

Premier Assets

Gillet Road

Thornton Heath, London

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LAWRENCE WEBSTER FORREST

Fire Engineering & Fire Risk Management Consultants



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Gillet Road

Thornton Heath, London

Fire Strategy

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EXECUTIVE SUMMARY

Lawrence Webster Forrest (LWF) has been commissioned by Premier Assets to produce a Fire Strategy for the proposed refurbishment of 162 Gillet Road, Thornton Heath, London.

An assessment has been carried out of the information provided by Premier Assets.

The assessment has not considered any additional requirements associated with property protection or HMO licensing and any discussions associated with variations to the prescriptive approach are on the basis of life safety.

This report sets out the performance requirements for various design aspects. Detailed design, to achieve compliance with the standards specified, will be undertaken by others.

It is considered that the outline recommendations in this report will provide sufficient guidance to obtain approval from the relevant authorities and achieve a satisfactory level of safety, commensurate with the risks for the occupied premises.

1 INTRODUCTION

1.1 General Description of the Development

The building is an existing 3-storey (ground, 1st and 2nd) detached property at 162 Gillet Road in Thornton Heath which provides short term residential accommodation. The proposed works will remodel the internal layouts to provide 23 short stay. apartments. While the accommodation on the ground floor is provided with cooking facilities, the accommodation on the upper levels are provided with a shared kitchen on each floor. A communal living space and a dedicated reception area for staff members is provided on the ground floor also. The building is served by an enclosed central stair which provides the primary means of escape with an external spiral stair at the rear of the building providing a secondary escape.

Figure 1 highlights the front elevation of the property.



Figure 1 - Front Elevation of 162 Gillet Road

In accordance with ADB the property is considered Purpose Group 2(b) – Residential (other). This is defined as

Hotel, boarding house, residential college, halls of residence, hostel and any other residential purpose not described above.

1.2 Purpose and Scope of the Report

The purpose of this report is to examine the proposed layouts in relation to fire safety precautions. and to present the findings to the approval authorities, with a view to achieve outline Building Control approval incorporating approvals following consultation with the Fire Authority.

Based on the recommendations provided within this report, it is believed that the premises will be provided with an adequate level of fire safety. As previously stated, for the purpose of this report and in line with the Building Regulations, the report makes recommendations for life safety only; property protection is not an objective of the Regulations and has not been specifically identified as one of the project design objectives by Client. Consultation will need to be undertaken with the HMO officer to establish if any additional fire safety precautions are required.

1.3 Principle Guidance Documents

The principle guidance document used for the evaluation of fire safety precautions for the proposed development will be Volume 2: Buildings other than dwellings - Approved Document B: Fire Safety – 2019 Edition (ADB) as amended 2020 and 2022.

Additional legislation that needs to be considered is the Regulatory Reform (Fire Safety) Order 2005. The Order (which replaced multiple separate pieces of legislation) requires a designated Responsible Person to manage the fire risk in a premise and take reasonable steps to reduce the risk from a fire and ensure that everyone who may be on the premises can escape safely. This is usually managed by undertaking a Fire Risk Assessment. The recommendation of the FRA may exceed the requirements under the Building Regulations and should be undertaken before the building is reoccupied.

2 MEANS OF ESCAPE

2.1 Evacuation Strategy

The building will be designed for a simultaneous evacuation. This means that in the event of a fire within one of the rooms then all the occupants throughout the building will evacuate.

2.2 Automatic Fire Detection and Alarm System (AFDA)

Where sleeping accommodation is provided, BS5839-1 recommends an L2 fire alarm system which includes automatic detection and manual call points. A category L2 system is defined as:

A Category L2 system ought to include the coverage necessary to satisfy the recommendations of this standard for a Category L3 system; the objective of a Category L2 system is identical to that of a Category L3 system, with the additional objective of affording early warning of fire in specified areas of high fire hazard level and/or high fire risk.

Category L3: systems designed to give a warning of fire at an early enough stage to enable all occupants, other than possibly those in the room of fire origin, to escape safely, before the escape routes are impassable owing to the presence of fire, smoke or toxic gases.

The fire alarm panel should be installed on the ground floor close to the main entrance to allow initial control of any fire incident by staff and/or the Fire Service.

2.3 Occupancy

A summary of the proposed maximum populations can be seen in Table 1. The occupancy load has been developed on the principle that there will be at 2 occupants per room.

Floor	No of Bedrooms	Occupancy
Ground	5	14*
First	9	18
Second	9	18
	Total	50

**An additional 4 occupants have been considered for members of staff.*

Table 1 - Anticipated Floor Occupancies

2.4 Horizontal Means of Escape

The recommended travel distance limitations can be seen in Table 2 and are complied with. Escape routes in the common corridors can be seen in Figure 2 to Figure 4.

Floor	Single Direction	Alternative Escape
Bedrooms	9m	18m
Bedroom Corridors	9m	35m
Plantrooms	9m	18m
Elsewhere in the building	18m	35m

Table 2 - Travel Distances

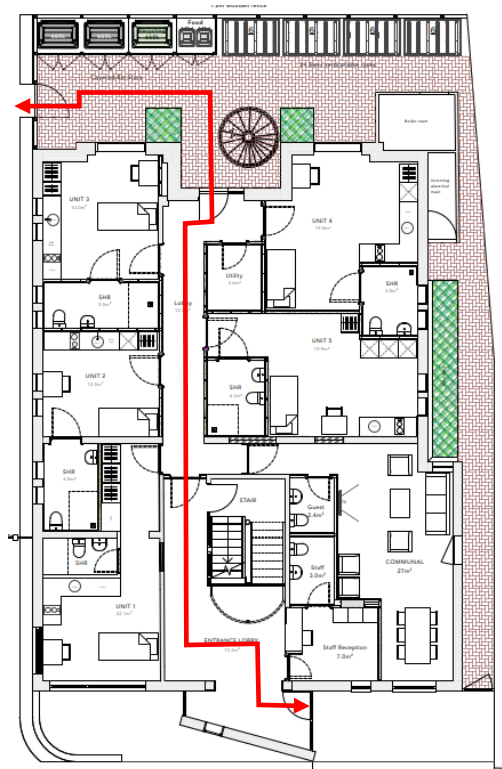


Figure 2 – Ground Floor: Means of Escape

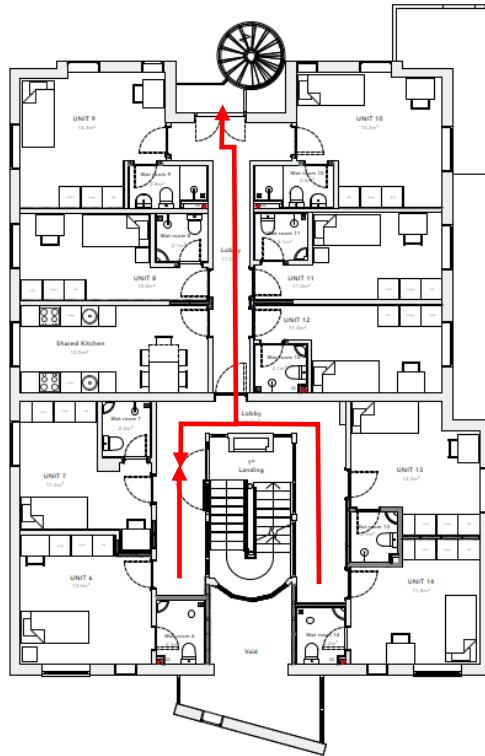


Figure 3 – 1st Floor: Means of Escape

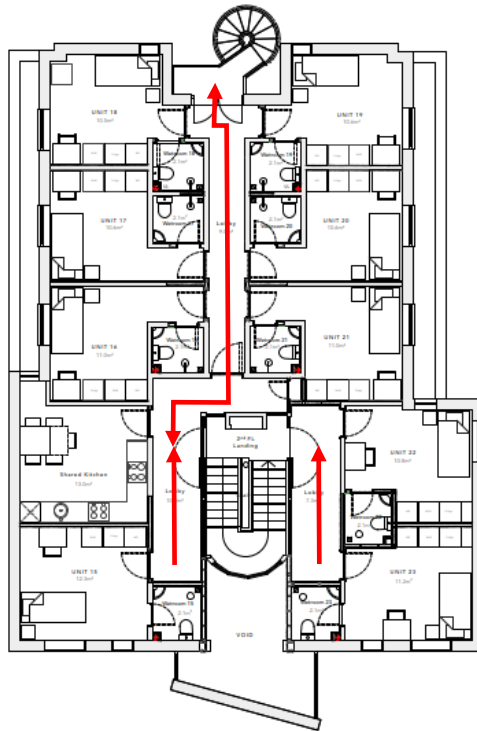


Figure 4 – 2nd Floor: Means of Escape

2.5 Vertical Escape

The building height from the lowest external ground level to the floor of the second storey is less than 11m. In accordance with ADB the building is able to be served by a single means of escape on the basis that the stair is lobbied protected.

With the exception of rooms 22 and 23 on the second floor, all accommodation have access to both stairs/final exits.

In accordance with ADB, as the occupancy on the upper levels is less than 50 an escape stair is only required to be provide a clear width of 800mm. The existing main stair provides a clear width of 0.98m so this is deemed to be acceptable. The stair discharges into a lobby with a reception area which is permanently occupied and fire compartmented via fire resisting construction and a fire curtain.

The external stair has an overall width of 800mm, but it is recognised that the effective width would be restricted due to the tread size reducing. However, given that only two apartments on the first and second floor respectively have an extended travel distances of 2m to the central protected stair then the existing external stairs is considered acceptable as it only needs to facilitate up to a maximum of 8 people (from the 4 apartments) in the event of a fire.

The existing final exits doors on the ground floor open inwards but given the occupancy is less than 60 persons this is sufficient for occupants to escape.

2.6 Evacuation of Disabled/Mobility Impaired Occupants

As no access is provided to mobility impaired occupants no refuges will be provided.

2.7 Emergency Lighting

Emergency lighting should be provided in accordance with BS 5266-1 'Emergency lighting – Part 1: Code of practice for the emergency lighting of premises and BS EN 1838 'Lighting applications – Emergency lighting'.

Emergency escape lighting should be provided in escape routes, open area, high risk area and points of emphasis including:

- At each exit door intended to be used in an emergency.
- Near stairs so that each flight of stairs receives direct light.
- Near any other change in level.
- Mandatory emergency exits and safety signs.
- At each change of direction.
- At each intersection of corridors.
- Outside and near to each final exit.
- Near each first aid post.
- Near each piece of firefighting equipment and manual call point.

2.8 Emergency Escape Signage

Fire escape signs are to be provided to guide occupants from any point in a building, via a place of relative safety (the escape route) to the place of ultimate safety (outside the building). Exit and directional signage should be provided in accordance with the requirements of BS ISO 3864-1, and BS 5499: Part 4 and 5.

Signage is provided to identify the primary escape route from each location within the building. To achieve this, the following principles have been adopted.

- At least one escape route or doorway leading to an escape route should be visible from any place within every room or enclosure.
- Where direct sight of the escape route is obstructed, additional signage is to be considered.
- Escape route signage is to take precedence over all other signs.

- All changes of direction in corridors, stairways and open spaces forming part of an escape route will be marked with intermediate signs. Each intermediate door or junction will also be similarly signed.
- Signs are not to be fixed to doors or sited where they are obscured by open doors.

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

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

3 INTERNAL FIRE SPREAD

3.1 Lining

In accordance with ADB, the internal linings for the building are recommended to be as detailed below in Table 3.

Location	European Class
Small room not more than 4m ² in the residential accommodation	D-s3, d2
Rooms not more than 30m ² in the non-residential areas	D-s3, d2
Other rooms	C-s3, d2
Other circulation spaces	B-s3, d2

Table 3 Classification of linings

Parts of walls in rooms may be of lower performance than specified in Table 3 but not worse than Class D-s3, d2 provided that the total area of those parts in any one room does not exceed half of the floor area of the room, subject to a maximum of 20m² in residential accommodation and 60m² in non-residential accommodation.

3.2 Structural Fire Protection

In accordance with the guidance given in ADB, all load bearing elements of structure will be provided with fire protection to achieve a minimum of 60 minutes fire resistance as outlined in BS 476 and Table A1 of ADB. This requirement also applies to any element of structure that supports or provides stability to another.

3.3 Compartmentation

The main objective of compartmentation is to prevent rapid fire spread, which may prevent occupants of the building from escaping safely. Compartmentation reduces the chance of a fire becoming large thereby protecting the means of escape and also reducing the likelihood of fire spread to neighbouring buildings.

Recommended compartmentation measures for the building are summarized in Table 4 below.

As the reception area is open to the stair lobby, a 60 minute fire/smoke curtain will be provided to ensure an adequate fire separation is provided to allow occupants to escape.

Element	Required Fire Resistance (minutes)
Floor	60
Protected Stair	60
Reception Area	60
Protected Corridor / Lobby	30
Reception Fire/Smoke Curtain	60
Between rooms	No requirement
Open Risers	60
External Stair	30 – See Figure 5
Store & Meter rooms	30
Kitchen & Communal Room	30
Reception External Window	30

Table 4 Recommended Periods of Fire Resistance for Compartmentation Elements

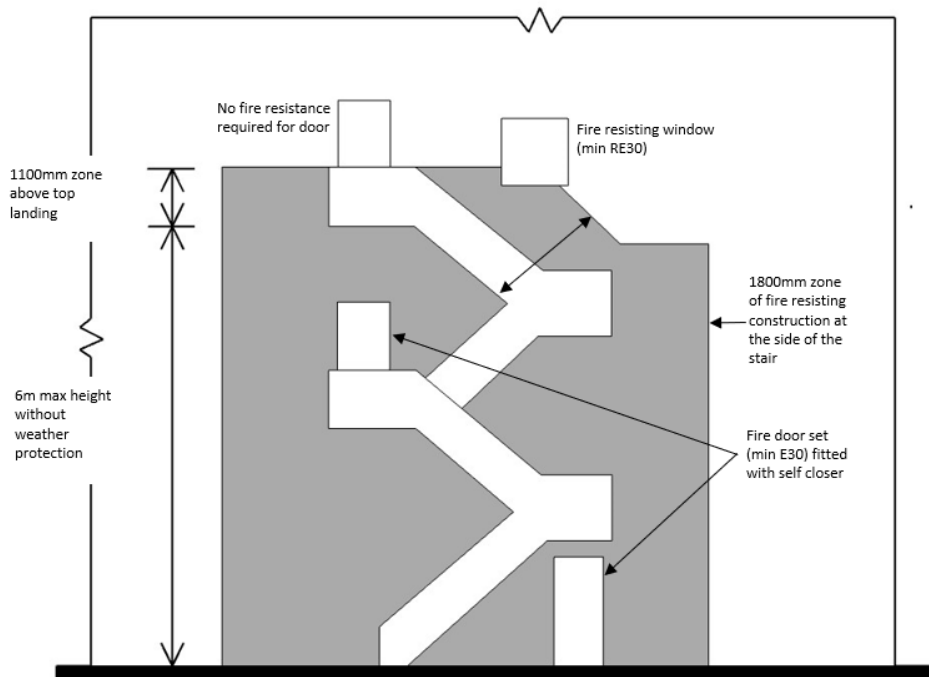


Figure 5 - Fire Resistance of areas near to external stairs

3.4 Fire Doors

Any doors opening onto the means of escape should have a minimum fire resistance of 30 minutes and should have a self closer and incorporate intumescent strips and cold smoke seals. Self closers would not be required to the service risers.

3.5 Concealed Spaces

Concealed spaces and cavities in the building can allow the rapid unseen spread of fire and smoke to areas remote from the seat of an incident.

If concealed spaces or cavities are created, cavity barriers will be required. The cavity barriers must provide a minimum of 30/15 minutes' fire resistance period in term of integrity and insulation respectively. Cavity barriers must be securely supported so as to guarantee integrity and insulations properties irrespective of the failure of un-rated components.

In accordance with ADB, cavity barriers should be provided as follows:

- all junctions between an external cavity wall and every compartment floor and compartment wall.
- all junctions between an internal cavity wall and every compartment floor, compartment wall, or other wall or door assembly which forms a fire-resisting barrier.
- for a protected escape route, i.e. protected corridor, a cavity that exists above or below any fire resisting construction should either be fitted with cavity barriers on the line of the enclosures to the protected escape route or for the cavities above the fire resisting construction, enclosed on the lower side by a fire resisting ceiling which extends throughout the building, compartment or separated part.
- where the dimension of uninterrupted ceiling void is greater than 20m. The maximum dimensions of cavities should be less than 20m in any direction.

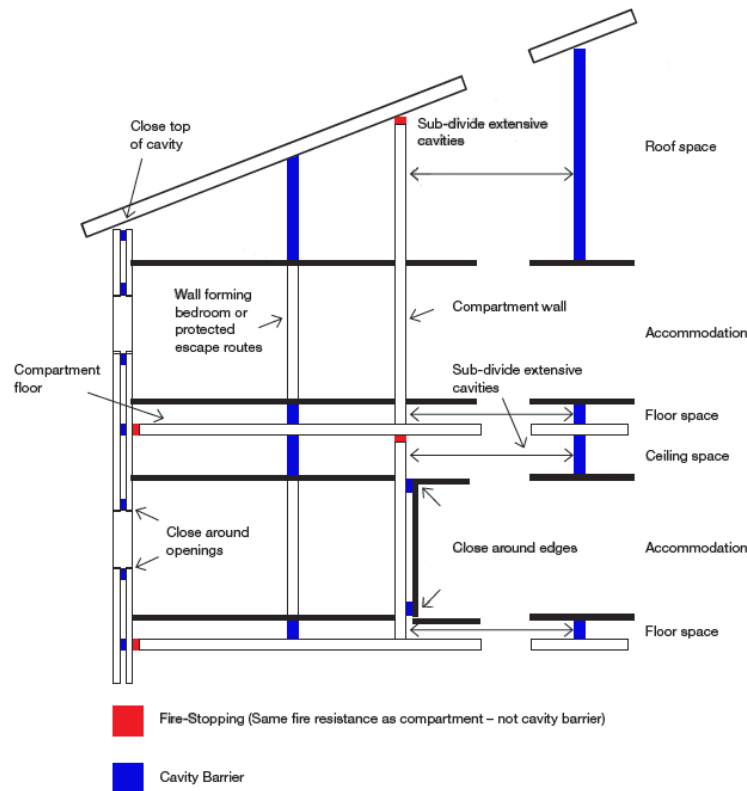


Figure 6 - Provisions for Cavity Barriers

3.6 Fire Stopping

All penetrations through fire separating elements should be adequately fire stopped or sealed to ensure that the integrity and performance of the element is not impaired. Areas that will require fire stopping will be around pipe and cable services, ventilation ducts and flues and junctions between fire separating elements.

All elements and services that penetrate a compartment wall, floor or other element of fire resisting construction are to be fire stopped using a method appropriate to the element penetrated and the surrounding construction.

Typical fire stopping materials include:

- cement mortar
- gypsum-based plaster
- cement-based or gypsum-based vermiculite/perlite mixes
- glass fibre, crushed rock, blast furnace slag or ceramic-based products (with or without resin binders) and

- intumescent mastics.

Systems used must be designed, installed, tested and maintained in full accordance with the relevant BS 476 standard and the ASFP Approved Code of Practice.

Any ventilation ductwork will also need to be fire protected where it penetrates a fire separating element. As ventilation ducts provide a potential route for fire spread through the duct consideration of how this will be fire stopped must also be made. Three basic methods should be considered:

- protection using fire dampers.
- protection using fire resisting enclosures.
- protection using fire resisting ductwork.

Where a ventilation duct penetrates onto a protected escape route, smoke detector operated fire dampers should be provided.

4 EXTERNAL FIRE SPREAD

As the existing layouts are generally being maintained (except the communal room which is being reduced in size) then the external walls are deemed to comply to limit external fire spread.

4.1 External Walls

No works are proposed to the external walls.

5 FIRE SERVICE ACCESS AND FIRE FIGHTING FACILITIES

As the building is less than 2000m² with a top occupied floor less than 11m, vehicle access for a pump appliance should be provided to 15% of the perimeter of the building. This is achieved via the front elevation.

As the building is existing and does not have a compartment exceeding more than 280m² no additional fire hydrants are required.

As Gillet Road is existing this is deemed acceptable for a Fire Appliance to arrive at the building.

6 CONCLUSION

The proposals outlined in this document demonstrate a level of fire safety equal to or greater than the general standard implied by compliance with the recommendations in Approved Document B. This level of safety, therefore, satisfies the functional requirements of the Building Regulations relating to fire safety.