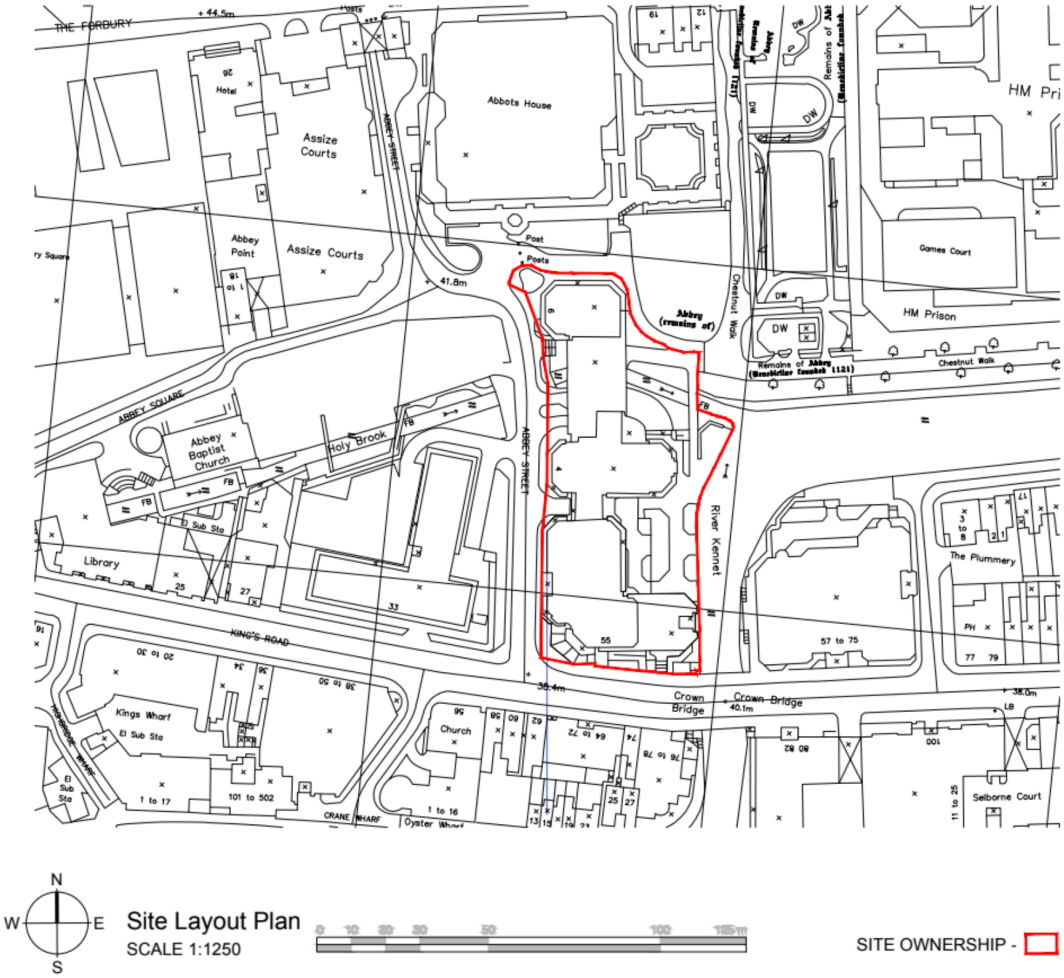
the existing stairs have been sized for a greater occupancy and will easily cater for the proposed numbers.

- The building will be provided with rising mains in both blocks
- Two firefighting shafts will be provided to the residential accommodation.
- Fire Fighting/ Evacuation Lifts to Stairs 1 and 2
- Ventilation will be required for both firefighting shafts and the common corridors to the proposed residential units. It is proposed to provide natural ventilation or mechanical ventilation to the common corridors. If mechanical ventilation this will be demonstrated by CFD analysis its efficacy which will be agreed with the BSR as part of this process

Building Safety Regulator

We can confirm that the building will be registered Building Safety Regulator ('BSR') on occupation.

Site Description:



The site is existing and located the junction of Abbey St and the Kings Road at Reading, RG1 3BA UK. The site is existing and such there is no newer or greater contravention to the existing vehicle access provisions.

The top floor for this application would be 20.35M above ground level to the front of the building and 20.85M above ground level to the rear.

The site is existing and such there is no newer or greater contravention to the existing vehicle access provisions.
Abbey gardens comprises a large office building in three blocks that are connected at varying levels and are of varying heights.

The building is broken into three separate blocks North , Central and South. The North and Central Blocks connected at all levels internally over the varying heights

- North Block comprises ground to fifth floors
- Central Block comprises lower ground to Sixth floors
- South Block comprises lower ground to seventh floors – Does not form part of this application

This Fire Safety Strategy will focus on the change of use of the roof attic plant of the North and Central Blocks for use as residential duplex apartments.

Existing Use North & Central Blocks

Level Basement- car parking
Level Lower Ground – car parking plant and ancillary accommodation
Level 0 - Ground Floor- reception and office accommodation
Levels 1-5- Office Accommodation

Proposed Development:

This Fire Safety Strategy outlines compliance with BS 9991 2024 for the proposed change of use from attic roof plant use to residential duplex units at Abbey Gardens, Reading, RG1 3BA UK, UK.

The works comprise the following:

Lower Ground floor:

Segregation of the existing Ministry of Justice areas and car parks from the residential cores. Provision of a refuse store/ store/plant and a bicycle store.

This is considered acceptable as:

- This area is ancillary to the overall block and is provided with a commercial sprinkler systems
- This area is compartmented from all other accommodation with 60 minutes fire resistance
- Adequate means of escape is provided from this level

Ground Floor:

Segregation of the existing Ministry of Justice areas from the residential cores.
Provision of 5 number residential units served by two means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This area is compartmented from all other accommodation with 60 minutes fire resistance
- Adequate means of escape is provided from this level with two number escape stairs which are solely for the residential accommodation

First Floor:

Segregation of the existing Ministry of Justice areas from the residential cores.
Provision of 9 number residential units served by two means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 60 minutes fire resistance
- Adequate means of escape is provided from this level with two number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Second Floor:

Provision of 23 number residential units served by three means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 60 minutes fire resistance
- Adequate means of escape is provided from this level with three number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Third Floor:

Provision of 23 number residential units served by three means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with three number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Fourth Floor:

Provision of 23 number residential units served by three means of escape.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with three number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Fifth Floor North Block:

Provision of 11 new Duplex Units number residential units number residential units in the attic space over the north block served by three means of escape. There is also existing attic plant at this level however this does not form part of the strategy and is compartmented from the residential accommodation.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with two number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Sixth Floor Central Block:

Provision of 6 new Duplex Units number residential units in the attic space over the central block served by two means of escape i.e Stairs 3 and Stairs 2. There is also existing attic plant at this level however this does not form part of the strategy and is compartmented from the residential accommodation.

This is considered acceptable as:

- All residential units will be provided with Domestic Sprinklers to BS 9991 2024
- This floor and all apartments will be compartmented from all other accommodation with 90 minutes fire resistance
- Adequate means of escape is provided from this level with two number escape stairs which are solely for the residential accommodation
- An evacuation lift will be provided to the floor plate

Residential Units

The height of the top storey of the block is more than 11m so therefore Fire Safety Strategy domestic sprinklers will be provided to residential units in accordance with BS 9251 2021 and as it is above 18m these will be designed as a Category 4 system for a 60 minute duration with a minimum design density of 2.80mm/min with 2 to 4 sprinklers.

Active and Passive Fire Safety Provisions

Existing Provisions:

- Emergency Lighting
- Fire Detection alarm system with L3 coverage
- Dry riser to the main stairs in GW1 and GW2
- Firefighting lifts

Proposed Provisions:

- Domestic sprinkler coverage to all new residential units and common areas other than stairs to BS 9251 2021
- Emergency Lighting
- Fire Detection alarm system with L3 coverage in landlord areas
- Fire detection and alarm system coverage to LD1 standard within residential units.
- Dry riser to the main stairs to Stairs 1 and 2
- Mechanical Ventilation to the residential corridors with CFD analysis
- 1 SQM AOV at roof level or at the highest ceiling level within the stairs
- 1sqm Openable window to the common central stairs where on an external elevation
- Provision of Fire Fighting lift/shaft including stairs to Stars 1 and 2
- Provision of Evacuation Lifts to all stairs

The proposed layouts and provisions will meet the requirements of BS 9991 2024.

Please note two lift per cores will be designated as a fire evacuation lift, suitable for the evacuation of individuals who require level access from the building.

Disabled refuges will be provided to the Lift Lobbies to Stairs 1, Stairs 2 and stairs 3 with a two way communication system with reception at ground floor of blocks the main lobby ain the central block.

Escape from upper floor Levels

Please note the buildings are existing and the stairs are existing. The buildings are constructed as separated parts from the South block with a separating wall which is of non-combustible construction running in a vertical continuous plane. The external wall construction is constructed from non-combustible materials achieving at least a Class A1 material.

Residents with Impairments

This is a residential building not a residential institutional building. The building will be designed for owner occupiers / private rental market. The building will be designed to cater with a normal range of abilities and persons with a range of disabilities including wheel chair users, those with mobility impairments, those with audible and visual impairments and those with dexterity impairments. All of the above will be catered by way of the following:

- Provision of an evacuation lift
- Provision of disabled refuges

- Provision of audible and visual alarm signals
- Provision of PEEPS for those occupants that need to evacuate in the event of a fire.

Residents that cannot self rescue do not reside on their own. They require 24 hour assistance i.e. paraplegics, and those that require hoists.

We consider that should any occupants with severe disabilities that cannot self-rescue will not be living on their own , these occupants require care givers who provide care 24/7 in order for these residents to meet their basic functional needs, all carer-givers that are required to physically assist residents to use sanitary facilities are provided with manual handling training as a function of their role, as part of the evacuation strategy all residents will be provided with a management booklet and persons with disabilities will be provided with PEEPS that both the occupant with needs and the care giver will follow in the event of a fire.

We do not consider appropriate to view a residential building in the same capacity as a residential institutional building or a hospital.

There will also be a building manager on site who will aid evacuation of persons with severe mobility impairments.

Evacuation Alarm

Please note an Evacuation alarm system will be provided in accordance with BS 8629 within the development subject to agreement with the local Fire Brigade prior to implementation of same and a provision for an Evacuation Alert Control and Indicating Equipment (EACIE) system will be provided within units for persons with impairments.

- **Evacuation Alert Systems** – While not a new block the blocks are over 18m and will be provided with an evacuation alert system that allows the fire and rescue service to trigger an evacuation signal within flats.
- **Consultation Requirements** – Sections 4 and 5 of BS 8629 emphasize that fire and rescue services will be involved in system design and that responsibility for evacuation alert zones should be clearly defined.
- **Evacuation Zones** – Each evacuation alert zone is typically an entire floor of a building, ensuring that all flats on the floor receive the alert simultaneously. It is considered that a floor in each block will be a defined zone.

The owner of the development along with a specialist designer in consultation with the local Fire Brigade will agree an Evacuation Alert system per zone and the (EACIE) these will be designed and provided in accordance with BS 54 EN 2 and BS 54 EN 3.

Please note in accordance with Section 11 of BS 8629 :

> *"Every flat, means should be provided to facilitate the installation of additional evacuation alert devices to provide a suitable evacuation alert signal for people who are Deaf or hard of hearing or who have impaired cognitive function, with minimum interference with the integrity of the evacuation alert device circuit in the flat. Any interface installed for this purpose should be suitably labelled "EVACUATION ALERT SYSTEM". A short or open circuit fault at the terminals of any such device should not result in disablement of an evacuation alert sounder in any other flat."*

Provision of refuges

Refuges will form part of the management plan and offer relatively safe areas for people to wait for a short period only. All refuges will meet the following conditions:

a. Refuges will be provided on every storey to the lobby of protected stairway providing an exit from that storey.
b. Refuges do not need to be located within the stair enclosure, but will enable direct access to the stair.
c. The number of refuge spaces does not need to equal the number of wheelchair users who may be in the building. A single refuge may be occupied by more than one person during the evacuation procedure.

The refuge will be sited in:

a. An enclosure such as a compartment (Diagram 3.1), protected lobby, protected corridor or protected stairway (Diagram 3.2).

   i. It is protected (or remote) from any fire risk.
   ii. It has its own means of escape.

Refuges will be a minimum of 900mm x 1400mm in size and accessible by someone in a wheelchair. Where sited in a protected stairway, protected lobby or protected corridor, they will not reduce the width of the escape route or obstruct the flow of people escaping.

All refuges will be provided with an emergency voice communication (EVC) system complying with BS 5839-9. It will consist of Type B outstations communicating with a master station in the building control room (if one exists) or next to the fire detection and alarm panel. In some buildings, wireless technology may be more appropriate.

Refuges and evacuation lifts will be clearly identified. In protected lobbies and protected stairways there will be a blue mandatory sign worded 'Refuge – keep clear' in addition to fire safety signs.

As per the above the proposed new fire safety provisions will greatly increase the fire safety of the premises and will allow for early warning, suppression and will aid any firefighting or rescue efforts.

Evacuation lifts

Stairs 1and Stairs 2 of will be provided with Fire Fighting/ Evacuation Lifts and stairs 3 an evacuation lift as part of the Fire Safety Management plan an such that:

- Lifts are appropriately sited and protected.
- Lifts contain safety features to ensure they remain usable during a fire. Guidance on the design and use of evacuation lifts is given in Annex G to BS 9999.

Where a firefighting lift is provided, it can be used to evacuate disabled people. The Fire Safety Management plan will describe how this would be managed, and what will happen when the fire and rescue service arrives.

Purpose Group:

In accordance with Table 0.1 of Approved Document B, 2010 (Amended 2019 2020 and 2022) the proposed development to which the application relates will contain the following purpose groups:

Purpose Group 1a - "Apartments/Maisonettes"

Fire Safety Design Approach

General

The design is required to comply with the functional requirements relating to fire safety in BS 9991 2024. In order to achieve this, the fire strategy for this building has been developed using the guidance given in BS 9991 2024 for the residential areas and ancillary accommodation.

The guidance within these documents permit the proposed design and change of use to Residential use at the upper levels.

Regulation 38

Regulation 38 of the Building regulations necessitates that the fire safety information for the buildings shall be given to the Responsible Person at the completion of the project or when the buildings are first occupied.

CDM

The Construction (Design and Management) Regulations 2024 (CDM) apply to both the design and construction phases of this project. The primary objective of CDM is to integrate health and safety considerations into project management, encouraging all stakeholders to collaborate in order to:

- Enhance project planning and management from the outset;
- Identify hazards at an early stage, allowing for their elimination or mitigation during design or planning, while effectively managing any remaining risks;
- Focus efforts where they will have the greatest impact on health and safety; and
- Minimize unnecessary administrative burdens

Fire Safety Management

This report focuses primarily on compliance with Building Regulations and does not specifically address fire safety management. However, the effectiveness of the proposed measures depends on maintaining an appropriate level of fire safety management and regular maintenance throughout the building's lifecycle, in line with the Regulatory Reform (Fire Safety) Order 2005. Additional guidance on achieving reasonable fire safety management is available in BS 9997 and through the detailed resources provided on the Ministry of Housing, Communities and Local Government's website.

Property Protection

The client or the building's insurer may require additional measures to address property protection and business continuity. These considerations fall outside the scope of this report, which focuses primarily on compliance with Building Regulations.

It is recommended that the client, their insurer, and any other relevant stakeholders are consulted to confirm whether the measures outlined in this strategy are adequate for property protection purposes.

Materials and Workmanship

It is assumed that all building work will comply with Regulation 7of the Building Regulations. To ensure that the proposed fire safety systems meet the necessary fire performance standards, it is essential that all related products, components, materials, or structures are installed by competent professionals. Where applicable, third-party accreditation or certification should be obtained to verify compliance

Reference Documents:

The main documents referred to throughout this Technical Submission are as follows:

- **BS 9991: Fire safety in the design, management and use of residential buildings – Code of practice : 2024**

  Note: All the clauses / sections in this report refer to the relevant sections in BS 9991: Fire safety in the design, management and use of residential buildings - Code ofpractice

Methods of Construction:

Internal partitions will be constructed from stud construction. External walls are existing and are of concrete construction i.e. concrete panels sitting on the concrete slab with no external vented cavity . All floors are concrete floors.

Methods of Construction:

Internal partitions will be constructed from stud construction.

All residential units will be constructed as separate compartments.

Compartment walls and floors will be constructed to achieve 60/ 120 minutes fire compartmentation for integrity, insulation and load bearing capacity.

No places of special fire risk are proposed within the building. All stores will be enclosed in 30 minutes fire rated construction.

ELEVATIONS

No changes are proposed to the existing elevations as part of this application. Please note the subdivision of the upper floors into separate compartments greatly reduces the risk of external fire spread as the enclosing rectangles are being greatly reduced in addition to the provision of domestic sprinklers so the requirements for external fire spread are said to be met and in this instance greatly enhanced. However Space Separation Calculations have been provided to all elevations on the accompanying Fire Safety Strategy drawings.

FIRE FIGHTING FACILITIES

No changes are proposed as part of this application. The previous fire safety strategy indicated that the building is served by two hydrants which are sited around the building and adjacent the fire tender appliance access route. Please see site layout with locations of the existing Hydrants.

No changes are proposed to the previously approved vehicle access to the site which is available to the all elevations of the building for a fire tender pump appliance.

No changes are proposed to the previously approved fire brigade access and facilities. The building is provided with two number firefighting shaft. This is Stairs 1and Stairs 2 identified on the drawings. The firefighting shaft is provided with a firefighting stair, a fire fighting lift, a vented firefighting lobby at every level, and a dry riser. Stairs 3 is a protected escape stair serving the upper levels.

MANAGEMENT OF FIRE SAFETY

Management procedures will be provided to minimise the likelihood of a fire breaking out in the office building and retail/studio spaces. All staff will be adequately trained in fire safety measures, including evacuation and firefighting procedures. Management procedures are detailed

Fire Safety Strategy (BS 9991 2024)

Section 1: General

Clause 0.1 General principles

The design of the proposed works with respect fire safety is based on understanding fire sources, the materials and systems involved, building use patterns, and the potential spread of fire.

The recommendations in BS 9991 2024 assume that, under normal circumstances (excluding cases of arson), a fire is unlikely to originate in two separate locations within a building.

All fire safety measures, procedures, and strategies have been tailored to the specific characteristics of the individual building or complex.

While the same fire safety principles generally apply to both new and existing buildings, can present unique challenges. For modifications to this existing buildings, we have thoroughly assessed the current structure, any incorporated fire safety features, and the following factors:

- Changes in the building's use that could alter its fire risk profile, such as increased fire loads, process risks, changes in occupancy, or seasonal variations.
- The feasibility and appropriateness of achieving the required fire safety levels within the existing premises.
- The impact on historic and environmental elements of the building and the extent of disturbance these may require.
- Compliance with legislation or guidance introduced since the building was last constructed, altered, or assessed for fire safety.
- Balancing life safety with property and content protection measures.
- Ensuring business continuity.

To address the above it is proposed to provide the following to the premises with:

- Domestic sprinkler coverage to all new residential units and common areas other than stairs to BS 9251 2021
- Emergency Lighting to all common areas and escape routes
- Fire Detection alarm system with L3 coverage in landlord areas
- Fire detection and alarm system coverage to LD1 standard within residential units.
- Three number escape stairs to the upper residential floors
- Dry riser to the main stairs in Stairs 1 and 2
- Provision of an fire fighting/evacuation lifts to Stairs 1 and 2
- Natural ventilation Mechanical Ventilation to the residential corridors with CFD analysis
- 1 SQM AOV at roof level or at the highest ceiling level within the stairs

While the risk profile will be increasing with the proposed change of works it is considered that the proposed fire safety provisions in addition to the existing structure ensure the requirements of BS 9991 2024 are met.

As the building is existing, fire safety measures have been approached holistically. Shortcomings in one area can often be compensated for with higher standards in another. Flexibility, as provided by BS 9991 2024, allows fire protection measures and risks to be assessed comprehensively to develop practical solutions which we will be implementing as part of the change of use.

All fire safety measures will be implemented as an integrated package aimed at achieving acceptable safety standards.

It is considered that the proposed modifications to existing building do not negatively impact the structure, and the proposed provisions enhance the fire safety measures for occupants and Fire Brigade personnel.

The following factors have been taken into account in establishing a minimum package of fire protection measures are:

i) the potential users of the building;

ii) the hazard posed by one occupancy to another;

iii) provision for giving warning in case of fire, including any automatic fire detection;

iv) the provision of automatic fire suppression systems and smoke control arrangements;

v) the overall management and control of the building or development, from a fire safety point of view;

vi) structural fire protection and compartmentation;

vii) the security of and access to the building.

The proposed strategy based on BS 9991 2024 ensures that measures to control or mitigate the effects of fire will be provided with the primary objective to ensure that an adequate standard of life safety will be achieved in the event of fire in the building. A secondary objective of this strategy is to provide a level of protection for property and businesses i.e. the provision of a SPRINKLER SYSTEM and increased compartmentation.

The proposed works will also aid fire and rescue with the provision of the following:

- Fire Fighting Shafts including lifts, stairs dry mains and appropriate ventilation
- Sprinkler systems to units and common areas
- Ventilation to common areas
- Increased compartmentation

Clause 0.2 Flats and Maisonettes

Clause 0.2.1 General principles

The provisions for means of escape for flats or maisonettes are based on the assumptions that:

a) provided that the building is well managed and corridors/stairways are kept clear, fire is more likely to occur within the flat or maisonette than in the common parts (e.g. not in a stairwell);

b) there can be no reliance on external rescue (e.g. a portable ladder);

c) the flat or maisonette will have a high degree of compartmentation and therefore there will be a low probability of fire spread beyond the flat or maisonette of origin, so in most fires simultaneous evacuation of the building is unlikely to be necessary; and

d) where fires do occur in the common parts of the building, the materials and construction used in such areas will prevent the fire from spreading beyond the immediate vicinity (although in some cases communal facilities exist which require additional measures to be taken).

A 'stay put' policy will be implemented for all flats.

The stairs are of sufficient width to cater for the maximum occupancy of any one floor.

NOTE It is important that information is given to residents regarding the meaning of the stay put strategy and the arrangements for means of escape available to them if a fire affects their flat.

Clause 0.2.2 Protection of common escape routes.

All common escape routes will be protected with appropriate fire resistance to meet the requirements of Clause 0.2.2 of BS 9991 2024.

Clause 0.2.3 Smoke control in common parts.

All common escape routes will be provided with mechanical smoke ventilation to the requirements of Clause 0.2.3 of BS 9991 2024.

Clause 0.2.4 Protection of common stairs

All common stairs are existing and are considered to be protected as per the requirements of Clause 0.2.4 of BS 9991 2024.

Clause 0.2.5 Fire Detection and alarm system

All apartments will be provided with a LD1Grade D fire detection and alarm system and all common routes will be provided with a L3 landlord system however as the building is being changed we are proposing the following:

1. A common alarm system comprising heat detection inside each of the residential units linked to smoke detection serving each of the units. The alarm system will operate in such a way that the activation of a smoke detection in the common corridor activates the sounders in the residential units on the fire affected floor to alert occupants of a fire incident. They will be provided with instructions in the handbook on actions to undertake in the event of a fire and notices advising actions in the event of a fire will be placed in prominent locations in the building. If a detector activates in the escape stairs, all the occupants the stairs serves on every floor will be notified.

Clause 0.2.6 Sprinkler Systems (SPRINKLER SYSTEM)

The apartments, any ancillary accommodation and common corridors will be provided with an sprinkler system to BS 92512021.

0.3 Housing typology.

The housing will fall under general housing.

0.4 Accessible and adaptable housing

The development proposed is not specifically for accessible or adaptable housing however, the following be provided:

1. Evacuation lift.
2. Automatic sprinkler protection
3. Disabled refuges with emergency voice communication in the stairs.
4. Sounder with strobe lights in each of the residential units
5. Emergency lighting and suitable normal artificial lighting will be provided to assist visibility to escape stairs.

6. All occupants will be provided with a residents handbook that details all evacuation procedures, fire safety measures in the property and good housekeeping. This document will also outline the require to maintain a Personal Emergency Evacuation plan for those with that require assistance in the event of a fire incident. A template will be provided.

All of the above are considered to enhance fire safety and evacuation measures for residents with mobility, audibility and visual impairments.

0.5 Student Accommodation

Not applicable to this development.

0.6 Modifications to Existing Buildings

While the same fire safety principles generally apply to both new and existing buildings, can present unique challenges. For modifications to this existing buildings, we have thoroughly assessed the current structure, any incorporated fire safety features, and the following factors:

- Changes in the building's use that could alter its fire risk profile, such as increased fire loads, process risks, changes in occupancy, or seasonal variations.
- The feasibility and appropriateness of achieving the required fire safety levels within the existing premises.
- The impact on historic and environmental elements of the building and the extent of disturbance these may require.
- Compliance with legislation or guidance introduced since the building was last constructed, altered, or assessed for fire safety.
- Balancing life safety with property and content protection measures.
- Ensuring business continuity.

To address the above it is proposed to provide the following to the premises with:

- Domestic sprinkler coverage to all new residential units and common areas other than stairs to BS 9251 2021
- Emergency Lighting to all common areas and escape routes
- Fire Detection alarm system with L3 coverage in landlord areas
- Fire detection and alarm system coverage to LD1 standard within residential units.
- Three number stairs will be provided to the upper floors
- Dry riser to the main stairs in Stairs 1 and 2
- Provision of an fire fighting/evacuation lifts to Stairs 1 and 2
- Natural ventilation or Mechanical Ventilation to the residential corridors with CFD analysis
- 1 SQM AOV at roof level or at the highest ceiling level within the stairs

While the risk profile will be increasing with the proposed change of works it is considered that the proposed fire safety provisions in addition to the existing structure ensure the requirements of BS 9991 2024 are met.

0.7 Innovative Construction Methods

The construction methods employed in the building are considered to be standard construction methods. No new innovative construction methods are proposed.

0.8 Management of Fire Safety

Fire safety management will span the entire lifecycle of a building, beginning with its initial design. The design strategy for this building will minimize fire risks and incorporate effective fire safety systems, including active, passive, and procedural measures that remain fully operational over time.

Fire safety procedures and maintenance schedules will be developed during the design phase and documented in the fire safety manual. This manual will be handed over to the individual responsible for the building's fire safety documentation, ensuring they have the resources to perform adequate and effective fire risk assessments.

Once a building is handed over by the designer or engineer, robust fire safety management becomes the foundation of occupant safety throughout the building's lifetime§

Fire safety management contributes to occupant protection in several key ways:

1. **Preventing Fires**: Implementing measures to minimize the risk of fire occurrence.

2. **Conducting Risk Assessments**: Regularly evaluating fire safety precautions and built-in features such as compartmentation, fire doors, and fire-resistant walls or screens.

3. **Ongoing Risk Monitoring**: Continuously assessing and mitigating fire risks.

4. **Addressing Occupant Needs**: Identifying and planning for the specific risks and requirements of building occupants, including vulnerable groups such as individuals with disabilities, elderly people, children, and pregnant women.

Ultimately, effective fire safety management ensures the ongoing protection of lives and property by fostering a proactive, well-maintained, and prepared fire safety framework.

These tasks differ in detail depending on the occupancy of the building.

Clause 1 Scope

BS 9991 2024 gives recommendations and guidance on the design, management and use of the following building types, to achieve reasonable standards of fire safety for all people in and around:

a) dwellings (single-family dwelling houses, self-contained flats or maisonettes);

b) residential accommodation blocks (e.g. for students or hospital staff), with individual bedrooms and the provision of kitchen/sanitary facilities constructed within a fire compartment;

c) specialized housing.

The proposed building is said to comply with the scope of this British standard as:

1) as the top storey is less than 100 m above ground level where the load-bearing elements of structure, excluding any non-structural surface coatings, have a reaction-to-fire classification of A2-s1, d0 or better (as defined in BS EN 13501-1:2018); or

Clause 2 Normative references.

See Appendix A

Clause 3 Terms and definitions

For the purposes of this document, the terms and definitions given in BS 4422 and the following apply.

Clause 4 General Recommendations.

The recommendations of BS 9991 2024 are based on the assumption that under normal circumstances (i.e. except in the case of arson) a fire is unlikely to start in two different places in a building at the same time (and, in the case of flats and maisonettes, a fire is most likely to start within the living space rather than in the common access routes or stairwells, please note as part of the proposed effective fire safety management plan no fire load will be allowed in common areas and any sockets in these areas will be provided with locks and will be for cleaners use only therefore safeguarding fires from starting in the common escape routes.

The aim of this fire safety strategy to protect the occupants close to the origin of the fire, enabling them to reach a place of relative safety outside of the dwelling of fire origin and reducing their exposure to fire and smoke by raising the alarm and limiting travel distances.

It is considered due to the provisions outlined above which will be implemented within the premises that the fire safety measures will achieve their intended purpose, there is little risk to the other occupants of the building and simultaneous evacuation of the entire building is usually unnecessary.

In addition all occupants will be provided with evacuation plan as part of their owner/occupiers manual and any occupants with an impairment which may affect their evacuation will be provided with PEEP (Personal Emergency Evacuation Plan).

Clause 4.1 Variation of recommendations

The recommendations for means of escape in Section **2** permit variations to be made to travel distances on the basis that the level of risk can be reduced by the provision of additional fire protection measures. Such measures include the provision of:

- an additional level of automatic fire detection;

- a sprinkler system;
- an enhanced smoke management system.

Clause 4.2 Property Protection and Business continuity

This fire safety strategy is primarily with respect to protection of life.

Clause 4.3 Environment

The design team have taken appropriate steps at the design stage of this building to minimize the impact of accidental fire on the environment.

The building specification takes into account the potential environmental effects of using materials that produce toxic products during a fire, creating contaminated water run-off and/or toxic smoke and gases.

Clause 4.4 Mixed Use residential buildings incorporating non residential use

The building is a residential building and all ancillary accommodation has means of escape independent of the residential areas.

Clause 4.5 Atria

Not applicable.

Clause 4.6 Inclusive design.

- The design of the building takes into account inclusive design.
- The building will be provided with disabled refuges.
- There will be management planning.
- There will be appropriate fire instructions
- There will be an appropriate means of giving warning.
- There will be appropriate way finding systems.

Clause 4.7 Fire Safety Information

Fire safety information will be recorded using the structured approach set out in BS 8644-1.

4.8 System commissioning

All systems installed within a building will be set to work and commissioned. Intended interactions between systems will be checked for correct function.

There will be a clear commissioning management plan covering all the systems within the building, whether in individual dwellings or covering the whole or part of the building.

Section 2: Designing means of escape.

Clause 5 General

Clause 5.1 Escape by way of doors

Please note the following with respect to doors on escape routes:

a)Doors on escape routes (both within and from the building) will be identified and readily openable at all times.
b) The door leaf of any doorway or exit should, where reasonably practicable, be hung to open in the direction of escape, and will always do so if the number of persons that might be expected to use the door at the time of a fire is more than 60.
c) All doors on escape routes will be hung to open not less than 90°, and with a swing that is clear of any change of floor level.
d) A door that opens towards a corridor or a stairway will be sufficiently recessed to prevent its swing from encroaching on the effective width of the stairway or corridor.

Clause 5.1.2 Final Exits

Final exits will be wide enough to allow a suitable flow of people for evacuation and will be situated to enable people to move away from the building.

To achieve this, final exits will :

a) be apparent to people who might need to use them;
b) be accessible to all building occupants;
c) have an effective clear opening width (see Figure 1 of BS 991 2024) that is not less than the greater of whichever of the following values are relevant to the specific means of escape criteria:

1) the width of the widest stair leading to the exit; or
2) where the final exit does not serve a stair, communal facilities are present or alternative methods of evacuation (e.g. simultaneous escape) are used, a width calculated for the maximum number of people expected to be using the exit at any one time and based on a factor of 4.1 mm/person; or
3) a width that accounts for the following, by increasing the effective clear opening width by a factor of 4.1 mm/person for every additional person over the stair capacity:

i) merging flows of occupants at the convergence of a stair; and
ii) any escape routes from final exit level; and
iii) routes below final exit level;

NOTE 3 As this will be a stay put strategy is in place and the number of people using the exit will be the occupants of a single dwelling, then a door width suitable for general circulation and meeting inclusive design access requirements is generally adequate to accommodate escape, irrespective of the size of the stair.

NOTE 4 Sizing of the final exit based on simultaneous escape does not include circumstances where the stay put strategy is considered no longer tenable during a fire incident.

d) be sited such that they are clear of any risk from fire or smoke in a basement (such as the outlets to basement smoke vents, or from openings to transformer chambers, refuse chambers, boiler rooms and similar risks);

e) facilitate rapid dispersal of persons from the vicinity of the building so that they are no longer in danger from fire, smoke and falling debris; and

NOTE 5 This could be direct access to a street, passageway, walkway or open space, or onto an external pathway leading to a safe waiting space such as a muster point.

f) if necessary (e.g. potential traffic hazard), be suitably guarded and provided with emergency escape lighting in accordance with BS 5266-1.

Clause 5.2 Escape by way windows

Escape is not proposed by way of windows as part of this Fire Safety Strategy however this is available for occupant at ground and first floor level.

Clause 5.3 Inner rooms and access rooms

Not applicable as the units will be provided with a sprinkler system.

Clause 5.4 Balconies, terraces, roof gardens and conservatories

Balconies, terraces and roof gardens form part of a separate application. These will be designed in accordance with Annex E.

Clause 5.5 Alternative exits

None proposed from the apartments. Alternatives will be provided at all levels from common areas.

Clause 5.6 Open-plan kitchens

Where open plan kitchens are proposed and these will be provided such that:

a) All rooms in the dwelling, except for any exclusions as described in BS 9251:2021 or will be provided with a sprinkler system conforming to BS 9251:2021
b) The dwelling will be provided with a Category LD1 fire detection and fire alarm system in accordance with BS 5839-6:2019+A1.
c) All cooking apparatus, with a fixed connection to the dwelling's electricity or gas supply, will be located as far away from the escape route as practicable. The edge of the cooking apparatus should be not less than 1.8 m away from an escape door, a door to an adjoining habitable room or a means of escape route to an escape door.
d) All egress routes from habitable rooms to the escape door(s) from the dwelling will be not less than 0.9 m in width. No fixed obstructions (such as radiators or cupboards) will be located within the 0.9 m escape route.
e) A gap of 0.3 m will be provided between the leading edge of the exit door from the space containing the cooking facility and the 1.8 m zone from the cooking apparatus, to allow people with mobility impairments to access the door hardware.

Clause 6 Means of escape and rescue provision from houses

Not applicable.

Clause 7 Means of escape from flats and maisonettes

Clause 7.1 General

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The means of escape from the flats will be in accordance with Clause 7.2.2 of BS9991 2024. No enclosed private balconies are proposed. To assist in evacuation for those with mobility impairments, an evacuation lift will be provided per stairs. The lift will comply with clause **8.4 BS 9991**.

As the fire alarm system covers the common areas, it will have a suitable electrical output signal, lifts other than fire-fighting and evacuation lifts will be recalled to an exit floor and then taken out of service in accordance with BS EN 81-73.

Clause 7.2 Escape routes from flats and maisonettes using a common corridor or lobby

Clause 7.2.1 Buildings served by more than one stair

The building will be designed such that:

a)The travel distance from the dwelling entrance door to the nearest stair entrance door or final exit will normally be not greater than 30 m. As the building is protected throughout by a sprinkler system and the corridor between the dwelling and the exit is ventilated in accordance with **20.1** and **20.2,** the travel distance will be not greater than 45 m.

b) The exit from the corridor will be isolated by a cross-corridor door to create a lobby ventilated in accordance with **20.1** and **20.2.** The travel distance from any dwelling entrance door in the blocks to the stair door will normally be not greater than 45 m (sprinklered) and the distance from the lobby door to the stair entrance will be not greater than 7.5 m.

No travel in a single direction is proposed from any apartment or residential corridor

A cross-corridor door will be provided between the storey exits at a halfway point and will be provided with a FD 30S doorset.

The smoke control proposed to the residential corridors will be as per Figure 7 of BS 9991 2024.

Clause 7.2.1 Buildings, or parts of buildings, with a storey at 18 m or more above ground level

All upper floors will be served by at least two stairs – Stairs 1, 2 and/or 3.

Clause 7.2.3 Buildings, or parts of buildings, with a storey at 11 m or more but less than 18 m above ground level

Not applicable.

Clause 7.2.4 Buildings, or parts of buildings, with no storey at 11 m or more above ground level (i.e. small

Not applicable.

Clause 7.2.5 Common Corridors with T-Junctions

Not applicable.

Clause 7.3 Escape routes from flats and maisonettes with corridor balcony or deck approach

Not applicable.

Clause 7.4 Provision, design and operation of lifts used for evacuation

Please note all stairs will be provided with a fire fighting lift or an evacuation lift as per the requirements of Clause 7.4.

Clause 7.4.2 Lift design and operation

The design and operation of evacuation lifts will be in accordance with BS EN 81-20 and this subclause.

NOTE 1 When published, BS EN 81-7613) is expected to include requirements for evacuation lifts and information about building-related conditions in which the lift is installed.
NOTE 2 When published, BS EN 81-7613) is expected to include options for "driver-assisted evacuation operation" and "automatic evacuation operation". Driver-assisted evacuation is the default method of lift operation for evacuation lifts.
NOTE 3 It is assumed that evacuation lifts will also be used for access, and as such will be adequately sized to accommodate persons requiring level access and/or egress.

The enclosure to the evacuation lift, or group of lifts, will be constructed as a protected shaft providing a minimum period of fire resistance not less than that recommended in **22.1**, Table 6 or Table 7, as appropriate.

The temporary waiting space for an evacuation lift will be provided with an emergency voice communication system in accordance with BS 5839-9. Communication points will be at least 500 mm from any wall (see Figure 14).

The walls of the lift landing and temporary waiting space and the lift door, and the landing floor and lift floor, will contrast visually. A visually contrasting floor surface measuring at least (1 500 × 1 500) mm swill be provided outside the lift door area.

NOTE 5 Recommendations and guidance on visual contrast are given in BS 8300-2.

An evacuation lift, the associated voice communication system and lighting to both the lift car and temporary waiting space should have both primary and secondary power supplies as follows.

a) For buildings, or parts of buildings, with no storey at 18 m or more above ground level, the secondary power supply will be either a separately fused circuit fed directly from the main incoming electrical supply to the building, located in a fire-protected enclosure, or an independent secondary power supply in accordance with Clause **21**. Thereafter, the recommendations in BS 8519 will be followed for the configuration of the circuits within the building and fire protection measures. An evacuation lift using such an alternative supply route through the building should be provided with automatic rescue operation that, in the event of a power failure, moves the lift car automatically to the final exit level and opens the doors to allow passengers to escape, and is then removed from service until sufficient power is restored.

NOTE 6 When published, BS EN 81-7614) is expected to describe automatic evacuation operation as part of a Class A evacuation lift.

b) As the buildings are 18m above ground level, there will be an independent secondary power supply in accordance with Clause **21**.

NOTE 7 When published, BS EN 81-7614) is expected to describe two classes of lift: Class A and Class B. For buildings where there is an independent secondary power supply, a Class A evacuation lift with automatic evacuation operation is not expected to be appropriate. In such cases, a Class B lift would be appropriate.

Where evacuation lifts are installed, they will be clearly signed at the evacuation exit floor.

Where evacuation lifts are provided either within or adjacent to a stair containing a firefighting main outlet, there should be a means to minimize the effect of water penetration into the evacuation lift wells, in the same manner as for a firefighters lift (see **46.3.5.2**).

The evacuation lifts will include driver-assisted evacuation operation. Driver-assisted evacuation operation supplemented with automatic evacuation operation will be provided where the building does not have 24 h staffing and may also be provided where the building does have 24 h staffing.

NOTE 8 When published, BS EN 81-7614) is expected to describe driver-assisted evacuation operation and automatic evacuation operation. It has not been determined whether the building has 24 hour staffing.

NOTE 9 Buildings might not need the full specification of evacuation lift that is to be described in BS EN 81-7614) (the full specification being a "Class B evacuation lift"). A Class A evacuation lift might be specified where:

- *one evacuation exit floor is required; and*
- *the evacuation strategy does not require prioritization of evacuation lift service for specific landings; and*
- *a secondary power supply is not available and the evacuation strategy can accommodate an evacuation lift with automatic rescue operation.*

No Class B lift is proposed currently.

Where automatic evacuation operation is provided, the means by which the evacuation lifts enter evacuation operation mode will be determined taking into account the specific configurations of all floors served by the evacuation lifts.

For automatic evacuation operation, there will be means in place to:

1) recall the lift;
2) provide the automatic evacuation signal; and
3) where landing calls are to be accepted only from priority floor(s), signal the priority floor(s) to the lift controller.

A fire detection and fire alarm system in accordance with BS 5839-1:2017 will be provided , covering the lift spaces (lift well, machine and pulley rooms, machinery spaces) and lift lobbies, and will provide the suspend service signal. Additionally, before any uninterruptible power supply (UPS) supplying an evacuation lift is fully discharged, a signal from the UPS equipment (see Clause **21**) will provide the suspend service signal.

Clause 7.4.3 Lift access

The lift landing with entrance into an evacuation lift will be provided with a temporary waiting space, which will be located within either an escape stair enclosure [see Figure 15a)] or a lobby to the stair [see Figure 15b), Figure 15c) and Figure 15d)].

Where the temporary waiting space is in the stair lobby there will only be access to the evacuation lift, an escape stairway and any of the following:

a) other passenger or firefighting lifts;
b) the adjoining corridor (either ventilated or unventilated); and
c) service risers (that do not contain motorized equipment or similar with a potential to malfunction and cause fire) and distribution boards.

*NOTE: There might be restrictions on access from within a stair to an evacuation lift that is also used as a firefighters lift (see **7.4.5**).*

Any lobby housing a temporary waiting space will have dimensions not less than the minimums shown in Figure 14, or as determined by the evacuation strategy for people with mobility impairments (see Clause **50**), whichever is larger.

No dual access lift is proposed.

At the final exit level, the route to reach a final exit will meet the recommendations in Clause **15**.

Clause 7.4.4 Protection of evacuation lifts from smoke

Please note the fire-fighting/ evacuation lifts in Stairs 1 and Stairs 2 will be provided with the require ventilation for fire-fighting lobbies as these will also be fire-fighting lifts. Stairs 2 will be provided with an smoke vent along the residential corridor. Smoke ventilation will be provided to the corridor serving Stairs 3.

The ventilation provisions will protect the area from the ingress of fire and smoke.

As per the scope of this British standard it is not expected that a fire will occur in more than one place so if one stair or evacuation lift is not available there will be an evacuation lift available at the same level which will be available.

Clause 7.4.5 Firefighters lifts used for evacuation

The fire strategy will be a stay put strategy so therefore :

> a) any firefighters lift in a firefighting shaft may be used as an evacuation lift until the lift is recalled using the firefighters lift switch. The lifts swill meet the recommendations in **7.4.2** and the shafts should meet the recommendations in **46.3**. This is considered acceptable due to the fact there will be at least two evacuation lifts per floor.

Please note no evacuation lift will open into a firefighting stairway.

Clause 7.5 Electric wheelchairs and mobility scooters

Currently there is no area designed for electric wheelchair users or mobility scooters however if provided an area will be designated for storage of electric wheelchairs and mobility scooters within the building, this area should be separated from the means of escape by fire-resisting construction of not less than 30 min as the building is provided with sprinkler protection.

Sprinkler protection will be extended to the charging areas if provided. The sprinkler protection will be designed in accordance with BS 9251:202.

Mobility scooter charging areas should additionally meet the recommendations for ancillary areas in Clause **34**.

Clause 8 Internal planning of flats and maisonettes

Clause 8.1 General

Cooking facilities in the open-plan flats and maisonettes will be located in such a way that they do not prevent escape if they are involved in a fire.

Flats and maisonettes having more than one storey and not having an independent external entrance at ground or access level will comply with Clause 9.1 of BS 9991 as the units will have a protected stairway, a LD1 type Fire Detection and Alarm system and an sprinkler system.

Clause 8.2 Basement flats

No basement flats are proposed.

Clause 8.3 Flats or maisonettes situated not more than 4.5m above ground or access level.

The flats and maisonettes comply with the recommendations of Clause 8.3 of BS 9991 no habitable room will not be an inner room unless the room is provided with a Grade D LD1 fire detection and fire alarm system in accordance with BS 5839-6:2013 and an sprinkler system installed throughout the building.

Clause 8.4 Flats or maisonettes situated more than 4.5m above ground or access level.

Clause 8.4.1 General

The flats and maisonettes that are located at levels more than 4.5 m above the ground or access level will be in accordance with **8.4.2, 8.4.3** or **8.4.4** of BS 9991 as relevant.

Clause 8.4.2 Flats entered at the same level as the flat

All flats have an entrance on the same level as the flat and will comply with Clause 9.4. of BS 9991 as:

a) the total travel distance from any point of the flat to the entrance door of the flat should be limited to 20 m as the flat is fitted throughout with a Grade D, Category LD1 fire detection and fire alarm system in accordance with BS 5839-6:2019+A1, plus a sprinkler system (see Clause **17**)] (see Figure 16). Where there is an open-plan kitchen, the recommendations given in **5.6** will also be met; or

Clause 8.4.3 Flats entered from a floor above or below the level of the flat

This is not applicable. All flats will be entered from the same level.

Clause 8.5 Open Plan Flat Design

The open plan flats will be designed such that:

a) The size of the open-plan flat will not exceed 16 m × 12 m.
b) Open-plan flats will be situated on a single level only.
c) The ceilings within the open-plan flat will have a height of not less than 2.25 m.
d) Open-plan kitchens will meet the recommendations in **5.6**.

Clause 8.6 Flats with Galleries

Not applicable.

Clause 8.7 Cluster accommodation

Not applicable.

Clause 8.8 Internal planning of maisonettes

None proposed as part of this submission.

Clause 8.8.2 Maisonettes having a floor level higher than 4.5m above ground or access level.

All new maisonettes will be provided with:

a) an alternative escape route leading to its own final exit from all habitable rooms on each floor level and a sprinkler system (see Clause **17**) fitted throughout the dwelling.

The access floor will be separated from the upper storeys by 30 min fire-resisting construction and an E30S.

Clause 9 Design and construction of common stairs

The common stairs are existing and are of concrete construction .

a) No changes are proposed to the existing stairs 1,2 and 3 and are of concrete construction;
b) Have a minimum width of 1100mm and the new section of Stairs 2 will have the appropriate width as per Table 1 of BS 5395-1:2010;
c) have flights and landings constructed of class A2-s1, d0 or better materials,;
d) be formed of straight flights in all buildings of more than three storeys;
e) not include open risers;
f) have step nosings that incorporate a durable, permanently contrasting continuous material for the full width of the stair on both the tread and riser. The contrasting material should extend 50 mm to 65 mm in width from the front edge of the tread and 30 mm to 55 mm from the top of the riser, and should contrast visually with the remainder of the tread and riser;
g) have handrails on both sides of the flights in accordance with BS 5395-1:2010; and
h) be provided, within the stairways, with floor identification signage in accordance with **48.2.1** and **48.2.2** at all storey landing levels in buildings, or parts of buildings, with a storey more than 11 m above ground level.

Stairs 1, 2 and 3 will be provided with the following:

1) a low-mounted way guidance system should be provided within the stairway in addition to the provisions set out in **40.2**; and
2) the protected stair enclosure should be constructed of materials achieving class A1 or class A2-s1, d0.

All floors will be served by a minimum 2 no. escape stairs at all levels

In accordance with Clause of BS 9991 as there are two or more common stairs provided , they are located such that they are situated remotely from each other and this is achieved in both blocks. Cross corridor doors will be provided to prevent both escape stairs becoming unavailable.

Storey exits

The width of the storey exits into each of the stairs will be 850mm and will have a capacity of 100 people per storey exit. Storey exits into each of the stairs provides a capacity for 300 occupants per level.

The building is provided with 3 no. stairs with a minimum width of 1100mm.

Clause 10 Protection of common stairs

In all buildings, the following recommendations will be met.

a) No storeroom will open directly into a common stair.
b) Where two common stairs are adjoining- **not applicable**
c) If any storey or part of a storey is required to have more than one escape route, common stairs have been be sited such that access to alternative common stairs is possible from any point on that storey without passing through any other such stairway.
d) If a common stair forms part of the only escape route from a dwelling, - not applicable
e) In a building that has a floor 50 m or more above ground level, or in a building of any height that is not provided with sprinklers: where an escape stairway, or the protected route leading to that stair, projects beyond or is recessed from the external enclosures to a building and forms an angle of less than 135° (see Figure 24): Please not Stairs 2 will be provided with 120 fire resisting construction for 1.8m at all levels to ensure not re-entrant angles occur.

1) the distance between any opening in the external enclosure to the building and any opening in the enclosure to the stair will be not less than 1.8 m; and

2) the enclosures within that distance [see list item e)1)] will be of fire-resisting construction (see **22.1**, Table 5).

Clause 11 Basement Stairs:

Stairs 1 and 3 serving the residential floors will not extend to basement, Stairs 2 which extends to basement will be separated from the basement flight with fire fighting construction.

Ancillary Accommodation

- The basement is ancillary to the main use of the building is provided with commercial sprinklers and sufficient natural ventilation

The means of escape will be as per Clause 17.5 of BS 9999 2017 such that:

- Basement is accessed by way of the central Stairs 2 and is separated by way of a ventilated protected lobby in accordance with Clause 27. 5 of BS 9999 2017 and will be provided with 0.4sqm of permanent natural ventilation at basement level and escape is by way of the protected stairs 2 directly to the outside or alternatively by way of the existing lightwell and ladder escape.

Please note the following with respect to the protected stairs serving all small basements:

No accommodation will be provided in the protected stairs at basement level.

1. *a) sanitary accommodation or washrooms, provided that the accommodation is not used as a cloakroom. A gas water heater or sanitary towel incinerator may be installed in the accommodation but not any other gas appliance;* ***Not proposed***
2. *b) a lift well, provided that the stair is not a fire-fighting stair;* ***Lift access will be removed***
3. *c) a reception desk or inquiry office area at ground or access level, provided that it is not in the only stair serving the building or part of the building. The reception or inquiry office area should be not more than 10 m² in area;*
4. *d) cupboards enclosed with fire-resisting construction, provided that they are not in the only stair serving the building or part of the building;* ***Not proposed***
5. *e) gas service pipes and associated meters .****Not proposed as no gas services proposed to the building***

Clause 12 Stairs within mixed-use residential developments

Not applicable as this is a residential building.

Clause 13 3 Lobbies and corridors

13.1 Lobbies and corridors to protected stairways

Lobbies and corridors giving access to protected stairways will meet the following recommendations.

a) If a stair provides access to an ancillary area, there will be a ventilated protected lobby or ventilated protected corridor at that level i.e. Stairs 2
b) If a stair provides access to an enclosed car park, there should be a ventilated protected lobby at every car park floor level. **Not applicable.**
c) If a stair serves an area of higher fire risk, there should be a ventilated protected lobby or ventilated protected corridor at that level. **Not applicable.**
d) If a stair connects the ground or upper storeys with a basement storey(s) or serves only basement storeys, there should be a protected lobby or protected corridor at every basement level.
e) In a small single-stair building, any protected lobby or protected **Not applicable.**

Clause 13.2 Protected lobby and protected corridor ventilation

Lobby protection will be as per Table 1 below:

Table 1 — *Protected lobby and protected corridor ventilation*

Item	Accommodation area[A), B)]	Ventilation to lobby or corridor
A	Flat located either above or below ground level	In accordance with Clause 7
B	Communal lounges and common amenity areas	1 m² ventilation[C)]; or 0.4 m² ventilation with provision of automatic sprinkler protection in accordance with BS 9251:2021 or BS EN 12845:2015+A1 throughout the building
C	Transformer, switchgear and battery rooms for low voltage or extra low voltage equipment	
D	Engineering service installation rooms, excluding those covered by item B and items F to H inclusive	
E	Refuse chutes and refuse storage areas	
F	Other storage areas, including electric wheelchair/mobility scooter charging areas and bicycle stores (with and without charging points)	
G	Installation rooms for engineering services housing fixed internal combustion engines	1 m² ventilation[C)]
H	Boiler rooms and fuel storage spaces	
I	Transformer and switchgear for equipment above low voltage	
J	Car park areas	

A) Places of special fire hazard should be provided with separate smoke outlets in accordance with Clause 20.

B) Car park areas should be provided with a smoke control system in accordance with Clause 20.

C) Ventilation can be provided either as permanent ventilation or as an AOV with an aerodynamic free area (Aa) of not less than 0.7 m².

Clause 13.3 Furnished areas in common corridors

Not applicable.

Clause 14 External Stairs

Not applicable.

Clause 15 Discharge and final exits from common stairs and evacuation lifts

Discharge and final exits from common stairs and evacuation lifts will meet the following recommendations:

a) Protected stairways and evacuation lifts will discharge either:
   1) directly to a final exit; or
   2) into a protected corridor leading to a final exit.
b) Any protected corridor leading to a final exit will have the same standard of fire-resisting enclosure and lobby protection as the stairway and/or evacuation lift that it serves.
c) Where two stairs provide alternative means of escape from a dwelling, they should not terminate in the same enclosure at final exit level. **Not applicable**
d) Where two evacuation lifts provide alternative means of escape from a dwelling, they should not terminate in the same enclosure at final exit level. **Not applicable**
e) Where the exit passageways from two or more stairs providing alternative means of escape adjoin, they will be separated by imperforate construction, i.e. there should be no openings (e.g. doors) in the separating element common to both passageways up until discharging from the building to the open air. **Not applicable**
f) Where the exit passageways from two or more evacuation lifts providing alternative means of escape adjoin, they should be separated by imperforate construction, i.e. there should be no openings (e.g. doors) in the separating element common to both passageways up until discharging from the building to the open air. **Not applicable**
g) Any final exit will be immediately apparent to any person using a common stair that serves storeys both above and below the point of final exit.
h) Final exits should discharge directly to a street, passageway, walkway or open space that allows for the rapid dispersal of persons away from the vicinity of the building. Where a route from two or more final exits combines outside the building to reach a street or public highway, the width of the external route should be sufficient for the total number of people expected to use the route at any one time.
i) Final exits will have a level threshold and will lead to level ground where practicable. Where there is no level ground, a suitable ramp or a step will be provided. Where a step is provided, there will be a suitable and apparent landing.
j) Final exits swill be sited such that they are clear of any risk from fire or smoke and will meet the recommendations in Clause 10b).
k) Ancillary areas swill be separated om the exit route using a protected lobby with ventilation in accordance with **13.2**, Table 1

Clause 15 flats rising above a podium

Not applicable.

Section 4: Active Fire Protection

Clause 16 Fire detection and alarm system

Clause 16.1 Fire detection and alarm system

A fire detection and fire alarm system designed and installed in accordance with BS 5839-6:2019 +A1 will be provided in all dwellings, in order to warn occupants of fire within the dwelling and to provide them with time to evacuate the premises and to call the fire and rescue service.

A common alarm system comprising heat detection inside each of the residential units linked to smoke detection serving each of the units. They will be provided with instructions in the handbook on actions to undertake in the event of a fire and notices advising actions in the event of a fire will be placed in prominent locations in the building. If a detector activates in the escape stairs, all the occupants the stairs serves on every floor will be notified.

The fire detection and alarm system will be provided in accordance with BS 5839-1:2017.

The common alarm system will also be linked to the mechanical extract systems. The system will conform to BS 5839-1:2017. A cause and effect for the building will be prepared for the building outlining simulating what is activated upon activation of a detector in the common areas or the heat detector within the unit.

Clause 16.2 Automatic fire detection and fire alarm systems for mixed use buildings.

The building will comprise a residential occupancy only with some ancillary accommodation at basement/ lower ground floor level not connected to the residential core.

Clause 17 Sprinklers

Clause 17.1 General

The residential section of the building will be fitted with sprinklers in accordance with BS 9251:2014 or BS EN 12845 (see **17.2**, Table 2).

Clause 18 Manual fire fighting equipment

A fire risk assessment will be undertaken to determine the need for manual fire-fighting equipment in common access corridors and in other areas of the premises.

Where provided, portable fire extinguishers will conform to BS EN 3 (all parts) and will be selected, installed and maintained in accordance with BS 5306-3 and BS 5306-8.

The fire growth rate is considered to be medium. However, the building will be sprinklered and the fire growth rate is then considered to be slow.

Clause 19 Special fire risk protection

Automatic fire suppression systems and equipment on premises will be selected in accordance with BS 5306-0 in areas of special fire risk if required. Please note no gas installations proposed.

It should be noted, no special fire risk areas are proposed. No car parking is proposed and no car park stacking is proposed.

Clause 20 Smoke control for means of escape.

Smoke control will be provided in the corridors to protect the staircase enclosures, it will also provide protection to the adjacent protected corridor.

Clause 20.1 General

The smoke control system will be located such that it is maintainable from the common parts of the building.

Clause 20.1.2 Small buildings with a single stair

Not applicable to the proposed building.

Clause 20.1.3 Buildings with no floor level over 11m above ground level and served by a single stairs.

This is not applicable as all units will be served by more than one stairs.

Clause 20.1.4 Buildings with a floor level over 11m above ground level and served by a single stairs.

The smoke control provisions in buildings having multiple stairs will be the same as those for single-stair buildings above 11 m. Mechanical/natural smoke extract will be provided from each end of the corridor.

Clause 20.1.5 Smoke control in balcony approach or deck approach

No balcony or deck is proposed.

Clause 20.1.6 Smoke control for protected lobbies or corridors.

As the common stair is not the only escape route from a flat it is permitted to also serve ancillary accommodation. Compliance with Clause 14.1.6 of BS 9991 as:

- All residential units are served by 2 no. escape stairs.
- Lobby protection will be provided between the stairs and the ancillary accommodation i.e. enclosed attic/roof plant.

Clause 20 Heat and smoke control for fire fighting.

Clause 20.2 Above ground systems

As the buildings are less than 30 m above ground level no mechanical smoke ventilation system (MSVS) and/or pressure differential system is proposed.

Clause 20.2. Buildings with a single stair and no storey at 11 m or more above ground level

Not applicable.

Clause 20.3 Buildings with a storey at 18 m or more but less than 30 m above

All residential corridors , stairway and fire-fighting shafts will be provided with natural ventilation or mechanical ventilation. If provided with mechanical smoke ventilation system it will be in accordance with Clause 20.2.2.3, and a CFD calculations will be provided to accompany this.

Clause20.2.4 Buildings with a storey at 30m or more above ground level

Not applicable.

Clause20.2.5 Buildings with a balcony approach or a deck approach

Not applicable.

Clause20.2.6 Corridors with extended travel distances

Not applicable.

Clause20.2.6 Protected Lobbies and protected corridors between stairs and ancillary areas

Not applicable.

Clause20.3 Below Ground systems

No changes are proposed to the basements.

Clause 21 Power supplies, cabling and installation.

Clause 21of BS 9991 will be complied with as:

- Electrical system design for life safety and firefighting equipment will meet the recommendations in BS 8519, except where otherwise recommended below.
- Electrical system design for equipment outside the scope of BS 8519 will meet the recommendations in the appropriate standards, e.g. BS 5839-1:2017 and BS 5839-6:2019+A1 for fire detection and fire alarm systems, and BS 5266-1 for emergency lighting systems.
- The power supplies, electrical wiring and control equipment will be protected by a building fabric enclosure that offers protection against fire and water damage for not less than the minimum times given in Table 4.
- Where dual power supplies are recommended by the relevant British Standard for life safety and firefighting systems, the primary power source will be taken from the public electricity supply.
- The secondary source will come from one of the following (see Note 1):

  a) a life safety generator; or

  b) an independent high voltage supply fed from an independent utility primary network substation to that feeding the primary supply; or

  c) an uninterruptible power supply (UPS) (see **21.2**) according to the electrical load requirements. *NOTE 1 In the case of sprinkler systems, a diesel-driven fire pump set for fire protection service is also an*

The electrical supply arrangements will be in accordance with BS 7671.

When assessing the appropriateness of the secondary source of supply, the life safety and firefighting loads to be served by the secondary source will be identified in accordance with BS 8519.

- In the event of the failure of the primary power source, the supply will automatically switch over to the secondary source. Failure of one source will not result in the failure of the alternative source of supply or in the loss of supply to the life safety and firefighting equipment.
- The change-over device will be an automatic transfer switch (ATS) conforming to BS EN 60947-6-1 and should be a single component with an integral controller from the same manufacturer.
- The change-over device will provide the facility to monitor the status of the primary and secondary sources of supply availability, as well as the position of the change-over device, i.e. "On Primary Supply" or "On Secondary Supply". The ATS will also provide indication of a fault within the ATS device. This indication will be provided to the fire alarm system and swill be duplicated to the firefighting lift control switch when the ATS device is serving a firefighters lift installation within a firefighting shaft.
- The secondary power supply will be sufficient to run the firefighters lift at the rated load and rated speed for the period equal to the fire resistance of the structure at battery end of life. The car and well lighting will also be supplied by the secondary power supply.
- A control signal swill be initiated by the UPS equipment to the lift in sufficient time for the lift to be safely taken out of service before the battery becomes fully discharged and the secondary source of supply is de-energized

Clause 21 Uninterruptible power supply (UPS) equipment)

Where used, UPS battery equipment should conform to BS 7671 and should be designed and installed in accordance with BS 8519.

NOTE 1 BS 8519:2020, Annex A gives technical guidance on the selection and specification of UPS/battery inverter systems intended to provide the secondary source of supply to life safety, firefighting and other critical systems.

21.2 Uninterruptible power supply (UPS) equipment

Where used, UPS battery equipment will conform to BS 7671 and will be designed and installed in accordance with BS 8519.

Each UPS will comprise two supply paths, i.e. rectifier/charger and static bypass, each being fed by a separate circuit protective device.

UPS battery equipment will be sized such that, after a period of not less than 72 h loss of power, sufficient capacity remains to enable the connected life safety systems to operate at their required level of duty and/or for the duration for which they have been designed. The rectifier/charger will be sized accordingly.

UPS battery equipment will be sized to support the required run times of the supplied equipment, in the most onerous condition anticipated (e.g. battery at end of life condition) and in most adverse environmental conditions expected in the installation (see BS 8519:2020, Annex A).

The UPS battery equipment serving life safety and firefighting equipment will be appropriately sized and selected for the motor starting characteristics.

Where dedicated UPS systems are to be installed to supply individual sprinkler pumps, as indicated in BS 9251:2021, separate UPS systems should be provided for any other life safety and firefighting loads.

The battery will be recharged from being fully discharged to approximately 80% charge in 12 h and 100% charge in 24 h.

The UPS rectifier/inverter path will be rated to cater for the fault clearing requirements of the largest downstream protective device, as the static switch path cannot be relied on for fault clearance in the event of a failure of the primary mains supply.

The design life of UPS batteries at 20 °C will be not less than 10 years.

The UPS battery room will be air-conditioned by suitably resilient cooling plant, with cooling plant maintained by UPS equipment, where necessary.

Suitable isolation controls will be provided, in a location accessible to firefighters, to enable the UPS/battery inverter equipment and other electrical equipment to be electrically isolated independently within the affected fire-resisting enclosure. These controls will be secured against use by unauthorized persons, provided with suitable identification signage, and identified on secure information plans provided for use by firefighters. Signage local to the isolation controls will also clearly identify that operating the controls will isolate the secondary power source for life safety systems and/or firefighting facilities, and that they are only to be used in the event of a fire originating within the enclosure to the UPS/battery inverter system.

Section 5: Design for construction

Clause 22 Minimum levels of Fire resistance for elements of structure

Clause 22.1 General

Fire resistance will be not less than 30 min when tested in accordance with the relevant part of BS 476 or equivalent European standard BS EN 13501-2:2023 for:

a) load-bearing walls, for load-bearing capacity, integrity and insulation from either side;

b) non-load-bearing walls and partitions, for integrity and insulation from either side;

c) fire doors for integrity from either side, with the exception of doors to lift wells where performance is in respect of exposure of the landing side only and which are tested in accordance with BS EN 81-58;

d) floors, for load-bearing capacity, integrity and insulation with respect to exposure of the underside only.

Please note the North and Central block will be separated from the south block with full height fire resisting compartment construction at the central stairs so we are considering the blocks as separate parts.

The building has a floor level of 20.8m above ground and will be provided with a sprinkler installation. In accordance with Table 5 of BS 9991 2024, the elements of structure are required to achieve 90 minutes fire resistance.

Communal areas will have a fire resistance of at least 30 minutes fire resistance as required by Table 3 of BS 9991 2024.

Clause 22.2 Single Storey buildings

Not applicable.

Clause 22.3 Roof Structure

In accordance with Clause 22.3 of BS 9991, the roof structure does not require any protection as the function of the roof will be to solely to support the roof. The existing roof structure is a metal deck roof.

Clause 16.2 5 Suspended ceiling

A suspended ceiling can contribute to the overall fire resistance of a floor/ceiling assembly. If a suspended ceiling is used it will be in accordance with Table 8. It will be noted that the application of table 8 is not considered applicable as no fire resisting suspended ceilings are proposed

Table 5 - Minimum periods of fire resistance proposed.

Outlined below are the minimum periods of fire resistance proposed with reference to Table 5 of BS 9991 99.

Minimum fire resistance performance							
Part of building	**Minimum provisions when tested to the relevant parts of BS 476,** in minutes A)			**Minimum provisions when tested to the relevant European Standards, in minutes A)**			**Method of exposure**
	Load-bearing capacity	**Integrity**	**Insulation**	**Load-bearing capacity**	**Integrity**	**Insulation**	
Structural frame, beam or column	60[1]	Not applicable	Not applicable	60[1]	Not applicable	Not applicable	Exposed faces
Load bearing wall element	60[1]	Not applicable	Not applicable	60[1]	Not applicable	Not applicable	Each side separately
Floor							
between a shop and a flat	N/A	N/A	N/A	N/A	N/A	N/A	From underside
Any other floor, including compartment floors.	60[1]	60[1]	60[1]	60[1]	60[1]	60[1]	From underride
Roof							
Any part forming an escape route	N/A	N/A	N/A	N/A	N/A	N/A	From underside
Any roof that performs the function of a floor	N/A	N/A	N/A	N/A	N/A	N/A	From underside
External wall							
Any part less than 1m away from any point on the relevant boundary	60[1]	60[1]	60[1]	60[1]	60[1]	60[1]	Each side separately
Any part more than 1m away from any point on the relevant boundary	60[1]	60[1]	60[1]	60[1]	60[1]	60[1]	From inside out
Any part adjacent to an external escape route.	N/A	N/A	N/A	N/A	N/A	N/A	
Compartment wall							
Walls separating occupancies	60[1]	60[1]	60[1]	60[1]	60[1]	60[1]	Each side separately
Any other compartment walls	60[1]	60[1]	60[1]	60[1]	60[1]	60[1]	Each side separately
Protected shaft, excluding fire fighting shafts							
Glazed screen separating protected shaft from lobby or corridor/lobby	N/A	30	No requirements	N/A	30	No requirements	Each side separately

Any other part between shaft and a protected corridor lobby	30	30	30	30	30	30	Each side separately
Any other part not described above	120 / 60[1]	120 / 60[1]	120 / 60[1]	120 / 60[1]	120 / 60[1]	120 / 60[1]	Each side separately
Fire fighting shaft							
Construction separating fire - fighting shaft from the rest of the building	120	120	120	120	120	120	Each side separately
Construction separating fire - fighting stair, fire fighting lift shaft, and fire fighting lobby	60	60	60	60	60	60	Each side separately
Enclosure							
To a protected lobby or a protected corridor (not forming part of a compartment wall or a protected shaft)	30	30	30	30	30	30	Each side separately
In a flat to a protected entrance hall or a protected landing	N/A	N/A	N/A	N/A	N/A	N/A	Each side separately
Subdivision of a corridor	30	30	30	30	30	30	Each side separately
Fire resisting construction							
Enclosing communal areas.	30	30	30	30	30	30	Each side separately
Enclosing places of special fire hazard	30	30	30	30	30	30	Each side separately
Cavity barrier	N/A	30	15				Each side separately
Duct	N/A	N/A	N/A	N/A	N/A	N/A	From outside
Casing around a drainage system	N/A	N/A	N/A	N/A	N/A	N/A	From outside
Flue walls	N/A	N/A	N/A	N/A	N/A	N/A	From outside
Fire door	See table	See table	See table	See table	See table	See table	
Construction enclosing a roadway	60[1]	60[1]	60[1]	60[1]	60[1]	60[1]	From roadside

Table 6 Fire resistance periods for elements of structure (independent of ventilation conditions)

Condition	**Minimum periods of fire resistance,** in minutes					
	Depth below access level of basement level		**Height of top occupied storey above access level**			
	>10 m	≤10 m	≤5 m	≤18m	≤30m	>30m
Sprinklered(A)	90	60	30	60	**60**	120
Unsprinklered	90	60	30	60	90	Not allowed

A) Sprinkler systems will be in accordance with BS 9251:2014 or BS EN 12845 (see **11.2**, Table 2).

Clause 23 Compartmentation

In accordance with Clause 23 of BS 9991, the following elements will be constructed with a fire resistance of not less than required in accordance with Table 5 or Table 7 of BS 9991 2024:

a) in flats and maisonettes situated more than 5 m above ground or access level, any floor (unless it is within a maisonette), and any wall separating a flat or maisonette from another part of the building;

b) any wall enclosing a refuse storage chamber.

c) A wall common to two or more buildings will be constructed as a compartment wall.

Compartment walls will be able to accommodate the predicted deflection of the floor. This will be achieved in one of the two following ways:

1) A head detail will be provided between the compartment wall and the floor, which is capable of deforming while maintaining its integrity when exposed to a fire; or

2) The design of the compartment wall will be such that it maintains its integrity by resisting the additional vertical load from the floor above when forced to sag under fire conditions.

Clause 23.2 External separation of openings between dwellings within a block of flats or maisonettes

Re-entrant angles will be protected where within 1m or 1.8m where a stairs.

Clause 23.2 Doors in compartment walls

For compartment walls greater than 5 m in length, the total width of doors located in the wall should not exceed 25% of the total length of the wall- however not applicable.

Clause 24 External fire spread and building separation.

Clause 24.1 Resisting Fire spread over external walls

In accordance with Clause 24.1 of BS 9991 space separation calculations undertaken with distances taken to either the site or notional boundary.

In accordance with Clause 24.2 of BS 9991External walls are existing and are of concrete construction and achieve a rating of Class A2 s1 d0 in accordance with Table 9. The external surface of the building is constructed form a material that does not support fire spread and therefore endanger people in or around the building.

Flame spread over or within an external wall construction will be controlled to avoid creating a route for rapid fire spread bypassing compartment floors or walls.

External wall surfaces near other buildings will not be readily ignitable, to avoid fire spread between buildings.

External walls will either meet the performance meet the following recommendations.

a) The external surfaces of walls will meet the provisions of Table 9 of BS 9991 i.e. external wall surface will achieve a Class A2 s1 d0 surface spread of flame.

b) In a building with a storey 18 m or more above ground level, any cladding material, insulation product, filler material (not including gaskets, sealants and similar), etc., used in the external wall construction will be of limited combustibility.

c) Cavity barriers will be provided in accordance with Clause **25** of BS 9991 – no cavity exists

d) External balconies that are enclosed will be constructed and separated from other enclosed balconies with compartmentation and fire-resisting construction in accordance with Annex D.

Please note there is no cavity in the external wall build up.

Space Separation

Please see calculations below and also on the accompanying Fire Strategy Drawings:

NORTH ELEVATIONS

Enclosing Rectangle 6x18m = 108m²

Unprotected Area 44.5m²

Unprotected Percentage 41%

Minimum Distance to the Boundary 3.6m

Actual Distance to the Site Boundary 47.8m

100 % unprotected openings permitted here.

SOUTH ELEVATIONS

Enclosing Rectangle 6x24m = 144m²

Unprotected Area 90.9m²

Unprotected Percentage 63%

Minimum Distance to the Boundary 5.2m

Actual Distance to the Site Boundary 19.1m

100 % unprotected openings permitted here.

EAST ELEVATIONS

Enclosing Rectangle 6x12m = 72m²

Unprotected Area 32.2m²

Unprotected Percentage 44%

Minimum Distance to the Boundary 3.2m

Actual Distance to the Site Boundary 35.7m

100 % unprotected openings permitted here.

WEST ELEVATIONS

Enclosing Rectangle 6x21m = 126m²

Unprotected Area 75.7m²

Unprotected Percentage 60%

Minimum Distance to the Boundary 5m

Actual Distance to the Site Boundary 35.7m

100 % unprotected openings permitted here.

Clause 24.2 Balconies and attachments

Not applicable

Clause 24.3 Boundaries

Clause 24.3.1 Relevant boundary

The relevant boundary has been taken as the boundary to which separation distance is measured. Space separation calculations are set out on the drawings. Please note the boundaries are existing and the provision of apartments and compartment construction greatly reduces the enclosing rectangle ensuring all space separation requirements are met to the requirements of BR 187 'External Fire Spread, in addition of an sprinkler system further reduces the risk from external fire spread.

Clause 24.3.2 Notional Boundary

The relevant boundary has been taken as the boundary to which separation distance is measured. Space separation calculations are set out above and on the drawings.

Clause 24.4 Unprotected areas.

In accordance with Clause 24.4 of BS 9991, the following factors have been taken into account when determining the extent of the unprotected area.

a) For life safety, any part of an external façade that has a period of fire resistance less than the appropriate level recommended in Table 5 is counted as an unprotected area.
b) Included in the unprotected area calculation is any section of external wall that has the appropriate standard of fire resistance, but has a class C-s3, d2 or worse material more than 1 mm thick as its external surface. However, this section of wall is counted as having an unprotected area amounting to half the actual area of the surface (see Figure 36).
c) The amount of unprotected area in the façades of buildings needs to be restricted according to the distance between these façades and the relevant (or notional) boundaries (see **24.5**).
d) The following do not contribute to the extent of unprotected area:

    1) any part of an external wall of a stairway in a protected shaft;

    2) parts of the external wall of an uncompartmented building that are more than 30 m above mean ground level;

    3) small unprotected areas in an otherwise protected façade according to the constraints shown in Figure 21.

e) No account in the space separation calculations have been for the sprinkler installation

Please note the areas of unprotected openings are greatly reduced due to the provision of apartments, in addition compartment construction greatly reduces the enclosing rectangle ensuring all space separation requirements are met to the requirements of BR 187 'External Fire Spread, in addition of an sprinkler system further reduces the risk from external fire spread.

Clause 24.5 Degree of separation

Clause 24.5.1. General

In accordance with Clause 24.5.1, the building is separated from the relevant boundaries by at least half the distance at which the total thermal radiation intensity, received from all unprotected areas in the external façade, would be 12.6 kW/m^2.

Clause 24.5.2. External walls within 1m of the relevant boundary

This is not considered applicable as the distance to the boundary exceeds 1m.

Clause 24.5.3. External walls or more tha 1m of the relevant boundary

In accordance with Clause 24.5.3 of BS 9991, the walls are situated at least 1 m from all points on the relevant boundary:

a) the extent of unprotected area do not exceed that given by BRE 187.

b) where the external wall requires fire resistance it will achieve either 120 or 90. Minutes respectively depending on the block.

Clause 24.5.4. Calculation methods

Calculations have been undertaken with reference to Enclosing rectangles as per BRE 187.

Clause 20.6 Roofs

Clause20.6.1 Separation distances

The separation distance is the minimum distance from the roof (or part of the roof) to the relevant boundary, which may be a notional boundary. Separation distances will comply with the recommendations in Table 11 of BS 9991.

No changes are proposed as part of this application and the roofs of blocks GW1 and GW2 are sufficiently far from a boundary.

Clause 20.6.2 Roof lights

No new roof lights are proposed as part of the works other than AOV's to stairs.

No plastic roof lights are proposed as part of the works.

Clause 25 Concealed spaces

Clause 25.1 Provision of cavity barriers

In accordance with 25.1 of BS 9991 2025, Cavity barriers will be provided to close the edges of cavities, including around openings.

Please note the following:

<u>The external wall will achieve a Class A2 s1 d0 classification.</u>

Cavity barriers will also be provided:

b) at the junction between an internal cavity wall and every compartment floor, compartment wall, or other wall or door assembly which forms a fire-resisting barrier.

Note: Compartment walls will be carried full storey height.

Clause 25.1.2 Protected escape routes

In accordance with Clause 25.1.2 of BS 9991 2024 all fire barriers i.e. compartment walls and fire resisting construction will be carried full storey height.

Clause 25.1.3 Double skinned corrugated or profiled roof sheeting

Not applicable.

All compartment walls will be taken up to meet the underside of the roof covering or deck, with fire-stopping where necessary at the wall/roof junction maintaining the continuity of fire resistance.

Clause 25.1.4 Cavities affecting alternative escape routes

Cavity barriers swill be provided where corridors are to be subdivided, to prevent alternative escape routes being simultaneously affected by fire and/or smoke.

In accordance with Clause 25.1.4 of BS 9991 all walls to bedrooms will be carried full storey height.

Clause 25.1.5 Separation of rooms within a compartment

A cavity that exists above or below a fire resisting partition between rooms will either:

a) fitted with a cavity barrier on the line of the partition; or

b) for a cavity above the partition, enclosed on the lower side by a fire-resisting ceiling that extends throughout the building, compartment or separated part.

Clause 25.2 Construction and fixings of cavity barriers.

Please note no cavity exists in the external wall build up. Any new or existing cavity barriers will be provided in accordance with Clause 25.2 of BS 9991 every cavity barrier will be constructed to provide at least 30 min fire resistance. Cavity barriers in a stud wall or partition, or provided around openings, may be formed of:

a) steel at least 0.5 mm thick;

b) timber at least 38 mm thick;

c) polythene-sleeved mineral wool, or mineral wool slab, in either case under compression when installed in the cavity; or

d) calcium silicate, cement-based or gypsum-based boards at least 12 mm thick. .

Cavity barrier will, be tightly fitted to a rigid construction and mechanically fixed in position. Cavity barriers will also be fixed so that their performance is unlikely to be made ineffective by:

1) movement of the building due to subsidence, shrinkage or temperature change and movement of the external envelope due to wind; or

2) collapse in a fire of any services penetrating them; or

3) failure in a fire of their fixings (but see Note 2); or

4) failure in a fire of any material or construction which they abut. (For example, if a suspended ceiling is continued over the top of a fire-resisting wall or partition and direct connection is made between the ceiling and the cavity barrier above the line of the wall or partition, premature failure of the cavity barrier can occur when the ceiling collapses. However, this might not arise if the ceiling is designed to provide fire protection of 30 min or more.)

Clause 26 Materials

Clause 26.1 Internal linings

In accordance with Clause 26.1 of BS 9991 the following will be complied with:

- the internal linings within circulation spaces within dwellings will either conform to Class 1 surface spread of flame in accordance with BS 476-7, when tested in accordance with BS 476-6, or conform to Class C-s3, d2 when tested in accordance with BS EN 13501-1.
- The internal linings within other circulation spaces, including the common areas of blocks of flats, will meet Class 0 (national) or Class B-s3, d2 (European).
- Small rooms of area not more than 4 m^2 will have internal linings conforming to Class 3 (national) or Class D-s3, d2 (European).

Clause 26.2 Suspended or stretched skin ceilings.

No thermoplastic materials are proposed in any suspended ceilings.

Clause 26.3 Special roof coverings

Not applicable.

Clause 27 Service ducts, pipes and shafts

Clause 27.2 Service shafts

In accordance with Clause 27.1 of BS 9991 Lift wells will be enclosed throughout their height with 120/60 minutes fire-resisting construction with the exception of firefighting lift which will achieve 60 minutes fire resistance.

Service shafts and other vertical ducts will be enclosed throughout their height with fire-resisting construction. Service ducts will be in accordance with BS 8313, and ventilation and air conditioning ductwork will be in accordance with **27.2**. Access hatches for service shafts will not be situated within a means of escape staircase unless providing smoke control or pressurization for that staircase.

Wherever practicable, services will not be run within common access corridors, including the corridor access for fire-fighting shafts. Where this is unavoidable, they will be run in a fire-separating construction or in a secured fire-resisting method. The doors will be fitted with secure fastenings to discourage the use of the riser for storage (budget locks, etc.).

Clause 27.2 Service running vertically

Lift wells (other than within a protected stairway) will be enclosed throughout their height with fire-resisting construction.
Service shafts and other vertical ducts will be enclosed throughout their height with fire-resisting construction. Access hatches for service shafts will not be situated within an escape stairway, unless the service shaft provides smoke control or pressurization for that stair.
The doors will be fitted with secure fastenings to discourage the use of the riser for storage (e.g. budget locks).

Clause 27.2.2 Service running horizontally

Where services are run horizontally within common access corridors and lobbies, including corridor access for firefighting shafts, they will either be enclosed with fire-resisting construction or meet all of the following criteria:
a) the exposed surface of the material/product used is class B-s3, d2 or better; b) the supports and fixings in the cavity are class A1;
c) any pipe insulation system is class B-s3, d2 or better; and
d) any electrical wiring in the cavity is laid in metal trays or metal conduit.

Clause 27.3 Installation of ductwork systems

None proposed, all apartments will be vented directly to the outside.

Clause 27.4 Flues

None proposed.

Clause 27.5 Protection of pipe openings

In accordance with Clause 27.5 of BS 9991- Pipes that pass through a compartment wall or compartment floor (unless the pipe is in a protected shaft), or through a cavity barrier, will be in accordance with one of the following alternatives.

a) For proprietary seals of any pipe diameter, a proprietary sealing system may be provided that has been shown by test to maintain the fire resistance of the wall, floor or cavity barrier.

b) For pipes with a restricted diameter, where a proprietary sealing system is not used, fire-stopping may be used around the pipe , keeping the opening as small as possible. The nominal interior diameter of the pipe will be not more than the relevant dimensions given in Table 13 of BS 9991

c) A pipe of lead, aluminium, aluminium alloy, fibre-cement or PVC, with a maximum nominal diameter of 160 mm, may be used with a sleeving of non-combustible pipe as shown in Figure 44.

Tests carried out in accordance with BS EN 1366-3 are specific to service penetrations. Ad hoc tests will be used only where directly relevant to the application.

Table 13 Maximum nominal interior diameter of pipes passing through a compartment wall/floor

The detailed design in respect of diameter of pipes has not yet been undertaken, however, Table 13 will be complied with respect to the provision of proprietary seals on pipes with a internal nominal diameter of greater than 40mm other than those constructed from non-combustible material where the diameter of 160mm is permitted.

Clause 28 fire resisting glazed elements

In accordance with Clause 28, Fire-resisting glass will be used only as part of an approved glazed system of matched components based on fire resistance testing of each individual system. Unauthorized changes will not be made to the list of glazed components in each case, and the system will be installed according to the assembly and glazing arrangement as tested.

The level of fire resistance of a representative example of the glazed system will be tested in accordance with BS 476-22 or classified in accordance with BS EN 13501-2.

For façade design, fire-resisting glazed elements may be used at appropriate locations to minimize the risk of fire spread in the same building from floor to floor, or on the same floor across re-entrant corners, by preventing flame break-out and break-in. The distance for the application of fire-resisting glazing either side of such a re-entrant corner, or on either side of a protected stairway with an external glazed wall, will be 1800 mm. **This will be provided where there are re-entrant angles at all levels by way of a Gyproc Shaft wall system see constructed details in appendices.**

Where applicable, fire-resisting glazing systems will conform to BS 6262-4 for impact safety, BS 6180 if used in a barrier, and the relevant part of BS 5234 if used in a partition.

All fire-resisting glass will be marked, as a minimum, with an identifiable name or trademark, or other mark, capable of unambiguous identification to the manufacturer or supplier (e.g. a product name, manufacturer's name or code). Installations will be in accordance with glazing guidelines provided by the manufacturer, and the glass will be installed in such a way that the identification mark is visible after installation. Appropriate documentation to confirm the system level of fire resistance will be provided on completion of the installation.

Clause 28.2 Limitations of non – insulating fire resisting glazing

In accordance with Clause 28.2 of BS 9991, to minimise the risk of ignition of adjacent floorings or floor coverings, non-insulating glazed areas in fire-resisting structures will be at least 100 mm above floor level.

Glazed elements that are fire-resisting in terms of integrity only (i.e. non-insulating) will not exceed the limitations given in Table 11 of BS 9991.

In the case of houses, glazed elements that are fire-resisting in terms of integrity only may be used in fire-resisting screens and in door panels and fanlights for fire and smoke separation, on the basis that escape to a place of ultimate safety outside the building is relatively short and direct compared with other building types.

In the case of buildings containing flats or maisonettes, glazed elements that are fire-resisting in terms of integrity only will not exceed the limitations given in Table 11 of BS 9991, appropriate to their position for fire and smoke separation, on the basis that escape to a place of ultimate safety outside the building is relatively short and direct compared with other building types.

Glazed elements that are fire-resisting in terms of both integrity and insulation to the required level may be used without restriction.

The same principles will be applied when using integrity with insulation fire-resisting glazed elements, instead of integrity only fire-resisting glazed elements, for the protection of property against fire, when fire exposure might be prolonged.

Table 14 Limitations of non – insulating fire resisting glazing insulated in a building containing a flat or maisonettes.

Position of glazed element	**Maximum area of non-insulating glazing**	
	Fire-resisting walls A)	**Any leaf of a fire door** B)
Part of the enclosure of a protected entrance hall or protected landing within a flat or maisonette	Not applicable	Not applicable
Between a flat or maisonette and a protected lobby, a common corridor or a protected stairway	Nil	Nil
Between a protected lobby or common corridor and a common stair	Unlimited above 1.1 m in height	Unlimited above 1.1 m in height
Subdividing corridors	Unlimited above 1.1 m in height	Unlimited above 1.1 m in height
Between a protected lobby or an internal common corridor and a communal lounge, a common amenity area or a low voltage or extra-low voltage service installation room	Unlimited above 1.1 m in height	Unlimited above 1.1 m in height
Between a common stair and ancillary accommodation	Nil	Nil
Between an escape route and a higher fire risk area of ancillary accommodation	Nil	Nil
Between a dwelling and an open access balcony with escape in one direction only	Unlimited above 1.1 m in height	Unlimited above 1.1 m in height

Clause 28.3 Glazed screen separating protected shaft from lobby or corridor

No uninsulated glazing will be provided into the protected shafts.

Clause 22.3 Glazing and the effects of sprinklers

No combined glazing and sprinkler system is proposed.

Clause 29 Active fire curtain / barrier assemblies

No active fire curtain / barrier assemblies are proposed.

Clause 30 Openings

Clause 30.1 Fire doors

In accordance with Clause 30.1 of BS9991, Fire doors will have a specified level of integrity but they do not usually need to be insulated, as there is no fire load immediately next to a door (it is normally part of a circulation route) for fire to spread by contact with the door surface. If fire doors are not insulated, however, there needs to be some limitation on the proportion of doorway openings in compartment walls and, with the exception of walls less than 5 m in length, no more than 25% of the length of a compartment wall will consist of door openings.

Clause 30.1.2 Installation

In accordance with Clause 30.1.2 of BS9991 Doors installed on site will conform, in dimensions and workmanship, to the manufacturer's specification for the appropriate fire resistance test report/assessment. Doors will be hung to ensure a good fit to the frame when closed, and the junction between door assembly and surrounding structure will be adequately sealed.

Security requirements will not override the need to provide adequate means of escape. All security locks and/or devices fitted to a dwelling entrance or alternative exit door will be openable from the inside by a single manual operation not requiring the use of a key.

Integrated elements such as locks, letter plates and security viewers will not reduce the fire resistance of the door.

Doors forming part of the means of escape from, and within, the building will:

a) be fitted only with simple fastenings that can be operated from the escape side of the door without the use of a key;

b) be hung clear of any change of floor level;

c) be hung so that they do not reduce the effective width of any escape route across a landing;

d) if opening into a corridor, be recessed to the full width of the door;

e) where hung to swing both ways (double swing), or subdividing corridors, be provided with a minimum of a vision panel;

f) open to an angle not less than 90°.

Clause 30.1.3 Fire resistance

As no protected entrance halls or landings are proposed no internal fire doors are required. All other fire doors will comply with Table 15 of BS9991.

Table 15 Provision for fire doors.

Position of door		**Minimum fire resistance of door in terms of integrity** A)		
		When tested in accordance with BS EN 13501-2-2023	**When tested in accordance with BS 476**	**When tested in accordance with BS EN 81-58**
1	In a compartment wall separating buildings	As for the wall in which door is fitted, but not less than 60 min, **the door from GW2 to Stairs 2A and on this elevation will be a 90 minute doorset FD90S**	As for the wall in which the door is fitted, but not less than 60 min	
2	In a compartment wall:			
A	if it separates a flat from a space in common use	E30SaB)	FD 30S B)	
b	enclosing a protected shaft forming a stairway situated wholly or partly above the adjoining ground	E30SaB)	FD 30S B)	
c	enclosing a protected shaft forming a stairway not described in 2b)	Half the period of fire resistance of the wall in which it is fitted but not less than 30 min and with suffix Sa	Half the period of fire resistance of the wall in which it is fitted but not less than 30 min minimum and with suffix Sb	
d	Enclosing a protected shaft forming a lift well or service shaft	Half the period of fire resistance of the wall in which it is fitted but not less than 30 min	Half the period of fire resistance of the wall in which it is fitted but not less	Half the period of fire resistance of the wall in which it is fitted but not less than 30 min
e	not described in 2a), 2b), 2c) or 2d)	As for the wall it is fitted in, but with suffix S if the door is used for progressive horizontal evacuation	As for the wall it is fitted in, but add Sa B) if the door is used for progressive horizontal evacuation	
3	In a compartment floor	As for the floor in which it is fitted	As for the floor in which it is fitted	
4	Forming part of the enclosure of:			
a	a protected stairway (except where described in item 10)	E30SaB)	FD 30S B)	
b	the separation between upward and downward flights of a basement stair	E30SaB))	FD 30S B)	
c	lift well, which does not form a protected shaft in 2b), 2c) or 2d)			E30
5	Forming part of the enclosures of:			

a	a protected lobby approach (or protected corridor) to a stairway, except for a fire-fighting stair	E30SaB))	FD 30S B)
b	any other protected corridor, or	E30SaB))	FD 30S B)
c	a protected lobby approach to a lift shaft	E30SaB))	FD 30S B)
6	Forming part of the enclosures of:		
a	evacuation lifts or refuges, except for lift landing doors	E30SaB))	FD 30S B)
b	evacuation lifts, where the door is a lift landing door	N/A	N/A
7	Affording access to an external escape route	E30	FD 30
8	Subdividing:		
a	corridors connecting alternative exits	E30SaB))	E30 SaB)
b	dead-end portions of corridors from the remainder of the corridor	E 30S B)	E30 SaB)
9	Any door		
a	within a cavity barrier	E 30	FD 30
b	forming part of the enclosure to a communal area in specialized housing	E30SaB))	FD 30S B)
10	Any door:		
a	forming part of the enclosure to a protected entrance hall or protected landing in a flat	E 30	FD 30
b	within any other fire-resisting construction in dwelling accommodation not described elsewhere in this table	E 30	FD 30

Clause 30.1.3 Glazing in fire doors.

In accordance with Clause 30.1.3 of BS999, where glazed elements in fire-resisting enclosures and doors are able to meet the relevant performance only in terms of integrity, the use of glass will be limited in accordance with Clause30 of BS9991.

Insulation performance-rated glazing may be installed in an integrity performance fire-resistant door, but integrity glass will not be installed in a door requiring insulation.

Clause 30.1.4 Lift landing doors

In accordance with Clause 30.1.4 of BS9991lift landing doors need to be fire doors, they will achieve the appropriate level of fire resistance in terms of integrity (see Table 5 and Table 15 of BS 9991) when tested in accordance with BS EN 81-58.

Clause 30.1.5 Closure systems

Clause 30.1.5.1 Self closing devices

In accordance with Clause 30.1.5.1 of BS9991, fire doors except those leading to a cupboard or service duct (both of which are normally kept locked shut) and with the exception of lift landing doors, all other fire doors will be fitted with a self-closing device (other than rising-butt hinges) that will:

a) be of a type that cannot readily be disconnected or immobilized and does not embody a mechanical hold-open facility unless it automatically releases the door in a fire situation; and

b) override any latches fitted to the door, or in the absence of a suitable latch or other positive device for holding the door shut in its frame, be of a type that when tested in accordance with BS 476-22 or BS EN 1634-1 is shown to be able to hold the door closed in the frame for a sufficient period of time for the closing role to be taken over by a thermally activated sealing device (e.g. an intumescent seal), or throughout the full period of exposure if such seals are not incorporated; and

c) for swing doors, conform to BS EN 1154.

Where the force needed to open a door on a circulation route exceeds 30 N, or if an automatic self-closing device would be considered a hindrance to the occupants of the building, then hold-open devices in accordance with 30.1.5.2 of BS 9991 will be provided.

Self-closing devices need not be provided on fire doors within a dwelling, flat or maisonette, except between an attached or integral dwelling and on the door between a flat and communal areas.

Clause 30.1.5.2 Hold open devices

In accordance with Clause 30.1.5.2 of BS9991. hold-open devices will:

a) a fusible link or heat detector (unless the door is fitted in an opening provided as a means of escape, or to protect a means of escape); or

b) an automatic release mechanism actuated by an automatic fire detection and alarm system; or

c) a delayed closing device with the delay adjusted not to exceed 25 s.

The automatic release mechanism will allow the door closing device to resume its self-closing function in the event of one or more of the following:

1) the detection of smoke by suitable automatic apparatus;

2) the detection of heat or smoke by any in-built sensing device;

3) failure of the power supply;

4) operation of the fire alarm system;

5) local manual operation;

6) if the facility is provided, a manual operation at a central control point.

Clause 30.1. 6 Hold open devices

In accordance with Clause 30.1.76 of BS9991, A fire door that is needed to resist the passage of smoke at ambient temperature conditions, i.e. fire doors having the suffix S will either:

a) have a leakage rate not exceeding 3 $m^3/h/m$, when tested in accordance with BS 476-31.1 with the threshold taped and subjected to a pressure of 25 Pa; or

b) meet the classification requirement of Sa when tested in accordance with BS EN 1634-3:2004.

When installed, the threshold gap will, where practicable, be sealed by a (flexible edge) seal either with a leakage rate not exceeding 3 $m^3/h/m$ at 25 Pa, or just contacting the floor, giving an even contact with the floor but not exhibiting significant increased frictional forces that could interfere with the closing action of the door. Where this is impracticable, the threshold gap will not exceed 3 mm at any point.

Clause 30.1.7 Building hardware

In accordance with Clause 30.1 of BS9991, unless shown to be satisfactory when tested in accordance with BS 476-22 or BS EN 13501-2:2023, no part of a hinge on which any fire door is hung, and which provides the means of support at the hanging edge, will be made either of combustible material or of non-combustible material having a melting point less than 800 °C.

All items of hardware for use on fire doors will be suitable for the type of door to which they are fitted.

Clause 30.1.7.2 Door Fastenings

Where a door on an escape route has to be secured against entry when the building or part of the building is occupied, it will be fitted with a lock or fastening that is readily operated, without a key or code, from the side approached by people making their escape.

Where a secure door is operated by a code, combination, swipe or proximity card, biometric data or similar means, it will also be capable of being overridden from the side approached by people making their escape.

Electrically powered locks will return to the unlocked position under any of the following conditions:

a) on operation of the fire alarm (see BS 7273-4); or

b) on loss of power or system error; or

c) on activation of a manual door release unit (type A) conforming to BS EN 54-11:2001 positioned at the door on the side approached by people making their escape. Where the door provides escape in either direction, a unit should be installed on both sides of the door.

Clause 30.1.8 Fire door signage

In accordance with Clause 30.1.8 of BS9991all fire doors other than lift entrance doors will be marked with the appropriate fire safety sign conforming to BS 5499-10 according to whether the door is:

a) to be kept closed when not in use;

b) to be kept locked when not in use; or

c) held open by an automatic release mechanism.

Fire doors to cupboards and to service ducts will be marked on the outside. All other fire doors will be marked on both sides.

Clause 30.2 Shutter assemblies

No shutter assemblies are proposed..

Clause 30.3 Access panels

In accordance with Clause 30.3 of BS9991, access panels will be of a construction that has at least the same fire resistance as the element they fit into. This will be achieved by having:

a) the recommended fire resistance from both sides; or

b) an automatic heat activated sealing device, which in the event of fire will close the opening to maintain the fire resistance recommended for the compartment wall or floor.

Clause 30.4 Fire stopping

Clause 30.4.1 Applications

In accordance with Clause 30.4.1 of BS9991 joints between elements that serve as a barrier to the passage of fire will be fire-stopped. All openings for pipes, ducts, conduits or cables to pass through any part of an element that serves as a barrier to the passage of fire will be:

a) kept as few in number as possible;

b) kept as small as practicable; and

c) fire-stopped (which in the case of a flue or duct, will allow thermal movement).

Clause 30.4.2 Products and materials for fire stopping

In accordance with Clause 30.4.2 of BS9991, the selection of products and materials used for fire-stopping will take account of the size and nature of the gap and any anticipated differential movement.

Proprietary fire-stopping and sealing systems (including those designed for service penetrations) are available and may be used provided that they achieve the appropriate level of fire resistance as given in Table 5 when tested in accordance with BS 476-22 or BS EN 1634-1.

In the case where minimum differential movement is anticipated and where the gap does not exceed 25 mm, the following fire-stopping materials may be used without specific test evidence:

a) cement mortar;

b) gypsum-based plaster;

c) cement or gypsum-based vermiculite/perlite mixes.

To maintain the physical integrity of fire-stopping, it will be reinforced with (or supported by) non-combustible materials, or materials of limited combustibility, in the following circumstances:

1) in all cases where the gap between elements that need to be fire-stopped is greater than 100 mm; and

2) in any other case where non-rigid or flexible materials are used (unless substantiated by fire test evidence).

Clause 31 Floors and ramps on escape routes

In accordance with Clause 31 of BS999, the floors of an escape route, including the treads of any stair and the floor of any landing, will have non-slippery, even surfaces.

Ramps will be in accordance with BS 8300:2.

Clause 26 Design and construction of common stairs.

In accordance with Clause 26 of BS9991the stairs in the building are existing and are of concrete construction. The existing stairs are safe for use and for egress.

Section 6 Mechanical systems for ducted heating ventilation and air conditions (HVAC)

Clause 32 HVAC systems within individual dwellings

In accordance with Clause 32 of BS 9991, ducted HVAC systems will be arranged such that fire and smoke is not transferred from the room of fire origin in a manner that could inhibit the safe use of protected internal means of escape routes or allow the undue spread of fire.

Please note the proposal for individual units is to bring all HVAC systems directly to the external wall and not through other rooms, apartments , common areas or fire resisting construction.

Any flat, maisonette or other residential unit with a floor over 4.5 m above ground level or any basement will meet the following recommendations.

a) It is not proposed to provide Transfer grilles in any wall, ceiling, floor or door enclosing a protected internal hallway or stair enclosure.

b) Where practicable, ducts will be routed such that they do not pass through protected internal hallways or stair enclosures.

c) Where the duct does pass through a protected internal hallway or stair enclosure, then:

1) where the duct penetrates the fire-resisting enclosure, it should be provided with fire dampers that are accessible for maintenance, conform to BS EN 15650, tested in accordance with BS EN 1366-2, and have an ES classification in accordance with BS EN 13501-3:2005+A1 to achieve at least the same level of fire resistance as the compartment barrier in which they are fitted. The smoke detector activating the damper will also be accessible for testing and maintenance; or

2) the duct should be of fire-resisting construction and have

or

2) the duct will be of fire-resisting construction achieving 30 min integrity when tested from the inside); or

3) the ceiling zone containing the duct will be bounded by the protected enclosure and provided with an imperforate ceiling construction achieving 30 min fire resistance integrity and insulation when tested from above), and have an upper surface of Class 1 surface spread of flame when tested in accordance with BS 476-7 or the European equivalent.

d) It is not proposed to provide HVAC system re-circulates air and serves the protected internal hallway or stairway and other rooms.

e) It is not proposed to provide a HVAC ducted systems that link between dwellings or serve common areas.

Clause 33 Hvac systems serving the whole building or interconnecting dwellings and other residential units.

No HVAC systems serving the whole building is proposed.

Section 7 Ancillary accommodation to flats and maisonettes.

Clause 37 General recommendations for ancillary accommodation.

Ancillary accommodation will be provided at basement floor level, the accommodation will be for occupants use only and will be ancillary to the main use of the building.

Please note any ancillary accommodation on the residential floors will be provided with an sprinkler system to BS9251 2021 in accordance with Table 3 of BS 9251.

The ancillary accommodation consists of the following:

Basement Floor has been provided with commercial sprinklers

- Car parking
- Refuse storage
- Bicycle store

Lower Ground Floor Accommodation

- Lobby Entrance

No of Occupants

The proposed occupancy load at ground floor is as follows:

Room Name	Area	Occupancy Load Factor [1]	No's
Refuse Store 1	49.4	30	2
Refuse Store 1	51	30	
Cycle Store 1	54.6	30	2
Cycle Store 2	54.4	30	2
Cycle store	54.1	1	2
Total Occupancy			**24**

[1] Refers to area of room or storey, as appropriate, with area calculated in accordance with BS 9999 2017 as no occupancy loads provided for in BS 9991, please note all occupants would be otherwise occupant in the residential accommodation over,.
[3] An occupancy load of 3 is considered acceptable as these rooms will have equipment in them
*Please note the occupants would be otherwise occupant in the building i.e. apartments, gym , amenity space

Number of escape routes and exits

Basement Floor:

The premises has three small basements for ancillary plant and water tank storage areas. These are denoted as follows:

- Basement Stairs 3
- Basement Stairs 4
- Ramp escape
- Exit to the river elevation

The means of escape will be such that:

- Basement accessed by way of the central Stairs 2 and is separated by way of a ventilated protected lobby and will be provided with 0.4sqm of permanent natural ventilation at basement level and escape is by way of the protected stairs 2 directly to the FE 4 and outside or alternatively by way of the existing lightwell and ladder escape.

Ground Floor

There are 5 number of escape routes from basement and lower ground floor:

1. FE1 Main entrance - 1085mm catering for 220 people
2. FE2 Escape by way of Stairs 2 -850mm catering for 110 people
3. FE3 Escape by way of Stairs 1 -850mm catering for 300 people
4. FE4 Escape by way of Stairs 1 -850mm catering for 300 people
5. FE 5 exit from Amenity 2-2500mm catering for 500 people

The exits can cater for in excess of the maximum occupancy of the premises.

Single escape routes and exits

The maximum travel distances at ground floor in the ancillary accommodation will be 18m in a single direction and 45m in more than one direction.

A number of rooms at ground floor will have a single escape route, this is considered acceptable as:

a. The travel distance to the nearest storey exit is within the limits of Table 14 for routes where escape is possible in more than one direction
b. The travel distance for the 'one direction only' section of the route does not exceed the limit for travel distance of Table 14 where there is no alternative escape route (Table 14).

Basement

Refuse store

The rooms above will be provided with escape by way of the following:

- Via corridor FE 1
- Via corridor FE 3
- Via corridor and FE 4

There is sufficient width in the escape routes to cater for the maximum occupancy of these areas of 65 people.

The refuse store will egress directly to the outside.

There is sufficient width in the escape routes to cater for the maximum occupancy of these areas.

Inner Rooms

All inner rooms at ground floor will comply such that:

An inner room can be at risk if a fire starts in the access room . An inner room arrangement should therefore not be provided unless all of the following conditions are met:

a) the occupant capacity of the inner room does not exceed 60 (30 where the occupants require assistance escaping); **compliant**
b) the inner room is not a bedroom; **compliant**
c) the inner room is entered directly from the access room; **compliant**
d) the escape route from the inner room does not pass through more than one access room; **compliant**
e) the travel distance from any point in the inner room to the exit(s) from the access room does not exceed the allowable one-way travel distance; **compliant**

f) the access room is not a place of special fire hazard and is in the control of the same occupier as the inner room; **compliant**
g) the access room is protected by an automatic smoke detector that either operates an alarm that is immediately audible in the inner room, to a sound pressure level in accordance with the minimum recommended in BS 5839-1:2019, or gives an immediate visual alarm conforming to BS EN 54-23 in the inner room if the ambient noise levels are so great as to make an alarm inaudible. **Compliant**

Width of escape routes

The width of the escape doors will be in accordance will be as follows:

There are 5 number of escape routes from basement and lower ground floor:

1. FE1 Main entrance - 1085mm catering for 220 people
2. FE2 Escape by way of Stairs 2 -850mm catering for 110 people
3. FE3 Escape by way of Stairs 1 -850mm catering for 300 people
4. FE4 Escape by way of Stairs 1 -850mm catering for 300 people
5. FE 5 exit from Amenity 2-2500mm catering for 500 people

In accordance with Clause 34 of BS 9991, the following will be complied with respect to ancillary accommodation:

a) Ancillary accommodation will have escape routes of such number and be situated such that the travel distance from any point does not exceed the limitations given in Table 14.

b) Ancillary accommodation will not connect with any part of the only escape route from one or more dwelling on the same storey as the ancillary accommodation unless it meets the recommendations given in Clause 34 of BS 9991.

c) In multi-stair buildings:

1) ancillary accommodation will be separated from any stair by a protected lobby or protected corridor at the storey in which the accommodation is situated;

2) ancillary accommodation will be separated from any common corridors by a protected lobby where the escape route is in a single direction.

d) Ancillary accommodation will be separated from other parts of the building in accordance with Table 17 and, where necessary, have ventilated.

e) No Glazed areas separating escape routes from ancillary accommodation are proposed and if proposed will comply with Clause 28

f) Emergency escape lighting will be provided in accordance with 40.2 of BS 9991.

g) All ancillary accommodation, with the exception of communal lounges, common amenity areas and transformer, switchgear and battery rooms for low voltage or extra low voltage equipment, will be treated as places of special fire hazard.

Table 16 Maximum travel distances in areas of ancillary accommodation

Ancillary accommodation	**Maximum part of travel distance within the room or area**	**Maximum travel distance to the nearest storey exit**

		Escape in one direction only M	Escape in more than one direction in directions of 45 degrees or more apart M	**Escape in one direction only** m	Escape in more than one direction in directions of 45 degrees or more apart M
1 2 3 4	Engineering services installation rooms Boiler rooms Fuel storage areas Transformer, battery and switchgear rooms	9	18	18	45
5	communal lounges and common lounges and common amenity areas	18	45	18	45
6	Covered car parks	18	45	18	45

A) This may include up to 18 m with escape in one direction only.

Table 15 Structural fire protection of ancillary accommodation.

Ancillary accommodation		**Structural fire protection**
1	Communal lounges	Separation of area of ancillary accommodation from other parts of the building by:
2	transformer, switchgear and battery rooms for low voltage or extra low voltage equipment	Robust construction having a minimum standard of fire resistance of 30 min
3	Engineering services installation rooms other than those covered by items 2 and 6 to 8 inclusive	Robust construction having a minimum standard of fire resistance of 60 min
4	Refuse chutes and refuse storage areas	
5	Covered car parks within or adjoining the building and not greater than 450 m2 in area	
6	Engineering services installation rooms, housing fixed internal combustion engines	Robust construction having a minimum standard of fire resistance equivalent to that required for the elements of construction and in no case less than 60 min
7	Boiler rooms and fuel storage spaces	
8	Transformer and switchgear rooms for equipment above low voltage	
9	Covered car parks within or adjoining the building and greater than 450 m2 in area	

A) Any openings in the required construction will be protected by doors having a similar standard of fire resistance and capable of resisting the passage of smoke at ambient temperature.

Clause 35 Places of special fire hazard

No places of special fire hazard are proposed. No gas or oil installations are proposed or high risk areas. Basements will be used for water tanks and other residential services.

Clause 36 Installation of engineering services.

In accordance with Clause 36 of BS 9991, the equipment associated with engineering services and control gear will be installed and maintained in accordance with the relevant codes of practice.

Clause 37 Gas services, installation and service pipes

No gas installations are proposed.

Clause 38 Electrical services

Clause 38 .1 Electrical service installations

In accordance with Clause 38.1 of BS 9991, methods of cable support will be non-combustible and such that circuit integrity is not reduced below that afforded by the cable used, and will be able to withstand a similar temperature and duration to that of the cable, while maintaining adequate support.

Clause 38.2 Transformer, battery and switchgear rooms

In accordance with Clause 38.2 of BS 9991, a transformer, battery or switchgear room, unless situated on the roof or in a separate enclosure, will be sited adjacent to an external wall and entered only from the open air.

A transformer, battery or switchgear room will have adequate provision for ventilation.

Clause 38.2 Photovoltaic systems in dwellings

Any photovoltaic system for the blocks will be separated from the rest of the accommodation by 30 min fire-resisting construction and an E 30 S or FD 30S door kept locked.

Clause 38 .3 Fire fighter emergency switches for discharge lighting installations.

An exterior or interior discharge lighting installation, operating unattended or at a voltage exceeding low voltage, will be controlled by a firefighter's switch.

A firefighting emergency switch will be provided for and the Fire Brigade will be consulted on same with respect to the relevant location.

Clause 43 Gas and electricity meters.

No gas installations are proposed.

Electricity meters and associated equipment will be installed in accordance with BS 7671.

Where meter boxes are required, gas meters and electricity meters will be housed in separate boxes, each large enough only for the meter and associated equipment.

Wherever practicable, electricity meters will not be located in the entrance hall of a dwelling, but if a meter is so positioned, it will be contained within a suitably constructed cupboard that is large enough to contain only the meter(s).

A meter will not be installed on or under a stairway. Meters in flats and maisonettes may be located to be accessible or visible from a common circulation space (not a common stair) through robust doors provided with locks. Glazed viewing panels large enough to expose dials and meter numbers may be provided, where desired. Where meters are inset into a fire-resisting wall or partition, they will be separated at the back and sides from the dwelling by non-combustible construction having the same fire resistance as that recommended for the element in which they are placed.

Clause 40 Lighting

Clause 40.1 Types of luminaires

In accordance with Clause 40.1 of BS 9991, incandescent filament lamps and high pressure discharge lamps operate at elevated temperatures, and where these are used they will not be close to or fixed to materials that are readily ignited. Minimum separation distances will be applied in accordance with BS 7671. Care will be taken in the selection of plastics materials or finishes and preference will be given to those with superior flame retardant qualities.

Clause 40.2 Lighting of common escape routes in buildings containing flats or maisonettes

In accordance with Clause 40.2 of BS 9991, provision will be made for lighting along common escape routes so that occupants and visitors to the building can see their way to safety, even in the event that the main electricity supply fails. The lighting will be such that directional or warning signs associated with common escape routes, changes in floor level, the location of fire alarm call points and fire-fighting equipment are also visible. Where an emergency escape lighting system is provided, it will meet the appropriate recommendations in BS 5266-1.

Emergency escape lighting will also be provided within:

a) ancillary accommodation normally accessible to the occupants;

b) common stairs;

c) all common escape routes in specialized housing;

d) common escape routes across a flat roof;

e) windowless accommodation within live-work units.

Where an emergency escape lighting system is not provided along common escape routes, the lighting will use only protected circuits (see **44.3**).

Clause 40.3 Protected circuits

In accordance with Clause 40.3 of BS 9991, A protected circuit will:

- have the appropriate category of cable as recommended in BS 5266-1; and
- be easily identifiable and spatially separated from non-protected circuits

Clause 41 Protection of Lift installations and machinery

In accordance with Clause 41 of BS 9991, the lift well is located within a common escape route, any lift machine room will be either above or outside of the common escape route.

Lift machine rooms or machinery spaces will conform to the appropriate part of BS EN 81-20.

41.3 Access to lifts
41.3.1 Lifts serving more than one flat or maisonette

Lift access will be via ventilated common corridors or lobbies (see Annex F). Corridors and lobbies serving the lift will not form part of any dwelling. The lift, including any lift door, will not form part of the compartment construction bounding a dwelling or act as the direct entrance into a dwelling.

Clause 42 Communal heating and ventilation and air conditions systems.

In accordance with Clause 42 of BS 9991, Communal heating, ventilation and air conditioning systems will meet the following recommendations.

Please note the heating, ventilation and air conditioning of apartments will be by way of individual air to air heat pumps and internal domestic HVAC systems within each unit. No common HVAC or heating systems are proposed. Electric radiators are proposed for common areas.

a) No oil fired boilers are proposed.

b) No gas fired boilers are proposed

c) No boiler rooms are proposed.

d) Oil fuels will be stored in accordance with BS 5410-1, BS 5410-2 and BS 799-5. Any oil or fuel in the basements will be used for back up life safety systems.

e) No solid fuel is proposed. .

f) No Bulk storage of liquefied petroleum gas is proposed.

g) Ducts for engineering and building services will be in accordance with BS 8313; ducts and ductwork for ventilation and air conditioning will be in accordance with Clause **21**.

Clause 43 Refuse storage, disposal and incineration

In accordance with Clause 43 of BS 9991, Refuse storage, disposal and incineration will meet the following recommendations.

a) Refuse storage chambers, refuse chutes and refuse hoppers will be sited and constructed in accordance with BS 5906 using A1 materials.

b) Refuse storage chambers will be approached solely from the outer air and will be separated from other parts of the building in accordance with Table 55. Access to refuse storage chambers will not be sited adjacent to escape routes or final exits or near to windows of dwellings.

c) Refuse chutes and rooms provided for the storage of refuse will be separated from other parts of the building in accordance with Clause 19 of BS 9991. They will not be located within or accessed directly from common stairs. Rooms containing refuse chutes or provided for the storage of refuse will be approached only by way of a protected lobby having not less than 0.2 m^2 of permanent ventilation or suitable mechanical alternative.

Clause 44 Car parks and domestic garages

No car park or domestic garages are proposed. .

Section 8: Access and facilities for fire fighting.

Clause 45 General recommendations for fire fighting facilities.

The building will be provided with 2 no. fire-fighting shafts.

In accordance with Clause 49 of BS 9991, fire-fighting facilities will include, where appropriate:

a) the provision of vehicular access for fire appliances to the perimeter of the building or site;

b) provision of easy and speedy entry to the site and/or the interior of the building for fire-fighters and their equipment;

c) provision of and access to sufficient supplies of a fire-fighting medium, as determined by a risk assessment;

d) means of enabling fire-fighters, once they have entered a building, to reach any point within that building in the shortest time possible, including the provision of fire-fighting lifts, where appropriate;

e) means of ensuring that once fire-fighters have arrived at a location within a building, they can remain there in relative safety whilst they carry out their fire-fighting operations;

f) provision for fire and rescue service communications;

g) provision of facilities to release, or extract, smoke and heat from the building or site;

h) provision for removing spent fire-fighting extinguishing medium (e.g. drainage).

Clause 46Fire fighting access

Clause 46.1 Access for fire appliances

Clause 46.1. 2 Vehicle Access

In accordance with Clause 46.1.1 of BS 9991, the buildings are existing however the building is provided with suitable access for fire-fighting purposes; no changes are proposed to existing roadways which allow access for fire appliances, and entry points to buildings will be readily identifiable to the fire and rescue service.

No changes are proposed to the existing vehicle access and this is considered acceptable as:

The fire figting shafts will be provided with fire mains a dry mains (<50m) provisions made for vehicular access so therefore where required the vehicle access will be as per Clauses 50.1 to 50 .3 below.

Fire appliance access to buildings will be discussed with the fire and rescue service at the concept stage.

Clause 46.1.2 Buildings not fitted with fire mains

The building will be fitted with fire mains.

Clause 46.1.3 Buildings fitted with fire mains

GW1 which will have a wet fire mains will have fire appliance access:

1. a) within 18 m of, and within sight of, a suitable entrance giving access to the wet fire main; and;
2. b) within sight of the inlet for the emergency replenishment of the suction tank for the wet fire main.

Clause 46.2 Access for fire fighters

Clause 46.2,.1 General

In accordance with Clause 46.2.1 of BS 9991, buildings with a floor higher than 18 m above fire and rescue service access level, fire and rescue service access level, will be provided with fire-fighting shaft(s) containing fire-fighting lifts.

2 no fire fighting shafts will be provided to meet the maximum hose distance of 60m, and at least two fire-fighting shafts will be provided in buildings with a storey of 900 m^2 or more in area.

The local fire and rescue service will be consulted at an early stage with respect to security on doors. .

The designated route to the fire-fighting shaft will be clearly indicated by appropriate signage or other recognizable means where the entrance is not directly accessed from the outside, and in a location visible from a fire appliance.

Clause 46.2,2 Siting of firefighting shafts.

In accordance with Clause 46.2.2 of BS 9991, access will be provided to enable fire-fighters to create a bridgehead from where they can operate at a level immediately above or below the fire floor. The local fire and rescue service will be consulted regarding access to fire-fighting shafts.

Fire-fighting shafts will be sited against exterior walls. The 2 no. fire-fighting shafts will meet the following recommendations:

1) If the building is fitted throughout with a sprinkler system in accordance with BS 9251:2021or BS EN 12845 (see **11.2**, Table 2), then sufficient fire-fighting shafts will be provided that every part of every storey is no more than 60 m from a fire main outlet in a fire-fighting shaft, as measured on a route suitable for laying hose.

Clause 46.3 Construction of firefighting shafts.

Clause 46.3.1 General

In accordance with Clause 463.1 of BS 9991, Fire-fighting shafts are existing however, they are constructed in accordance with the recommendations given in BS 9999 for the fire resistance, resistance to damage of enclosing and separating partitions, and floor coverings of fire-fighting shafts.

Any glazing incorporated into the fire-fighting shaft will be in accordance with Clause 22 of 9991.

Clause 46.3.2 Fire resistance Fire fighting shafts

If one or more walls enclosing a firefighting shaft are exterior walls and the distance between the firefighting shaft and the accommodation is less than 5 000 mm (see Figure 46), either:

a) the side nearest the accommodation of any exterior wall facing or adjacent to the firefighting shaft should have a fire resistance of 120 min; or

b) the side internal to the firefighting shaft of any exterior wall facing or adjacent to the accommodation should have a fire resistance of 120 min.

If the stair from a firefighting shaft is extended into a part of the building that does not require a firefighting shaft, either:

1) the firefighting shaft swill be extended accordingly, including the provision of firefighting lobbies and any fire main; or

2) the extension to the stair will be separated from the fire fighting shaft by 120mins fire resisting construction

Clause 46.3.3 Resistance to damage of enclosing and separating partitions

Unless constructed of materials such as brick or concrete, partitioning will satisfy the criteria for conformity given in Table 19 when tested in accordance with BS 5234-2:1992, Annex F (severe duty).

Clause 46.3.4 Flooring and floor coverings within the fire fighting shaft

All floorings and floor coverings will be selected such as to minimize slipperiness when wet. Floor coverings should be classified as Bfl when tested in accordance with BS EN 13501-1:2018.

Clause 46.3.5 Fire fighting stairs and lifts

Clause 46.3.5.1 Fire fighting stairways

The firefighting stair enclosures will be provided with facilities for smoke control (see Clause **20** and Annex F).

A firefighting stairway will not contain any cupboards or provide access to service shafts serving the remainder of the building.

Where the building has more than one stair, a firefighting shaft will serve all floors from the lowest to the highest, including basement and above ground. In order to prevent smoke from basement storeys penetrating the stair enclosure above ground level, firefighting stairways serving floors both above and below ground level will be separated at ground floor level by a fire door.

Firefighting stairways will be designed and constructed in accordance with Clause **9**.

No Scissor stairs are proposed.

No helical stairs/winders are proposed.

Emergency escape lighting in firefighting stair enclosures will be provided in accordance with BS 5266-1.

The firefighting stairway will serve every storey that is served by the firefighters lift.

In accordance with Clause 46.3.2.2 of BS 9991the fire-fighting stairs will be sufficiently wide to be easily used by fire-fighting personnel carrying fire-fighting equipment. Fire-fighting stair enclosures will be provided with facilities for smoke control) so that they remain relatively smoke-free.

A fire-fighting stair will not contain any cupboards or provide access to service shafts serving the remainder of the building.

To prevent smoke from basement storeys penetrating the stair enclosure above ground level, fire-fighting stairs serving floors both above and below ground level will be separated at ground floor level by a fire door.

Fire-fighting stairs will be designed in accordance with BS 5395-1, with a width between the walls or balustrades of not less than **1.1 m**. This width will be kept clear for a vertical distance of 2.0 m, as measured from the pitch line or landing floor level, with the following exceptions:

a) stringers, each intruding into the stair by not more than 30 mm; and

b) handrails, each intruding into the stair by not more than 100 mm.

Emergency escape lighting in fire-fighting stair enclosures will be provided in accordance with BS 5266-1.

Both the fire-fighting lift and stair are used together during fire-fighting operations. Because it is the line of retreat if the fire-fighting lift fails, the fire-fighting stair will serve every storey that is served by the fire-fighting lift.

Signage numerically indicating the floor level will be provided within the fire-fighting stair.

Clause 46.3.5.2 Fire fighting lifts

Firefighters lift installations will conform to BS EN 81-20 and BS EN 81-72. The firefighters lift will:

a) open directly into the protected lobby or protected corridor;
b) have landing doors not more than 7.5 m from the firefighting stairway; and;
c) not be located within the stair enclosure, even if the building is being refurbished.
d) Where dual-entry firefighters lifts are installed, they will meet the requirements for such lifts in BS EN 81-72.

The fire-fighting lift remains operational on this basis, . the power supply of the lift and lighting will consist of primary and secondary (emergency, stand-by or alternative) supplies. There will also be means to minimize the effect of water penetration into the fire-fighting lift well.

Access points into the fire-fighting lift well will be provided in accordance with BS EN 81-72.

Where a fire-fighting lift is intended to run blind through a number of floors, it will be determined that there is adequate access for fire-fighting personnel to set up a bridgehead on any required floor (see Note 1). Where lifts are proposed to run blind there will be early consultation with the local fire and rescue service.

Clause 47 Water supplies for fire and rescue service fire fighting use

Clause 47.1 Fire mains

Fire mains will be designed and installed in accordance with BS 9990.

Fire mains will be installed in buildings where any floor is higher than 18 m above ground level. Where there are no floors higher than 50 m above ground level, GW2, a dry fire mains may be installed.

Where there are floors higher than 50 m above fire-fighting access level, GW1, a wet fire mains will be installed because of the pressures required to provide adequate water supplies at the landing valves at upper floors and also to ensure that water is immediately available at all floor levels.

Fire mains will be installed in any building provided with a fire-fighting shaft and located within the stair enclosure (see Figure 35).

Clause 47.2 Locations and access to external water supply

The will be provided with a supply of water for fire-fighting. Fire-fighters have to lay out hose between the water supply and the fire appliance, so these distances will be kept to a minimum.

The hydrants are existing and are shown on the site plan. Adequate water will be provided by way of a storage tank for the wet mains at basement. The hydrants are located in positions that are near to building entry points (including entry points to fire-fighting shafts containing fire mains) and fire appliance parking positions as follows.

a) For buildings provided with dry fire mains, hydrants will be provided within 90 m of dry fire main inlets.

b) For buildings not provided with fire mains (or where the building is fitted with a wet fire main), hydrants will be provided within 90 m of an entry point to the building and not more than 90 m apart.

Water mains and hydrants will be capable of delivering a sufficient flow of water to enable effective fire-fighting to be undertaken. If the water supply takes the form of a static tank or dam, the capacity will be related to the size of the building and the risk involved. An unlimited and guaranteed natural water source providing the right quantities is also expected to be acceptable, subject to access and hard-standing for the fire appliances being provided.

Prior to the construction of the building, consultation will be undertaken with the water authority, fire and rescue service and building control body on the nature of the water supply and the quantities or capacity to be provided.

The water supply will comprise one or a combination of the following:

1) hydrants provided by the water undertaker on the street mains;

2) private hydrants designed and installed in accordance with BS 9990, ideally forming part of a ring main system;

3) a static or natural water supply.

All hydrants will be assessed and will be upgraded to have if necessary to have signage in accordance with BS 3251.

Clause 48 Information for fire and rescue service use

In accordance with Clause 48 of BS 9991, appropriate information about the building will be made available to fire and service rescue. This will include:

a) simple floor plan layouts, indicating any relevant fire resistance provisions, internal access provisions, fire-fighting facilities, building services and any specific hazards;

b) relevant information (including operating instructions) relating to equipment/fixed installations provided for means of escape or fire-fighting;

c) information regarding the implications of any fire engineering strategy on the performance of the building during a fire, e.g. reduced fire resistance of elements of structure or areas of the building with additional fire protection measures;

d) information relevant to preventing environmental damage;

e) relevant information (including operating instructions) relating to lifts provided for means of escape or fire-fighting. Where evacuation or fire-fighting lifts are installed, these will be clearly signed at the fire service access level; relevant information will be available detailing the locations of the main switch, rescue controls and machinery spaces.

48.2 Wayfinding signage for the fire and rescue service

48.2.1 Provision of floor identification signs and flat indicator signs

- The signs will be located on every landing of a protected stairway and every protected corridor/lobby (or open access balcony) into which a firefighters lift opens.
- The text will be in a sans-serif typeface with a letter height of at least 50 mm. The height of the numeral that designates the floor number should be at least 75 mm.
- The signs will be visible from the top step of a firefighting stairway and, where possible, from inside a firefighters lift when the lift car doors open.
- The signs will be mounted between 1.7 m and 2 m above floor level and, as far as practicable, all the signs will be mounted at the same height.
- The text will be on a contrasting background, easily legible and readable in low level lighting conditions or when illuminated with a torch.

- The wording used on each floor identification sign should take the form “Floor X”, with “X” designating the number of the storey, as intended for reference by residents. The floor number designations should meet all of the following recommendations.

48.2.2 Wording of floor identification signs

a) The floor closest to ground level will be designated as either “Floor 0” or “Ground Floor”.
b) Each floor above the ground floor swill be numbered sequentially beginning with “Floor 1”.
c) If there is a single floor below ground level, it will be designated as either “Floor -1” or “Lower Ground Floor”.
d) If there is more than one floor below ground level, each floor will be numbered sequentially beginning with “Floor -1” or “Basement 1”.

All floor identification signs will be supplemented by flat indicator signs that provide information relating to the flats accessed on each storey. The flat indicator signs will meet all of the following recommendations.

48.2.3 Wording and location of flat indicator signs

a) The signs will be sited immediately below the floor identification signs, such that the top edge of the sign is not more than 50 mm below the bottom edge of the floor identification sign.
b) The wording will take the form “Flats X–Y”, with the lowest flat number first.

c) The text will be in a sans-serif typeface with a letter height of at least half that of the floor indicator sign.
d) The text and arrows should be on a contrasting background, easily legible and readable in low level lighting conditions or when illuminated with a torch.

48.2.3 Evacuation alert system for use by the fire and rescue service

As the blocks will have a stay put strategy and a storey more than 18 m above ground level, an EAS will be provided to enable the fire and rescue service to initiate operation of evacuation alert sounders within each dwelling on any single floor, multiple floors or the entire building, according to circumstances.

The EAS will be designed, installed and commissioned in accordance with BS 8629. Evacuation alert and control indicating equipment (EACIE) for the EAS will be sited in accordance with BS 8629. The EACIE will be located such as not to impinge on the effective width of escape routes. Within each flat, at least one evacuation alert sounder, conforming to BS EN 54-3, will be provided.

The sound pressure level of the alarm signal at each open bedroom doorway will be at least 85 dB(A). The sound pressure level within other habitable rooms will be at least 60 dB(A) when all doors in the dwelling are closed. Facilities will be incorporated in accordance with BS 8629 to enable additional devices to be added to alert people who are Deaf or have a hearing impairment.

The cables and wiring for the EAS will meet the recommendations given in BS 8629. If a networked system is used, the following recommendations will be met:

a) The wiring of the data network will comprise cables of enhanced fire resistance.
b) The data network will be fault-tolerant, such that, in the event of a single open or short circuit fault on the network cable, the system continues to operate fully in accordance with BS 8629, while giving an audible and visual fault indication at the central EAS control equipment.
c) Where practicable, wiring of the data network will be diverse routed, such that the “return” leg of a loop circuit follows a different path from the “outward” leg. If this is not practicable (e.g. because it is necessary for the data loop to be contained within a single service riser), the sub-panels and the entire data network will be located in areas of low fire risk (i.e. areas that are unlikely to be affected by a fire in any flat), and the outward and return legs should be separated by at least 300 mm.

Section 9: Management

Clause 49 Building management

No specialised housing is proposed.

Clause 49 Contingency Planning

The building fire safety design (as documented in the fire risk assessment) swill take into account any reasonably foreseeable scenarios of fire safety design or system impairment, e.g. system outage due to failure, maintenance or repair.

For all buildings, where a fire safety design or system impairment is encountered or anticipated, a risk assessment will be undertaken to determine the need for mitigation of any such impairments, and appropriate measures will be put in place.

Clause 50 Evacuation of occupants that require assistance to escape.

The building will be designed to cater with a normal range of abilities and persons with a range of disabilities including wheel chair users, those with mobility impairments, those with audible and visual impairments and those with dexterity impairments. All of the above will be catered by way of the following:

- Provision of an evacuation lift
- Provision of disabled refuges
- Provision of audible and visual alarm signals
- Provision of PEEPS for those occupants that need to evacuate in the event of a fire.

Residents that cannot self rescue do not reside on their own. They require 24 hour assistance i.e. paraplegics, and those that require hoists.

We consider that should any occupants with severe disabilities that cannot self-rescue will not be living on their own , these occupants require care givers who provide care 24/7 in order for these residents to meet their basic functional needs, all carer-givers that are required to physically assist residents to use sanitary facilites are provided with manual handling training as a function of their role, as part of the evacuation strategy all residents will be provided with a management booklet and persons with disabilities will be provided with PEEPS that both the occupant with needs and the care giver will follow in the event of a fire.

We do not consider appropriate to view a residential building in the same capacity as a residential institutional building or a hospital.

There will also be a building manager on site who will aid evacuation of persons with severe mobility impairments.

Clause 50.2 Emergency Evacuation Plans

All buildings will have an emergency evacuation plan that includes the general arrangements for all occupants of the building.

The emergency evacuation plan will include the means for all people to move away from danger, leave the building and reach a place of ultimate safety.

An emergency evacuation plan will not rely on the assistance of the fire and rescue service.

The dutyholder will verify that a PEEP is in place for any residents, staff or frequent visitors who have been identified as requiring one.

Please note building will be provided with 2 no. evacuation lifts. The buildings will also be provided with disabled refuges with emergency voice communication systems.

In addition all occupants will be provided with evacuation plan as part of their owner/occupiers manual and any occupants with an impairment which may affect their evacuation will be provided with PEEP (Personal Emergency Evacuation Plan).

The PEEP is a personalised plan and as such must be drawn up with the active participation of the person concerned. All persons who could be expected to aid the evacuation of a disabled person should receive a copy of the relevant PEEP.

A practice drill should be carried out at least once per year to monitor and review the effectiveness of all active PEEPs and they should be updated where appropriate annually. The production of PEEPs will be carried out in consultation with Building Management. The evacuation of the disabled persons must be independent of assistance from the fire brigade.

All PEEPs will be activated immediately when the fire alarm sounds. A person with a mobility impairment living unaccompanied may not be able to evacuate alone and as such will report their location to management on occupation. Where it is safe to do so, guide dogs and mobility aids and equipment (crutches, etc.) must be evacuated with the disabled person. More information on the evacuation of disabled persons and the production of PEEP's can be obtained from the following link: http:// www.communities.gov.uk/publications/fire/ fire safety assessment means.

Emergency voice communication systems will be provided on all upper floors within the stair enclosures which feedback to the intercom phone and panel within the entrance foyer. Records of maintenance in line with the requirements of BS5839 Part 9 were evidenced.

All residents will be provided with a handbook about fire safety measures in the building including evacuation for occupants with mobility impairments. Reference to the need to produce a PEEP will be outlined in the handbook.

Clause 51 Provision of information to occupants

51.1 Residents

The dutyholder will provide information to residents regarding:

a) the fire safety arrangements for the building;

b) what to do to prevent fires occurring;

c) what to do in the event of a fire;

d) the potential for particular problems arising where residents employ sub-contractors

The responsible person will advise residents formally of the fire safety arrangements for the building, what to do to prevent fires occurring, and what to do in the event of a fire. This information will be contained within a handbook which will also address the potential for particular problems arising where residents employ sub-contractors, e.g. for fit-out work.

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Clause 51.2 Care takers and other maintenance personnel

Where a caretaker or other person is employed to maintain common areas within a building, the responsible person will advise such persons formally of the fire safety arrangements for the building.

Clause 52 Maintenance of fire protection measures

It is essential that the fire protection measures integrated in a building function in a fire. The fire protection measures will be inspected on a regular schedule to ensure that they are available and functional at all times.

Inspections will include, but not necessarily be limited to, compliance with the following recommendations.

a) Escape routes will be kept clear at all times. Storage of goods and equipment could block exits and provide an unwanted fire load and potential source of ignition.

b) Door locks, panic bars and automatic door release mechanisms will be maintained so that they are easily openable in an emergency.

c) Whenever additional or replacement services breach compartment walls or floors, the integrity of fire separation will be maintained through the use of appropriate fire-resisting materials in spaces where breaches of compartmentation have occurred.

d) Fire safety equipment such as fire extinguishing and fire main inlet and outlet valves will not be obstructed by stored goods, machinery or parked vehicles.

e) All fire safety equipment, e.g. fire alarms, emergency escape lighting, automatic fire suppression systems, smoke control systems and fire extinguishers, will be maintained and tested in accordance with the relevant standard by competent persons.

g) Fire doors will be maintained in accordance with 24.1 of BS9991.

h) Evacuation lifts will be suitably maintained and have periodic tests to ensure their operation in the event of a building evacuation.

Clause 52.2 Maintenance of escape routes

a) All escape routes will be kept from obstruction

b) Goods, materials, unwanted furniture, etc. will not be stored within escape routes, or on or within balcony or deck approaches. Any obstruction should be removed immediately.

c) All escape routes will be inspected frequently. A log detailing the frequency and results of inspection should be included in the fire safety information and corrective measures will be taken where necessary.

d) Fire doors that are intended to be kept closed will remain closed and unobstructed.

e) Fire doors on hold-open devices will be operable and should be unobstructed.

f) The exterior of the building will be inspected to verify that final exits and routes to assembly points are not blocked.

g) Entrance halls, lobbies or corridors will not contain furniture or fittings that would reduce, at any point, the required exit width.

h) In a building or part of a building served by a single stair, and firefighting stairways, furniture should not be placed within the stair enclosures and exits therefrom. Not applicable

i) Safety signs, fire safety notices, fire extinguishers, emergency escape lighting, fire doors and shutters will not be obscured.

j) Seating areas will not be provided within escape corridors.

k) Maintenance and redecoration of surface finishes and floor coverings will not use materials that might propagate surface spread of flame and/or fire, or adversely affect the means of preventing such propagation.

l) The floor surfaces (including stairs, stair nosings and ramps) within escape routes and firefighting shafts will be maintainable, even and non-slip. Resilient floor surfaces should be maintained in accordance with BS 6263-2

Clause 53 Firefighting access and equipment

53.1 Lifts for use by firefighters

Lifts for use by firefighters should be maintained and undergo periodic tests to verify that they will operate correctly.

Any lift that can be used by firefighters should be repaired as quickly as possible when it breaks down.
Regular inspections of the firefighters lift switch should be made to check for any unauthorized use.

53.2 Fire mains

Wet or dry rising fire mains and the accompanying inlet and/or outlet boxes, together with any foam inlets, should be regularly inspected for damage and repaired where necessary.

Where outlet straps are provided, they should be checked to verify that they are in place and secure.

53.3 Access Roads

No changes proposed.

Section 10 Care Homes

Not applicable.

Section 11: Building works: Material alterations, extension, refurbishment, change of use, disuse, decommissioning and demolition

Clause 58 Design of works

Alterations to a building will retain at least the level of fire safety protection that was in place before the alterations were carried out; it can, however, be beneficial to improve fire safety through building works, wherever practicable.

A fire risk assessment will be carried out regarding the impact of any proposed alterations to ensure that:

a) no unacceptable existing fire risks are continued;

b) existing fire safety measures are not compromised; and

c) no new fire risks are created.

Clause 59 Change of use

In the event of a change of use, a new fire risk assessment will be conducted to cover the changed circumstances.

Clause 62 Buildings or parts of buildings in disuse, decommissioned or not yet occupied

Any decommissioned area, unoccupied dwelling or other part of a building (including areas not yet occupied), or dwelling that is in the process of being fitted out should be either:

a) physically separated from the rest of the building by construction having not less than 60 min fire resistance; or

b) protected by other fire protection measures as agreed by the relevant enforcing authorities.

In either case, the unused part of the building should be subject to routine inspection, as determined by a fire risk assessment.

This is not applicable as the building will be subject to a change of use andthe building is an existing office building and is vacant.

Clause 64 Managing building work and material alterations.

There will be an effective health and safety and fire safety plan during the proposed works and all works and material alterations will be managed and carefully monitored.

Designers and contractors are aware of the existing fire safety features of the building and enhancements will be made during the phased completion of the building.

A fire risk assessment will be conducted that identifies and deals with all risks across the duration of the building project.

Building works will be continuously monitored to prevent the creation of unplanned extra and undue risks.

Clause 65 Building works to occupied or partly occupied buildings.

As the building is considered to be in two separate parts the proposed works will be carried out in one block at a time ,. The building will not be occupied until all works are complete.

In accordance with Section 62 the building may be partially occupied before its full completion, requiring heightened vigilance against fire risks. A collaborative fire risk assessment will be developed between the responsible person for the building and the contractor and this will be agreed with the BSS prior to occupation. This assessment will be regularly reviewed throughout the occupation period. If the assessment indicates challenges in ensuring occupant safety, alternative measures will be implemented. These may include introducing additional fire precautionary systems or restricting occupancy until adequate safety can be ensured.

Appendix A – Normative References

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 476 (all parts), *Fire tests on building materials and structures*
BS 799-5, *Oil burning equipment – Part 5: Carbon steel oil storage tanks –*

Specification

BS 3251, *Specification – Indicator plates for fire hydrants and emergency water supplies*

BS 4514, *Unplasticized PVC soil and ventilating pipes of 82.4 mm minimum mean outside diameter, and fittings and accessories of 82.4 mm and of other sizes – Specification*

BS 5234 (both parts), *Partitions (including matching linings)*
BS 5255, *Specification for thermoplastics waste pipe and fittings*

BS 5266-1, *Emergency lighting – Part 1: Code of practice for the emergency lighting of premises*

BS 5306-0, *Fire protection installations and equipment on premises – Part 0: Guide for selection of installed systems and other fire equipment*

BS 5306-3, *Fire extinguishing installations and equipment on premises –*
Part 3: Commissioning and maintenance of portable fire extinguishers – Code of practice

BS 5306-8, *Fire extinguishing installations and equipment on premises –*
Part 8: Selection and installation of portable fire extinguishers – Code of practice

BS 5395-1, *Stairs – Part 1: Code of practice for the design of stairs with straight stairs and winders*

BS 5410-1, *Code of practice for oil firing – Part 1: Installations up to 45 kW output capacity for space heating and hot water supply purposes*

BS 5410-2, *Code of practice for oil firing – Part 2: Installations of 45 kW and above output capacity for space heating, hot water and steam supply services*

BS 5839 (all parts), *Fire detection and fire alarm systems for buildings* [2)] BS 5852, *Methods of test for assessment of the ignitability of upholstered*

seating by smouldering and flaming ignition sources

BS 5867-2:2008, *Fabrics for curtains, drapes and window blinds – Part 2: Flammability requirements – Specification*

BS 5906, *Waste management in buildings – Code of practice* BS 6180, *Barriers in and about buildings – Code of practice*

BS 6262-4, *Glazing for buildings – Part 4: Code of practice for safety related to human impact*

BS 6263-2, *Care and maintenance of floor surfaces – Part 2: Code of practice for resilient sheet and tile flooring*

BS 6400 (all parts), *Specification for installation, exchange, relocation and removal of gas meters with a maximum capacity not exceeding 6 m*

BS 6644, *Specification for installation of gas-fired hot water boilers of rated inputs between 70 kW (net) and 1.8 MW (net) (2nd and 3rd family gases)*

BS 6798, *Specification for selection, installation, inspection, commissioning, servicing and maintenance of gas-fired boilers of rated input not exceeding 70 kW net*

BS 7157:1989, *Method of test for ignitability of fabrics used in the construction of large tented structures*

BS 7176, *Specification for resistance to ignition of upholstered furniture for non-domestic seating by testing composites*

BS 7273-4, *Code of practice for the operation of fire protection measures – Part 4: Actuation of release mechanisms for doors*

BS 7346-7, *Components for smoke and heat control systems – Part 7: Code of practice on functional recommendations and calculation methods for smoke and heat control systems for covered car parks* [3)]

BS 7346-8, *Components for smoke control systems – Part 8: Code of practice for planning, design, installation, commissioning and maintenance*[3)]

BS 7671, *Requirements for electrical installations – IET Wiring Regulations – Seventeenth edition*

BS 8214, *Code of practice for fire door assemblies*

BS 8313, *Code of practice for accommodation of building services in ducts*

BS 8414-1, *Fire performance of external cladding systems – Part 1: Test methods for non-loadbearing external cladding systems applied to the face of a building*

BS 8414-2, *Fire performance of external cladding systems – Part 2: Test method for non-loadbearing external cladding systems fixed to and supported by a structural steel frame*

BS 8519:2010, *Selection and installation of fire-resistant power and control cable systems for life safety and fire-fighting applications – Code of practice*

BS 8524 (both parts), *Active fire curtain barrier assemblies*
BS 9251:2014, *Sprinkler systems for residential and domestic occupancies –*

Code of practice
BS 9990, *Non-automatic fire-fighting systems in buildings – Code of practice* [4)]

BS 9999, *Code of practice for fire safety in the design, management and use of buildings*

BS EN 3 (all parts), *Portable fire extinguishers*
BS EN 81 (all parts), *Safety rules for the construction and installation of lifts*

BS EN 1154, *Building hardware – Controlled door closing devices – Requirements and test methods*

BS EN 1363 (all parts), *Fire resistance tests*

BS EN 1364 (all parts), *Fire resistance tests for non-loadbearing elements*

BS EN 1365 (all parts), *Fire resistance tests for loadbearing elements*

BS EN 1366 (all parts), *Fire resistance tests for service installations*

BS EN 1634-1, *Fire resistance tests for door and shutter assemblies – Part 1: Fire resistance test for door and shutter assemblies and openable windows*

BS EN 1634-3:2004, *Fire resistance tests for door and shutter assemblies – Part 3: Smoke control test for door and shutter assemblies*

BS EN 12101 (all parts), *Smoke and heat control systems*
BS EN 12845, *Fixed firefighting systems – Automatic sprinkler systems – Design,*

installation and maintenance

BS EN 13501 (all parts), *Fire classification of construction products and building elements*

BS EN 13823, *Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item*

BS EN 60947 (all parts), *Low-voltage switchgear and controlgear*

BS EN ISO 1182, *Reaction to fire tests for building products – Non combustibility test*

BS EN ISO 1716, *Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value)*

BS ISO 3864-1, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs and safety markings*

DD 8458-1, *Fixed fire protection systems – Residential and domestic watermist systems – Part 1: Code of practice for design and installation* [5)]

Other publications

[N1]COLWELL, S. and BAKER, T. *Fire performance of external thermal insulation for walls of multistorey buildings*. BR 135. Third edition. Watford: Building Research Establishment, 2013.

[N2]UKLPG. *Code of practice 1-2 – Bulk LPG storage at fixed installations for domestic purposes*. Incorporating amendment 2. UKLPG, 2000.

[N3]HEALTH AND SAFETY EXECUTIVE. *The keeping of LPG in cylinders and other containers*. Guidance note CS4. HSE, 1986.

Appendix B – Clause 3 Terms and Definitions

Clause 3.1 access level

level used for normal access to the building that either incorporates, or leads directly to, a place of ultimate safety

Clause 3.2 access room

room that forms the only escape route from an inner room

Clause 3.3 accessible and adaptable housing

housing that is sufficiently flexible and convenient to meet the existing and changing requirements of most households, and in which the interior fabric rather than the structure can be easily adapted to accommodate aids and equipment

Clause 3.4 Alternative escape route (from a house)

Not applicable

Clause 3.5 alternative exit (from a flat or maisonette)

one of two or more exits from within a flat or maisonette, each of which is separate from the other giving access to a route leading to a place of ultimate safety

Clause 3.6 ancillary accommodation.

- all parts of a building that are ancillary to the dwellings, such as rooms associated with engineering services, common amenity areas (**3.12**), refuse rooms and covered car parks

Clause 3.7 atrium (Plural: atria)

space within a building, not necessarily vertically aligned, passing through one or more compartment floor(s)

Clause 3.8 Automatic water fire suppression system (SPRINKLER SYSTEM)

System designed to control or extinguish fires without human intervention

Clause 3.9 Balcony approach

Design in which each dwelling is approached externally via an open common walkway, the amount of opening being uniformly distributed throughout its length between 1 100 mm and the soffit above to allow ventilation

Clause 3.10 Basement

Storey with a floor which at some point is more than 1.2 m below the highest level of ground adjacent to the outside walls

Clause 3.11 Class 0 (material or surface)

Material or surface that is either:

a) of limited combustibility throughout; or

b) classified as Class 1 when tested in accordance with BS 476-7, which has a fire propagation index of not more than 12, and a subindex i_1 of not more than 6, when tested in accordance with BS 476-6

NOTE Class 0 is not identified in any British Standard test. European Classification B-s3, d2 is the general equivalent of Class 0. The European classifications are described in BS EN 13501-1. They are based on a combination of four European test methods, namely: BS EN ISO 1182; BS EN ISO 1716; BS EN 13823; and

BS EN ISO 11925-2. The national classifications do not automatically equate with the equivalent classification in Europe; therefore, products cannot typically assume a European class, unless they have been tested accordingly.

Clause 3.12 Common amenity area

Area containing household facilities that are remote from individual dwellings

Clause 3.13 Common corridor

Protected corridor serving more than one flat or occupancy

Clause 3.14 Common Stairs

Stairway serving more than one flat or occupancy

Clause 3.15 Competent person

Person, suitably trained and qualified by knowledge and practical experience, and provided with the necessary instructions, to enable the required task(s) to be carried out correctly

Clause 3.16 corridor access

Design in which each dwelling is approached via a common horizontal internal access or circulation space.

NOTE 1 Corridor access can include a common entrance hall.

NOTE 2 Corridor access is also referred to as a corridor approach.

Clause 3.17 dead end

Area from which escape is possible in one direction only

Clause 3.18 deck approach

Design in which each dwelling is approached externally via a wide approach common (external) walkway that has guarding only at the edges and otherwise is completely open to the atmosphere

NOTE This is also known as deck access.

Clause 3.19 depressurization

Method of smoke control in which the air pressure within the area of the fire or its adjacent areas is decreased so that it is lower than the air pressure within the protected area

Clause 3.20 dwelling

Unit of residential accommodation, occupied (whether or not as a sole or main residence):

a) by a single person or by people living together as a family; or

b) by not more than six residents living together as a single household, including a household where care is provided for residents

Clause 3.21 dwelling of origin

Dwelling in which the initial ignition of a fire has occurred

Clause 3.22 emergency escape lighting

Lighting provided for use when the normal lighting fails, to ensure illumination of escape route(s) at all times

Clause 3.23 escape route

Route forming part of the means of escape from any point in a building to a final exit

Clause 3.24 final exit

Termination of a designated escape route, from which there is direct access to a place of ultimate safety (**3.49**)

Clause 3.25 fire doors

Clause 3.25.1 fire door

Door assembly which, as installed in a building, is intended when closed to resist the passage of fire and is capable of meeting specified performance criteria

Clause 3.25.2 self-closing fire door

Fire door fitted with a device which fully closes the door, overriding the resistance of any latch

Clause 3.26 fire-fighting lift switch

Switch located at the fire service access level, outside the lift well, used to initiate fire-fighters' service

Clause 3.27 fire-fighting lobby

Protected lobby providing access from a fire-fighting stair to the accommodation area and to any associated fire-fighting lift

Clause 3.28 fire-fighting shaft

Protected enclosure containing a fire-fighting stair, fire-fighting lobbies, a fire main and, if provided, a fire-fighting lift together with any machinery space

Clause 3.29 fire-fighting stair

Protected stairway communicating with the accommodation area only through a fire-fighting lobby

Clause 3.30 fire resistance

Ability of an item to fulfil for a stated period of time the required fire stability and/or integrity and/or thermal insulation, and/or other expected duty specified in a standard fire resistance test

Clause 3.31 flat

Separate and self-contained premises, constructed or adapted for use for residential purposes and forming part of a building from some other part of which it is divided horizontally, having all its rooms on one level or not more than half a storey height apart

Clause 3.32 free area

Total unobstructed cross-sectional area of an opening, vent, etc., measured in the plane where the area is at a minimum and at right angles to the direction of air flow

NOTE The free areas of openings, vents, etc. refer to the geometric free area.

Clause 3.33 gallery

Floor or balcony which does not extend across the full extent of a building's footprint and is open to the floor below

Clause 3.34 ground storey

Storey, the floor of which is situated at such a level or levels that any given point on its perimeter is not more than 1.2 m below the level of the finished surface of the ground adjoining the building in the vicinity of that point

Clause 3.35 habitable room

Any room in a dwelling with the exception of any kitchen, utility room, bathroom or WC

Clause 3.36 higher fire risk area

Area with a fire risk higher than that of a dwelling

Clause 3.37 house

Unit of residential accommodation occupied (whether or not as a sole or main residence):

1. a) by a single person or by people living together as a family; or
2. b) by not more than six residents living together as a single household, including a household where care is provided for residents

Clause 3.38 house in multiple occupation (HMO)

Building or part of a building:

1. a) in which more than one household shares an amenity or the building lacks an amenity; or
2. b) which is a converted building that does not entirely comprise self-contained flats (whether or not there is also a sharing, or lack, of amenities); or
3. c) which is comprised entirely of converted self-contained flats and where the standard of conversion does not meet a specified minimum, and more than one third of the flats are occupied under short tenancies

NOTE 1 Examples of amenities are bathrooms, toilets and cooking facilities.

NOTE 2 Attention is drawn to the Building Regulations 2010 [1] and equivalent regional variations ([3] to [5]) in respect of the specified minimum standard of conversion.

Clause 3.39 independent alternative escape route

One of two or more escape routes from a dwelling, with its own separate exit from the dwelling and which follows a route that is separate from the other(s)

Clause 3.40 inner room

Room from which escape is possible only by passing through another room

Clause 3.41 level of need

Degree of vulnerability to fire based on:

a) propensity to contribute to the starting of fire or to the development of fire;

b) capacity to respond appropriately to signs of fire or other cues; and

c) ability to escape in the event of fire

Clause 3.42 lifts

Clause 3.42.1 lift

Lifting device within the scope of BS EN 81-20, with completely enclosed car and rated speed greater than 0.15 m/s, permanently serving a building and intended for the transport of persons or persons and goods

Clause 3.42.2 evacuation lift

Lift used as part of the evacuation sequence for persons with disability and persons requiring assistance, which has appropriate structural, electrical and fire protection and is capable of being taken under control by a trained and authorized person

Clause 3.42.3 fire-fighting lift

Lift with protection measures, controls and signals that enable it to be used under the direct control of the fire and rescue service in fighting a fire

Clause 3.43 maisonette

Dwelling, forming part of a larger building, having rooms divided between two or more levels which are more than half a storey height apart

Clause 3.44 mainstream housing

Housing which ranges from premises with no special features to those which facilitate adaptation at design stage or post-build stage to support residents' additional needs

Clause 3.45 material of limited combustibility

a) a non-combustible material; or

b) any material of density 300 kg/m^3 or more which, when tested in accordance with BS 476-11, does not flame and the rise in temperature on the furnace thermocouple is not more than 20 °C; or

2. c) any material with a non-combustible core of 8 mm thick or more, having combustible facings (on one or both sides) not more than 0.5 mm thick; or
3. d) a material classified as class A2-s3, d2 in accordance with BS EN 13501-1, when tested in accordance with BS EN ISO 1182 or BS EN ISO 1716 and BS EN 13823

Clause 3.46 means of escape

Structural means whereby a safe route (or routes) is (or are) provided for persons to travel from any point in a building to a place of ultimate safety

Clause 3.47 mixed-use building

Building containing dwellings together with other types of occupancy and where the dwellings are not ancillary to the other use

Clause 3.48 open-plan arrangement

Arrangement with open spatial planning, where the main living space is not separated from the dwelling entrance door

NOTE 1 The main living space refers to the lounge or living rooms.
NOTE 2 Bedrooms might or might not be separated from the main living space.

Clause 3.49 place of ultimate safety

Place in which there is no immediate or future danger from fire

Clause 3.50 pressurization

Method of protecting spaces against the ingress of smoke by maintaining a positive air pressure difference between the protected spaces and adjoining accommodation

Clause 3.51 protected circuit

Electrical circuit protected against fire

Clause 3.52 protected corridor/lobby

Circulation area consisting of a lobby or corridor enclosed with fire-resisting construction (other than any part that is any external wall of a building)

Clause 3.53 protected entrance hall/protected landing

Circulation area consisting of a hall or space within the dwelling that is enclosed with fire-resisting construction

NOTE The protected entrance hall/protected landing does not include any external walls of a building.

Clause 3.54 protected stairway

Stair discharging through a final exit to a place of ultimate safety (including any exit passageway between the foot of the stair and the final exit) that is adequately protected from fire elsewhere in the building by fire-resisting construction

Clause 3.55 residential care

Premises that offer institutional accommodation (suites of bedrooms) and personal care for people who might not be able to live independently

Clause 3.56 single stair

Common stair which is the only one to which dwellings in a block of flats or maisonettes have access

Clause 3.57 specialized housing

Accommodation that provides independent living for occupants who are wholly or mainly limited to a specific section of population and who are likely to require additional measures to secure their safety in the event of fire, including but not limited to accommodation provided for the elderly, children and people with a physical or mental impairment .

Clause 3.58 stay put strategy

Strategy normally adopted in blocks of flats and maisonettes whereby, when a fire occurs in a flat or maisonette, the occupants of that dwelling evacuate, but occupants of all other dwellings can safely remain in their dwellings unless directly affected by heat and smoke or directed to leave by the fire and rescue service

Clause 3.59 storey

Part of a building comprising all the rooms that are on the same level including any gallery having an area of more than half that of the space into which it projects, unless it is accessible only for maintenance or repair

Clause 3.60 storey exit

Final exit, or a doorway, giving direct access to a protected stairway or external escape route

Clause 3.61 travel distance

Actual distance a person needs to travel between two points within a building, having regard to the layout of walls, partitions and fittings.

Appendix C – Construction Details

Appendix D – PHASING OF WORKS