

WIMSHURST PELLERITI

Fire Strategy

26-28 Priests Bridge

East Sheen

LONDON SW14 8TA

Demolition all buildings on site and the erection of a three-storey building and a part one, two-storey building comprising (3 x 1 bedroom and 4 x 2 bedroom) flats and approximately 594 sqm of flexible B1/D1 and flexible E commercial floorspace, surface-level car-parking for seven vehicles including one disabled bay, cycle parking and associated works.

Planning Ref 19/0391/FUL



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The information within this document has been produced for this specific client / premises and in line with our company terms and conditions.

This report does not include fire safety during construction works.

We accept no responsibility for the performance of any installed active or passive fire safety features in the building that may be prescribed in this report.

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Introduction

Proposal

The proposal for the Priests Bridge site in East Sheen is for the demolition of all the current buildings on the site and the development of two new buildings, at the front with an elevation on Priests Bridge road the proposal is for the construction of a three storey building, the ground floor being a single large room available for commercial use and in the two storeys above the provision of seven flats, four on the 1st floor (3 single bedroom and 1 double bedroom) and on the 2nd floor (3 double bedroom). Access to the flats will be via a separate staircase unconnected to the commercial part of the building.

To the rear a two storey building will be constructed. The ground floor will be wholly commercial, the first floor will be in part commercial but will also be designed to provide two double bedroom flats.

Access to the rear building is from Priests Bridge Road and it passes under the first floor of the flats, in addition there will be seven parking spaces beneath the flats. These will be unenclosed with no walls at either end of the area.

As there are two separate, unconnected buildings on site this fire strategy considers both buildings separately. When the building work is finished, this fire risk assessment should be updated and split into two parts to provide information for the assessor undertaking the fire risk assessment for the occupational phase.

It should be noted by the fire risk assessor when conducting their fire risk assessment that the constraint on capacity of the new commercial space at the rear is not the exit widths but the width of the riverside path.

Author

John Sursham is a Chartered Member of the Institute of Occupational Safety and Health an Affiliate Member of the Institute of Fire Engineers and on the IFE Register of Fire Risk Assessors (Life Safety).

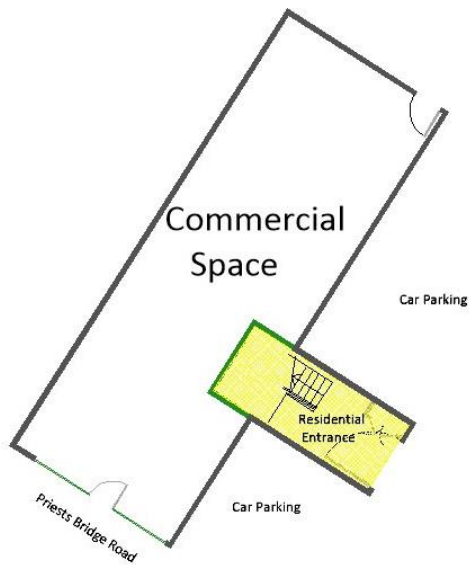
Commercial Space and Flats 1 - 7

Project Information

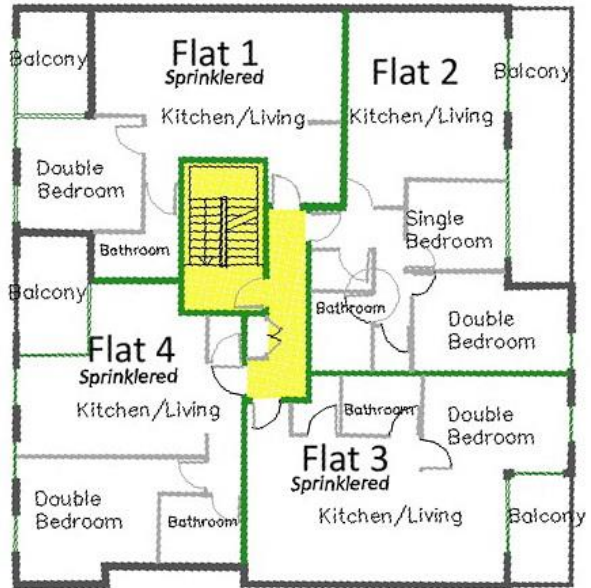
Scope of Building Work	Demolition of existing buildings and the construction of a new three storey block with commercial space on the ground floor, and flats on the first and second floors with the provision of parking space at ground level beneath the flats
Design Standards	Approved Document B Volume 1 Dwellings Approved Document B Volume 2 Buildings other than dwellings
Deviations from Approved Document	BS9991 2015 – justification of sprinklers for open plan flats
Purpose Group	Residential (Dwellings) 1a (Flat) Commercial 4
Number of Storeys	3
Number of Stairs	1
Meets Definition of a Single Stair Building	Yes - Top storey < 11m No more than 3 storeys above ground storey Does not connect to a covered car park Does not serve offices
No of Basement Storeys	None
Approx Floor Area per Floor	Commercial space – 92.9 sq.m
Height to Top Storey	6.0m
Number of Flats per Floor	Ground Floor – 0 (Commercial space) 1 st Floor – 4 Flats 2 nd Floor – 3 Flats
Total Number of Flats	7
Total Proposed Number of Occupants	Flats – residents 19 plus guests Commercial space – Floor space factor - 2 sq.m/person Floor space 92.9 sq.m Population $92.0/2 = 46$ persons

Fire Resistance of Structure	60 minutes
Fire resistance of floors	60 minutes (underside only)
Compartmentation	60 minutes between flats, vertically and horizontally 60 minutes between commercial and flats
Fire Detection	Flats - Flats with protected hallways – Grade D LD2 Flats with sprinkler protection - Grade D LD1 Common parts of Flats – not required for warning, required for activation of automatic smoke ventilation Commercial space L3
Smoke Control	Flats – required for the common stairs not required for lobbies <4.5m travel distance
Fire Suppression	Not required throughout the building – top habitable floor <11m Required for individual flats to support open plan
Emergency Escape Lighting	Required – enclosed stairs and lobbies – no borrowed light
Evacuation Strategy	Stay Put
Fire Fighting Stairs	Not required, building height <18m
Fire Fighting Lift	Not required, building height <18m
Dry/Wet Riser	Not required, pipe laying distance <45m

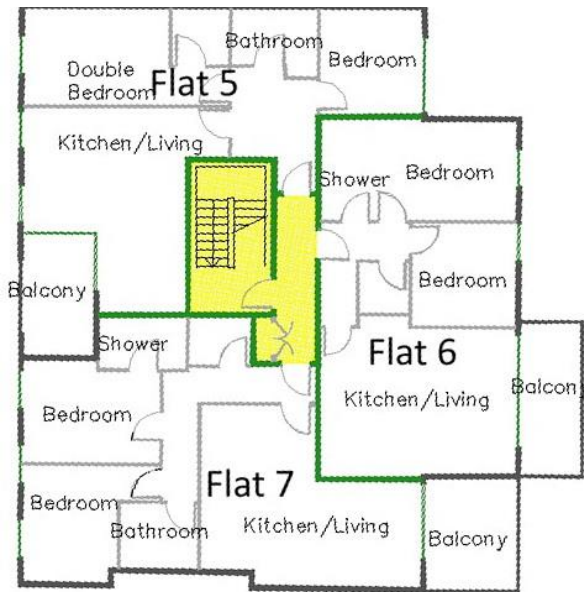
Floor Plans – General Layouts



Ground Floor – Commercial space and entrance to flats



First Floor – 4 Flats



Second Floor – 3 flats

Means of Warning of Fire and Escape

Automatic Fire Detection and Alarm

- Flats - not required for the common parts (lobbies and stairway)
- Within flats Grade D1 or D2, Category LD2 for those flats with protected hallways
- Within flats with sprinkler protection Grade D1 or 2, Category LD1
- Mains powered with battery backup combined detectors/sounders
- Smoke detection in hallway and living room, heat detection in the kitchen all interlinked wirelessly
- Within the room which opens onto the balcony the detector should be located where it can clearly be heard on the balcony
- System installed to comply with BS 5839 Part 6
- Common spaces – smoke detection required to activate automatically opening ventilation system at the head of the stairs
- Commercial space – L3 detection system
- Control panel located close to the front entrance, smoke detection located in accordance with BS5839 Part 1 when the final layout of the space is agreed with the occupier
- Manual call points by the front and rear entry exit doors

Means of Escape within Flats

- Entrance hallways to flats, constructed with 30 minutes fire resistance (both sides)
- Entrance hallway doors – FD30 without self-closing mechanisms etc.
- Travel distances within the entrance hallway <9m
- Flats fitted with sprinklers – travel distance <9m

Means of Escape from Common Parts of Flats

- Single staircase serves all floors
- Lobby protection between the flat entry doors and escape stairs <4.5m
- Protected staircase with AOV above for smoke ventilation

Means of Escape from Commercial Unit

- 2 escapes opening directly into the open air at ground level
- Permitted travel distance in two directions for a Purpose Group 4 building – 45m
- Final layout of the commercial unit to be confirm, maximum distances likely to be in the region of 20m

Lighting and Emergency Lighting

- Normal lighting on stairs and in lobbies
- Emergency lighting to BS5266
- Commercial unit – floor area >60 sq.m emergency lighting required
- Emergency lighting to BS5266

Smoke Control

- Smoke control required for the staircase to the flats
- Automatically opening smoke ventilator with a free area of at least 1 sq.m at the top of the stairs
- Travel distances within the lobbies serving flats <4.5m, no requirement for ventilation or smoke shafts
- Commercial space, ground floor, no basements – no requirement for smoke ventilation

Doors on Escape Route

- Flat entry doors – rated as FD30S
- Doors connecting with the common stairway – FD30S
- Final exit door fitted with door furniture which can be operated with a single movement
- Commercial space – large single compartment with no internal fire doors

Signage on Escape Routes

- Flats - no requirement – single staircase building - escape route is the same as the access used by residents entering and leaving the building
- Commercial space- fire exit signage required above each door
- Additional directional fire exit signage may be required when the building is occupied and the final layout determined
- Signage installed in compliance with the dimensions and requirements of BS5499 Part 4 and BS ISO 3864 Part I

Internal Fire Spread

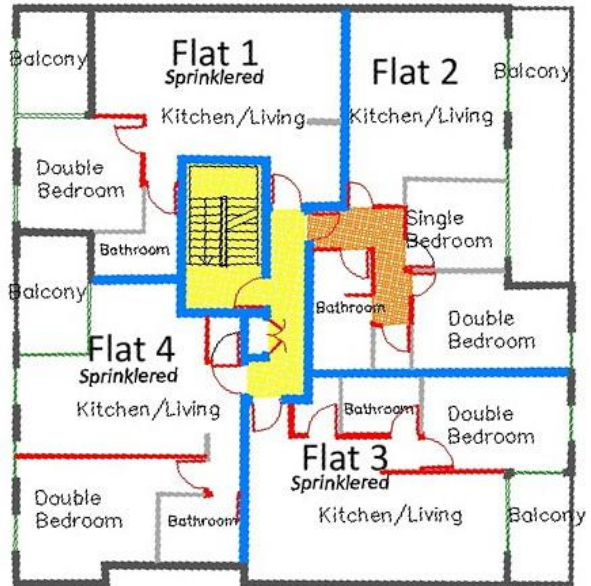
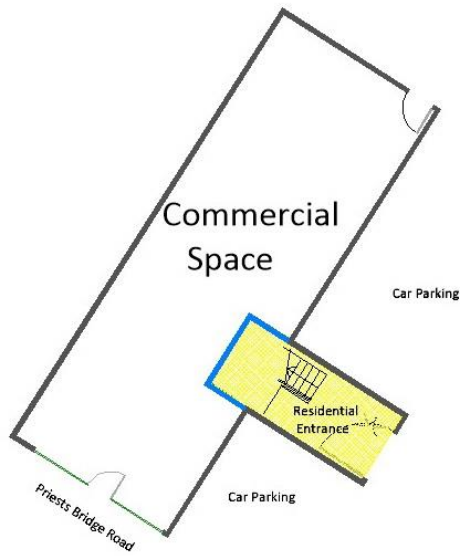
Structural Steelwork and Timber

- Fire resistance of the structure (R) = 60 minutes
- Timber elements of the structure designed in accordance with the requirements BS EN 1995 Eurocode 5. Design of timber structures – general – structural fire design
- Structural steel protection, either painted with an intumescent paint product to provide the necessary level of protection, or encased in plasterboard, for example Fireline installed in compliance with the manufacturers instructions to give the required fire resistance
- Selection of the protection system for structural steelwork dependent upon the location within the structure

Compartmentation

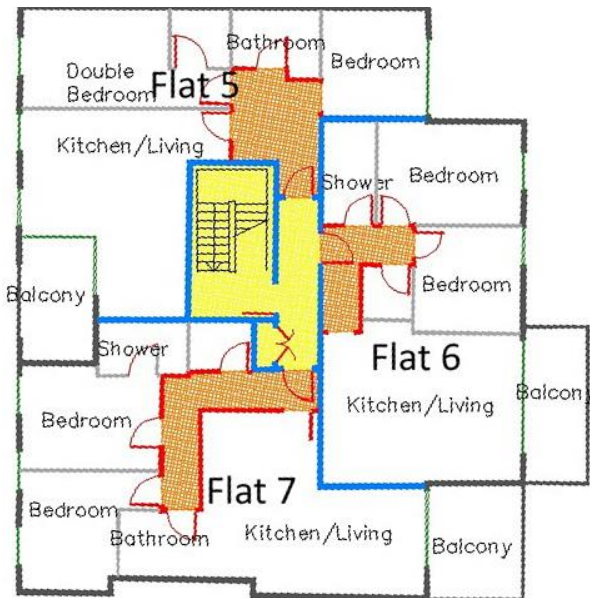
Part of Building	Fire Resistance Required
Structure	60 minutes
Floors	60 minutes (underside only)
External walls	60 minutes (each side separately)
Compartment walls	60 minutes between flats
Floor above parking spaces	60 minutes (underside only)

Compartmentation Plan



Ground Floor – commercial space and flat entrance

First Floor - compartmentation



- 60 minute fire resisting construction
- 30 minute fire resisting construction
- Wall with no specified fire resistance
- ┌ Door - 30 minutes fire resistance (FD30S or FD30)
- ┌ Door - no specified fire resistance
- Common Parts
- 30 minute protected hallways

Second Floor - compartmentation

Cavity Barriers

- Cavity barriers will be provided to prevent the spread of fire through gaps in the structure of the building, for example at the edges of cavities around doors and windows, junctions between cavity walls and compartment floors, and external walls and compartment floors
- Unless cavities are totally filled with insulation and meeting the requirements of Diagram 8.2 of the Building Regulations Approved Document B1 cavity barriers will be provided
- Compartment walls will extend to the underside of the floor above
- At roof level junction of the compartment wall and the roof will be constructed in compliance with the requirements of Approved Document B1 paragraphs 5.11 -5.15 as appropriate

Fire Stopping

- Fire stopping applied between joints in fire separating elements, for example where any studwork walls and the ceiling above meet
- Size of service penetrations through floors or compartment walls kept as small as practicable
- Maximum diameter of service pipes passing through compartment walls or floors sized in compliance with AD B1 Table 9.1 and fire stopping material applied around pipe to maintain the fire resistance of the floor/wall
- Where appropriate intumescent fire collars will be utilised for larger pipes
- No proposal for air conditioning or associated ductwork

Surface Spread of Flame

- Surface finish of all materials making up the lining of walls and ceilings of the protected lobbies and the protected stairway will have a resistance to the surface spread of flame of B-s3-d2 or better
- Surface finish of all walls within flats with rooms measuring more than 4 sq.m in plan C-s3-d2
- Commercial space – minimum requirement for rooms greater than 30 sq.m C-s3-d2

Access and Facilities for the Fire Service

- The building faces Priests Bridge Road a through road unlikely to be obstructed by parked cars
- Building below 18m no requirement for firefighting shaft, stairs or lift
- Distance between the location of a fire appliance and the furthest part of the flats following a route suitable for the laying of a hose <45m no requirement for a dry riser

Fire Safety Information

- In addition to the information which the Principal Designer is required to provide under the Construction (Design and Management) Regulations 2015 and contained in the Health and Safety File, the fire related information which should be provided is set out below:
 - On completion of the construction work the client should be provided with the ‘as built’ fire strategy
 - Operational details and manufacturer’s instructions about the fire detection and warning systems, including the location of detectors, call points and sounders in the flats and in the commercial parts
 - Operational details and manufacturer’s instructions for about automatic smoke control system in the common parts of the flats
 - Operational details and manufacturer’s instructions for the sprinkler systems
 - Details of fire resisting construction and fire door sets
 - Details of maintenance schedules for the fire safety systems

Cause and Effect Matrix

Cause	Effect
Activation of smoke detection in common parts	AOV at the head of the stairs open

Occupation Phase - Outline Management

- Flats - on completion of the new building and before occupation the Responsible Person should undertake a fire risk assessment of the common parts of the building
- The Responsible Person should ensure the fire risk assessment is reviewed at regular intervals (currently 2 years)
- As part of the fire risk assessment a clear procedure for action in the event of fire for residents should be developed and residents informed of the procedure
- The Responsible Person should arrange for the emergency lighting system to be tested monthly and serviced annually by a competent person
- The Responsible Person should arrange for the automatic smoke ventilation system to be tested monthly and serviced annually by a competent person
- Commercial unit – on completion of the building the Responsible Person should undertake a fire risk assessment of premises and to take into account the use of the

building and any changes to the floor plan which may have been undertaken post construction by the occupier

- The Responsible Person should arrange for the fire detection system to be tested weekly and serviced six monthly by a competent contractor
- The Responsible Person should arrange for the emergency lighting system to be tested monthly and service annually by a competent person

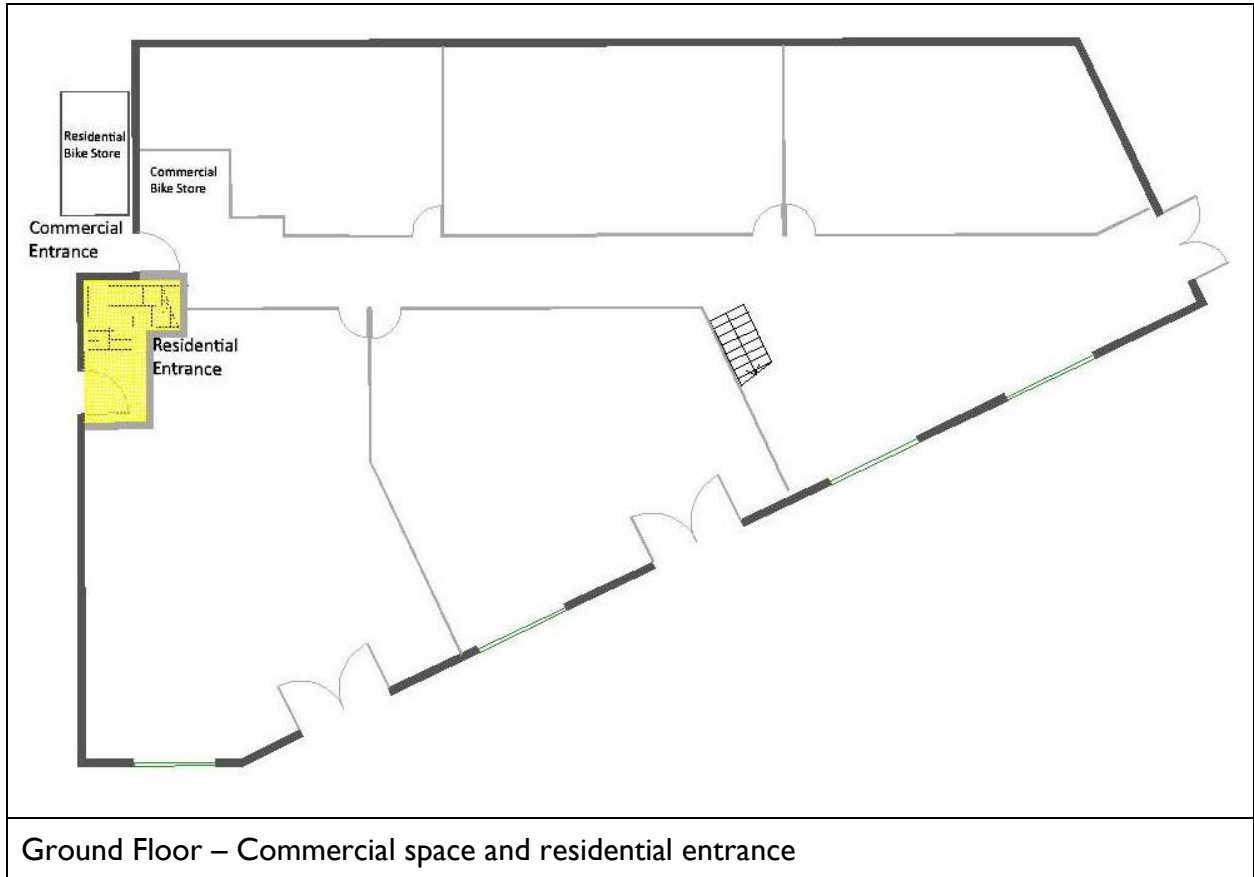
Rear Commercial Space and Flats 8 & 9

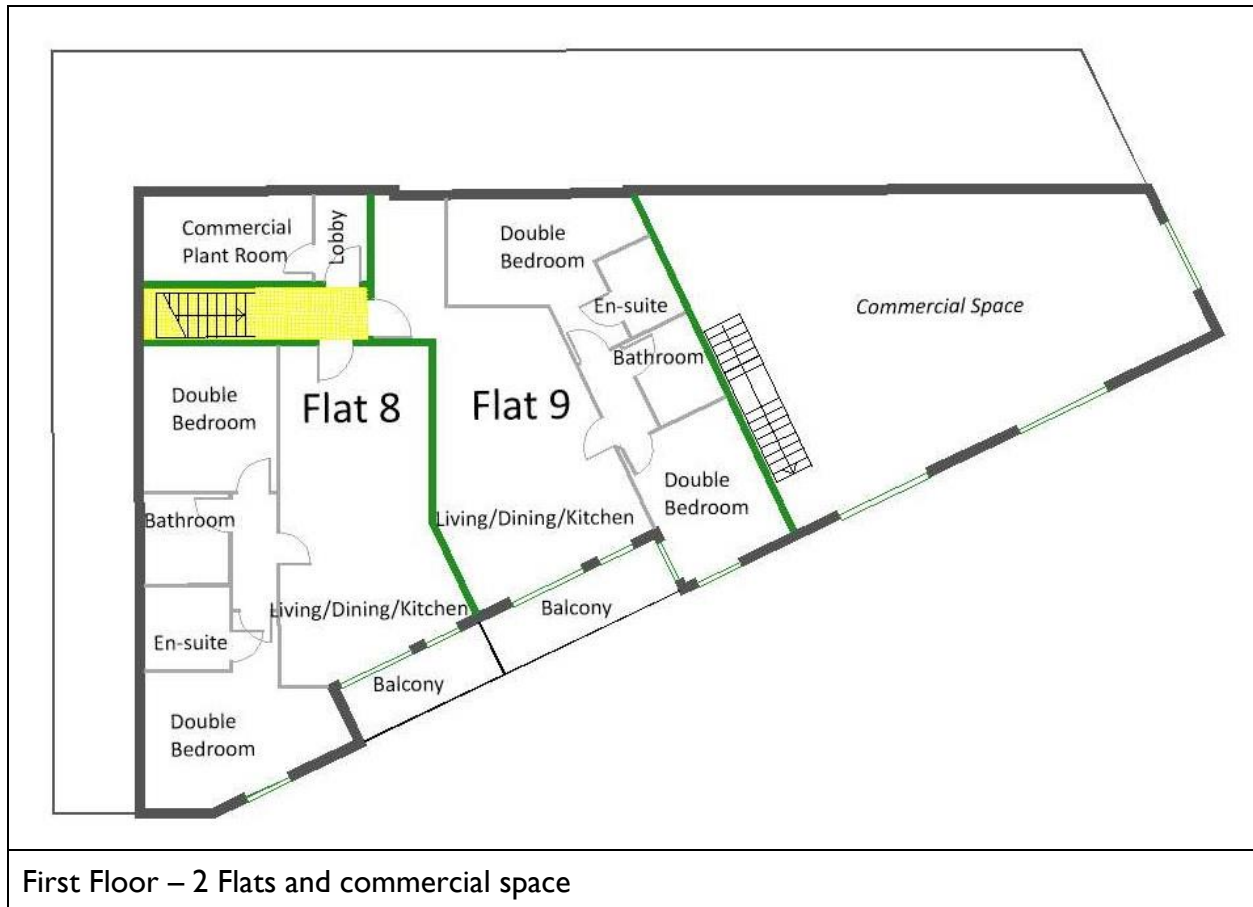
Project Information

Scope of Building Work	Demolition of existing buildings and the construction of a new two storey block to the rear of the site. New construction – ground floor 397 sq.m of commercial space, first floor 2, 2 bedroom flats and 104 sq.m of commercial space. Floors inside the commercial space connected by and internal staircase. Flats completely separated and served with an internal common stair
Design Standards	Approved Document B Volume 1 Dwellings Approved Document B Volume 2 Buildings other than dwellings
Deviations from Approved Document	BS9991 2015 – justification of sprinklers for open plan flat
Purpose Group	Residential (Dwellings) 1a (Flat) Commercial 4
Number of Storeys	2
Number of Stairs	1 common protected stair serving flats 1 accommodation stair in commercial space
Meets Definition of a Single Stair Building	Yes - Top storey < 11m No more than 3 storeys above ground storey Does not connect to a covered car park Does not serve offices
No of Basement Storeys	None
Approx Floor Area per Floor	Commercial space – 397 sq.m ground floor, 104 sq.m 1 st floor
Height to Top Storey	3.2m
Number of Flats per Floor	Ground Floor – 0 (Commercial space) 1 st Floor – 2 Flats
Total Number of Flats	2
Total Proposed Number of Occupants	Flats – residents 8 plus guests Commercial space – Floor space factor – sales area – 2 sq.m/person Floor space 400 sq.m (rounded) Population $400/2 = 200$ persons

Fire Resistance of Structure	60 minutes
Fire resistance of floors	60 minutes (underside only) between commercial and flats 30 minutes between commercial floors
Compartmentation	60 minutes between flats, horizontally 60 minutes between commercial and flats
Fire Detection	Flats - Flats (with sprinklers) – Grade D Category LD1 Common parts of Flats – not required for warning, required for activation of automatic smoke ventilation Commercial space Category L3
Smoke Control	Flats – required for the common stair not required for common lobby <4.5m travel distance
Fire Suppression	Not required throughout the building – top habitable floor <11m Required for individual flats to support open plan and inner rooms
Emergency Escape Lighting	Required Flats enclosed stairs and lobby – no borrowed light Commercial space – 2 floors, each in excess of 80sq.m
Evacuation Strategy	Stay Put
Fire Fighting Stairs	Not required, building height <18m
Fire Fighting Lift	Not required, building height <18m
Dry/Wet Riser	Required – hose laying distance exceeds 45m

Floor Plans – General Layouts





Means of Warning of Fire and Escape

Automatic Fire Detection and Alarm

- Flats - not required for the common parts (lobbies and stairway)
- Within flats Grade D1 or D2, Category LD2
- Mains powered with battery backup combined detectors/sounders
- Smoke detection in hallway and living room, heat detection in the kitchen all interlinked wirelessly
- Within the room which opens onto the balcony the detector should be located where it can clearly be heard on the balcony
- System installed to comply with BS 5839 Part 6
- Common spaces – smoke detection required to activate automatically opening ventilation system at the head of the stairs
- Commercial space – L3 detection system
- Control panel located close to the front entrance, smoke detection located in accordance with BS5839 Part 1 when the final layout of the space is agreed with the occupier
- Manual call points by the front and rear entry exit doors

Means of Escape within Flats

- Although the floor level is below 4.5m, Mansard roof construction does not enable escape windows to be viable
- Entrance hallways to all flats constructed with 30 minutes fire resistance (both sides)
- Entrance hallway doors FD30 without self-closing mechanisms etc.
- Travel distances within the entrance hallway <9m
- Flat 8 – open plan flat with inner room situations
- Sprinkler system, either BS 9251, BS EN 12845: or Watermist to BS8458 required for Flat 8

Means of Escape from Common Parts of Flats

- Single staircase serving the flat
- Lobby protection between the flat entry doors and escape stairs <4.5m
- Protected staircase with AOV above for smoke ventilation

Means of Escape from Commercial Unit

- 2 escapes opening directly into the open air at ground level
- Permitted travel distance in two directions for a Purpose Group 4 building – 45m
- First floor – fire escape via the accommodation stairs to the ground floor, then escape in two directions
- Maximum travel distance 1st floor to a point at ground floor where escape routes divide 18m
- Total maximum travel distance, including 18m from the first floor to final exit 45m

Lighting and Emergency Lighting

- Normal lighting on stairs and in lobbies
- Emergency lighting to BS5266
- Commercial unit – floor area ground and first floors >60 sq.m emergency lighting required
- Emergency lighting to BS5266

Smoke Control

- Smoke control required for the staircase to the flats
- Automatically opening smoke ventilator with a free area of at least 1 sq.m at the top of the stairs
- Travel distances within the lobbies serving flats <4.5m, no requirement for ventilation or smoke shafts
- Lobby between the protected stair and the Commercial Plant Room – 0.4 sq.m of permanent ventilation
- Commercial space, ground and first floors, no basements – no requirement for smoke ventilation

Doors on Escape Route

- Flat entry doors – rated as FD30S
- Doors to the lobby between the Commercial Plant Room and the common stair– FD30S
- Final exit door fitted with door furniture which can be operated with a single movement
- Commercial space – large single compartment with no internal fire doors
- Two fire exits from ground floor commercial space, one towards Priests Bridge Road, the other onto the Beverley Brook Riverside path

Sprinklers

- Both flats are open plan with no protected entrance hallways
- Sprinklers required to support the open plan layout
- Sprinklers installed meeting one of the following standards
 - BS9251 2021 Category I
 - BS EN 12845 2015 OH I
 - BS 8458 2015 Watermist

Signage on Escape Routes

- Flats - no requirement – single staircase building - escape route is the same as the access used by residents entering and leaving the building
- Commercial space- fire exit signage required above each door
- Additional directional fire exit signage may be required when the building is occupied and the final layout determined
- Signage installed in compliance with the dimensions and requirements of BS5499 Part 4 and BS ISO 3864 Part I

Internal Fire Spread

Structural Steelwork and Timber

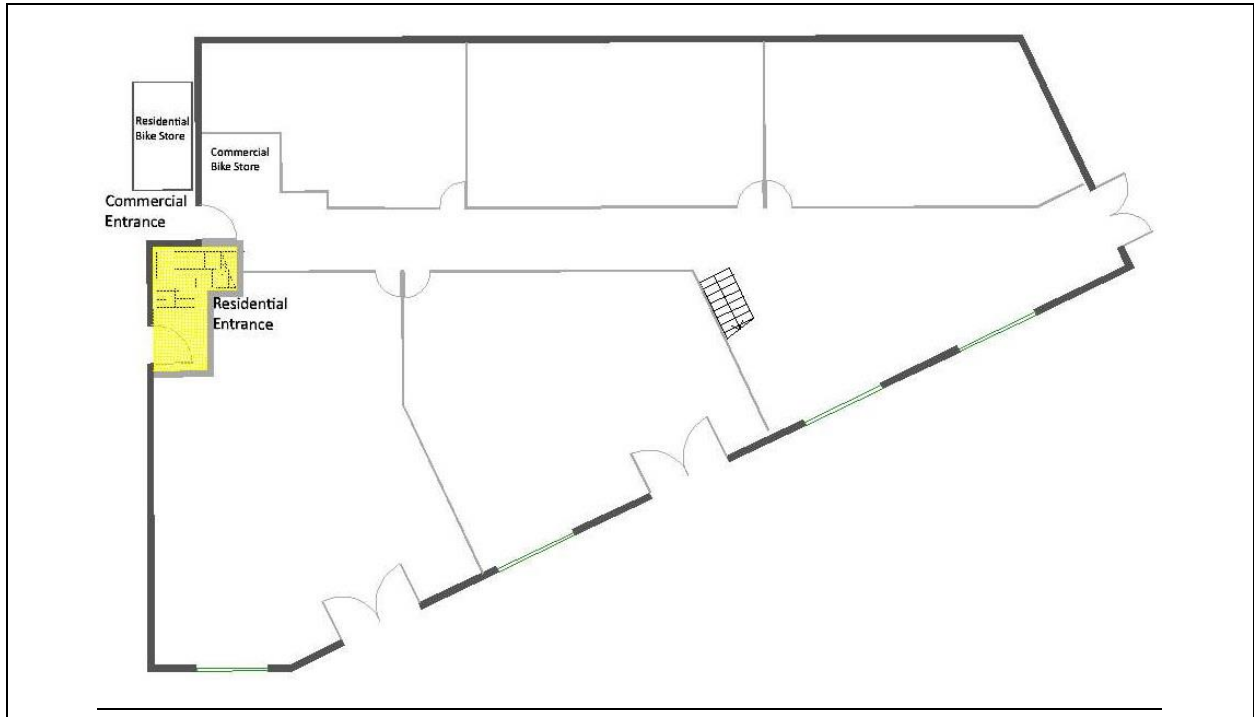
- Fire resistance of the structure (R) = 30 minutes, however due to the shared use of the building between commercial and residential 60 minutes would be more appropriate
- Timber elements of the structure designed in accordance with the requirements BS EN 1995 Eurocode 5. Design of timber structures – general – structural fire design
- Structural steel protection, either painted with an intumescent paint product to provide the necessary level of protection, or encased in plasterboard, for example Fireline installed in compliance with the manufacturers instructions to give the required fire resistance
- Selection of the protection system for structural steelwork dependent upon the location within the structure

Compartmentation

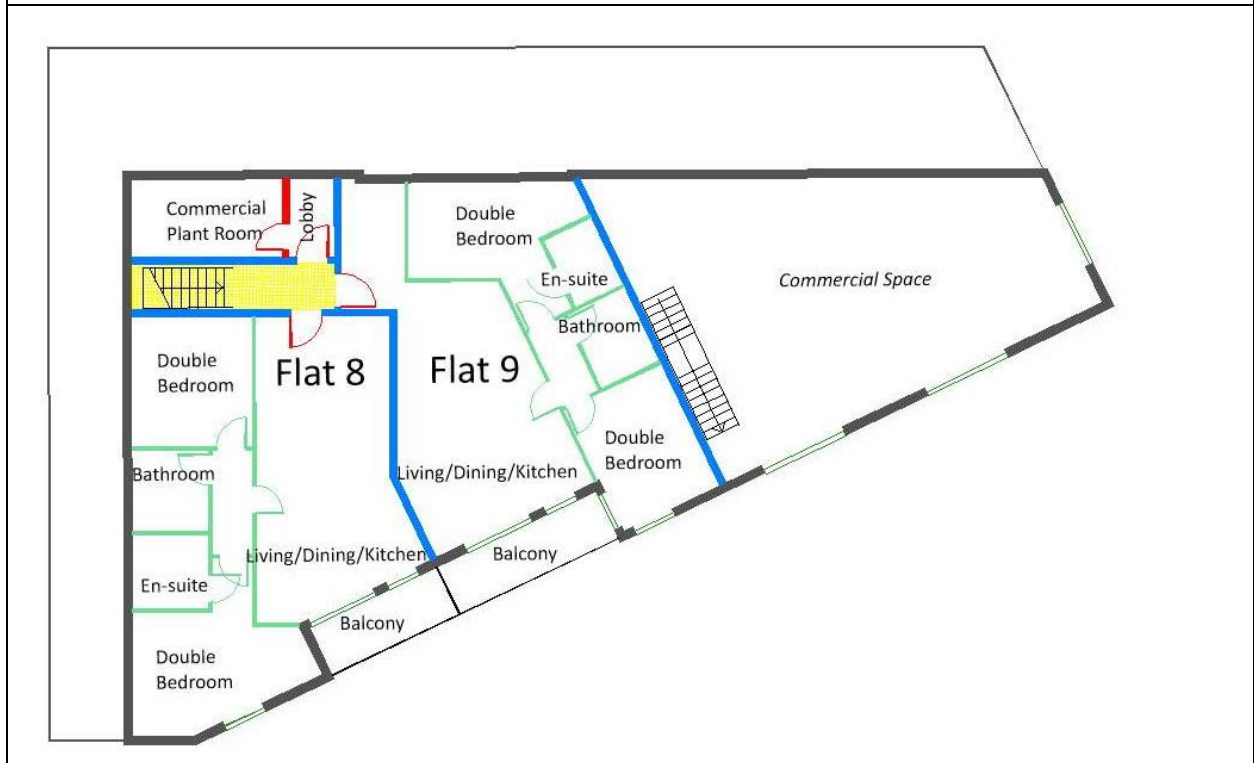
Part of Building	Fire Resistance Required
Structure	60 minutes
Floors	60 minutes (underside only)
External walls	60 minutes (each side separately)
Compartment walls	60 minutes between flats* 60 minutes between commercial space and flats

* Note – AD B1 Table B4 gives the minimum period of fire resistance for compartment walls between flats with a floor height of less than 5m above ground as being 30 minutes, however the equivalent for commercial premises (PG4) is 60 minutes and the more onerous value has been applied

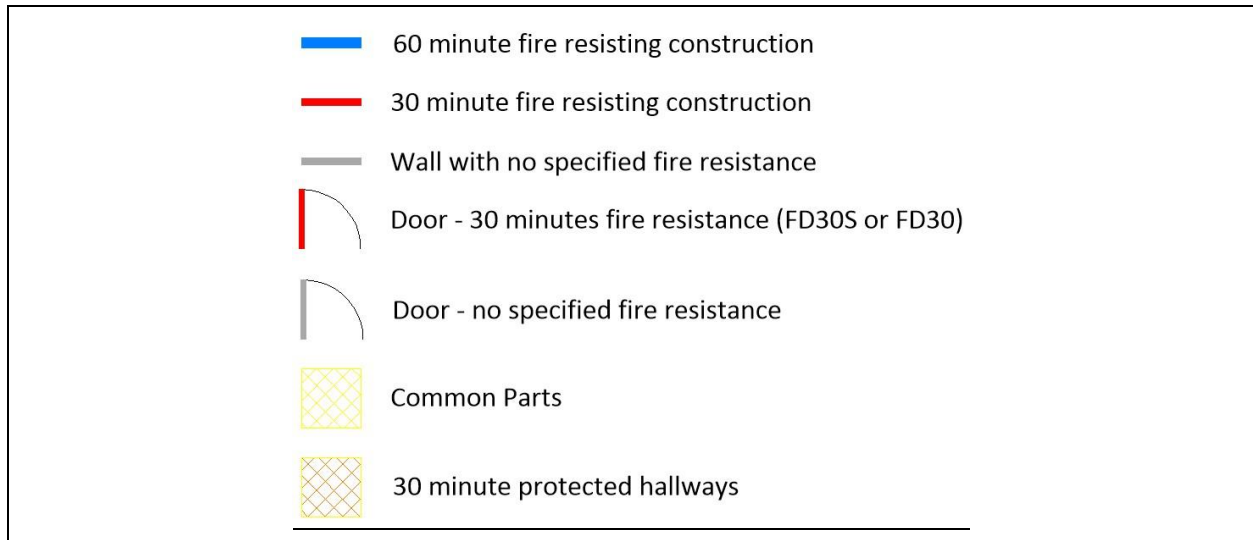
Compartmentation Plans



Ground Floor – no compartmentation, lightweight partitioning between commercial spaces, protected entrance and stairs to flats above



First floor compartmentation



Cavity Barriers

- Cavity barriers will be provided to prevent the spread of fire through gaps in the structure of the building, for example at the edges of cavities around doors and windows, junctions between cavity walls and compartment floors, and external walls and compartment floors
- Unless cavities are totally filled with insulation and meeting the requirements of Diagram 8.2 of the Building Regulations Approved Document B1 cavity barriers will be provided
- Compartment walls will extend to the underside of the floor above
- At roof level junction of the compartment wall and the roof will be constructed in compliance with the requirements of Approved Document B1 paragraphs 5.11 -5.15 as appropriate

Fire Stopping

- Fire stopping applied between joints in fire separating elements, for example where any studwork walls and the ceiling above meet
- Size of service penetrations through floors or compartment walls kept as small as practicable
- Maximum diameter of service pipes passing through compartment walls or floors sized in compliance with AD B1 Table 9.1 and fire stopping material applied around pipe to maintain the fire resistance of the floor/wall
- Where appropriate intumescent fire collars will be utilised for larger pipes
- No proposal for air conditioning or associated ductwork

Surface Spread of Flame

- Flats - surface finish of all materials making up the lining of walls and ceilings of the protected lobbies and the protected stairway will have a resistance to the surface spread of flame of B-s3-d2 or better
- Surface finish of all walls within flats with rooms measuring more than 4 sq.m in plan C-s3-d2
- Commercial space – minimum requirement for rooms greater than 30 sq.m C-s3-d2

Access and Facilities for the Fire Service

- The building faces Priests Bridge Road a through road unlikely to be obstructed by parked cars
- Building below 18m no requirement for firefighting shaft, stairs or lift
- Distance between the location of a fire appliance and the furthest part of the flats following a route suitable for the laying of a hose significantly over 45m
- Either a dry riser pipe run from the front of the building on Priests Bridge Road to the rear building, or a fire hydrant close to the new rear building

Fire Safety Information

- In addition to the information which the Principal Designer is required to provide under the Construction (Design and Management) Regulations 2015 and contained in the Health and Safety File, the fire related information which should be provided is set out below:
 - On completion of the construction work the client should be provided with the 'as built' fire strategy
 - Operational details and manufacturer's instructions about the fire detection and warning systems, including the location of detectors, call points and sounders in the flats and in the commercial parts
 - Operational details and manufacturer's instructions for about automatic smoke control system in the common parts of the flats
 - Operational details and manufacturer's instructions for the sprinkler systems
 - Details of fire resisting construction and fire door sets
 - Details of maintenance schedules for the fire safety systems

Cause and Effect Matrix

Cause	Effect
Activation of smoke detection in common parts of the flats	AOV at the head of the stairs open

Occupation Phase - Outline Management

- Flats - on completion of the new building and before occupation the Responsible Person should undertake a fire risk assessment of the common parts of the building
- The Responsible Person should ensure the fire risk assessment is reviewed at regular intervals (currently 2 years)
- As part of the fire risk assessment a clear procedure for action in the event of fire for residents should be developed and residents informed of the procedure
- The Responsible Person should arrange for the emergency lighting system to be tested monthly and serviced annually by a competent person
- The Responsible Person should arrange for the automatic smoke ventilation system to be tested monthly and serviced annually by a competent person
- Commercial unit – on completion of the building the Responsible Person should undertake a fire risk assessment of premises and take into account the use of the building and any changes to the floor plan which may have been undertaken post construction by the occupier
- The Responsible Person should arrange for the fire detection system to be tested weekly and serviced six monthly by a competent contractor
- The Responsible Person should arrange for the emergency lighting system to be tested monthly and service annually by a competent person