

Pinner Road

FIRE STRATEGY

8th April 2024

KF-DFS-6089-01-B



KNOW FIRE



QUALITY ASSURANCE

Revision	Date	Prepared By	Reviewed by	Reason
-	18/03/24	Mike Gilmartin	Kevin Parsons	Design team for comment
A	04/04/24	Mike Gilmartin	Kevin Parsons	Updated to reflect clients comments
B	08/04/24	Mike Gilmartin	Kevin Parsons	Title page updated



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1 INTRODUCTION

Know Fire Limited have been commissioned by Tremula Property Investments Ltd to produce an outline fire strategy report for the development on Pinner Road in Northwood, London. The purpose of this Fire Strategy is to provide strategic design and performance criteria which, when met by the design of the development, are proposed to meet the functional requirements of Part B of Schedule 1 to the Building Regulations, and any other relevant stakeholder requirements. It must be noted this is a not a planning statement.

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

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 Building Regulations and has not been specifically identified as one of the project design objectives by the client.

A detailed fire strategy will need to be developed to obtain approval from Building Control and the Fire Service.

1.1 Legislation

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

Part B of Schedule 1 to the Building Regulations includes functional requirements that need to be met with regards to fire safety. Under Part B a building owner is required to provide an adequate level of life safety to the building by providing suitable means of escape, means of warning occupants of a fire, limiting internal fire spread, protecting adjacent property from fire, and facilitating Fire Service operations. This is considered under the requirements of B1 to B5 of Schedule 1 of the Regulations.

Compliance with the functional requirements B1 to B5 may be demonstrated by meeting a suitable guidance document. The principal guidance document used for the evaluation of fire safety precautions for the dwellinghouse is Approved Document B Volume 1: Dwellings - 2019 Edition (incorporating 2020 & 2022 amendments).

Unless explicitly stated otherwise in this report, all aspects of the building are to be in full accordance with ADB and the relevant British Standards.

1.2 Building Description

The proposed residential redevelopment is a 3 storey (Ground, 1st & 2nd) residential building. The ground floor provides an undercroft car park, commercial unit and ancillary accommodation for the residential apartments. The 1st and 2nd floor provides 4 apartments on each floor with a mix of 1 to 3 bedroom apartments. The roof provides an outdoor amenity area for residents.

The building is served by a single stair core and the height of the roof level from the external ground level is less than 11m.



Figure 1 - Proposed Northeast Elevation

1.3 Drawing Information

Table 1 highlights the information that has been used to develop this outline fire strategy.

Table 1 - Drawing Schedule

Architects	Description	Drawing Number	Revision
Coleflax Bennett	Proposed Plans	PL100	H
	Proposed Elevations	PL200	F



2 MEANS OF WARNING AND ESCAPE

2.1 Evacuation Principle

As the building provides private residential accommodation, the fire strategy has been based on a “stay-safe” evacuation procedure. Under this evacuation procedure, fire alarm sounders within residential apartments will only evacuate if a fire detection device activates within that apartment.

This evacuation policy reflects on the high degree of compartmentation in this type of development and also acknowledges the potential for complacency caused by frequent false alarms which could place occupants at undue risk. The remaining apartments will remain in place unless instructed to leave by the building’s management or the attending fire service.

2.2 Building Population

As the residential areas of the building will operate on a stay-safe evacuation policy, the number of residents within the building do not impact on the size of the escape routes from the residential areas on the principle that only one apartment would need to evacuate at any one time.

The commercial unit, car park and roof terrace will be limited to a maximum of 60 occupants. This is due to a single exit on the roof and car park and the inward opening doors in the commercial units.

2.3 Automatic Fire Detection and Alarm (AFDA)

ADB recommends that apartments with a protected entrance hall are provided with a Grade D, Category LD3 fire detection and alarm system consisting of smoke detection throughout.

Smoke detection will be provided in the common residential escape routes to a Category L5 standard, with detector spacing being in accordance with the recommendations for a typical Category L system. As the building operates on a stay-safe evacuation strategy, there should be no sounders within the common residential escape routes except at the

roof level. The system is provided to activate the building’s smoke ventilation systems only.

A category L3 fire alarm system should be located in the accommodation on the ground floor in accordance with BS 5839-1.

The commercial unit will be subject to its own fit out so will be provided with a minimum of a manual fire alarm system in accordance with BS 5839-1.

Table 2 – Fire Detection & Alarm Summary

Area	Minimum Coverage	British Standard	Manual Call Points	Sounders
Apartments	LD3	BS 5839-6	No	Yes
Roof Level	M	BS 5839-1	Yes	Yes
Common Corridor	L5	BS 5839-1	No	No*
Ground Floor & Car Park	L3	BS 5839-1	Yes	Yes
Commercial Unit	M	BS 5839-1	Yes	Yes

*Sounders to be provided at roof level.

2.4 Horizontal Means of Escape

Table 3 highlights the travel distances that will be adopted in the building. These are all complied with.

Table 3 – Travel Distance Limitations

Description	Single Direction	Alternative Escape
Apartments – non FR lobbies	9m	-
Apartments – with FR lobbies	9m	-
Common Corridors	7.5m	-
Car Park	18m	-
Roof Terrace	25m	-
Commercial Unit	18m	45m



Apartments – Non Fire Rated Lobby

The 1 bed apartment is provided with an internal non fire protected lobby. The travel distance is limited 9m from anywhere in the apartment to the apartment entrance door.

Apartments – Fire Rated Lobby

The remaining apartments are provided with a fire protected hall where all habitable rooms are accessed from. The travel distance is limited to 9m from the apartment entrance door to the door of any habitable room.

Common Corridor

The recommendations of ADB permit a single direction travel distance of up to 7.5m in an unventilated corridor on the basis that the corridor then provides access into a dedicated ventilated lobby then into a protected stair.

Undercroft Car Park

The exit from the car park is via the sliding gate. This gate will be linked to the fire alarm system, fail safe open and provided with a green break glass override button. The exit into the stair is not considered a means of escape as it will be protected with an automatic fire/smoke curtain. Figure 2 indicates the escape route.

Commercial Unit

The unit is provided with 2 dedicated fire exits.

2.5 Ventilation Provisions

The ventilation to the protected corridors will be achieved by a 1.5m^2 automatic opening vent (AOV) at each level and 1.0m^2 at the head of each stair

AOVs opening to outside air should conform to BS EN 12101-2 and should

- Be outward opening.
- Not be top hung.
- Open to a minimum of 30°.
- Be clearly identifiable and accessible

The car park will be provided with smoke ventilation. This will be achieved by natural ventilation: Permanent openings will be provided with an aggregate free vent area of 1/40 of the floor area, with at least half of which will be provided equally by two opposite walls (1/160 on each side).

2.6 Vertical Means of Escape

ADB states there is no minimum escape width for a block containing residential accommodation provided that the widths of the circulation routes are sufficient for day-to-day circulation therefore the protected stairs are deemed suitable to act as fire escape routes. The protected stairs provides a minimum clear width of 1.1m.

Doors at the base of the stair should be as wide as the stair they serve. However, given the building operates a 'Stay Safe' strategy a 850mm door is considered acceptable.

The undercroft car park is accessed directly from the protected stair route. As an alternative to providing a ventilated lobby it is proposed to provide a fire curtain over the car park access door. This will provide equivalent to 2 door separation (60 mins + 30 mins FR) and prevent access/egress from the car park if a fire was to start in the car park limiting any potential fire and smoke spread.

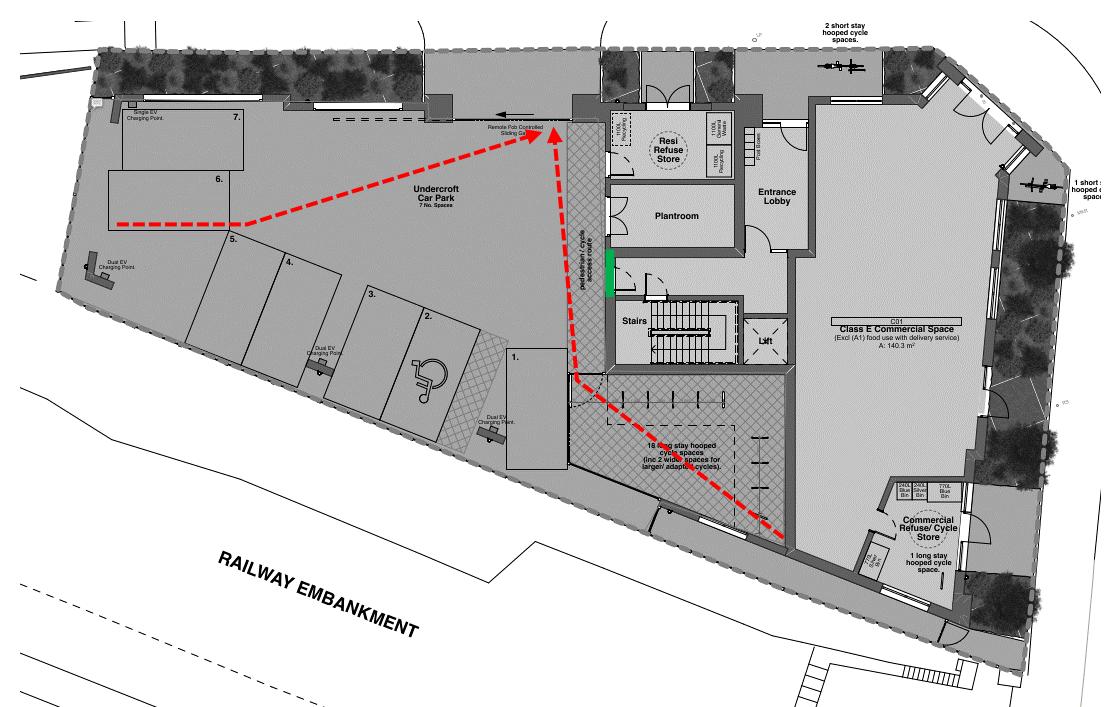


Figure 2 – Car Park Escape & Fire/Smoke Curtain Location



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'.

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.



3 PASSIVE FIRE SAFETY MEASURES

3.1 Linings

The surface finishes of walls and ceilings are to achieve the classification in Table 4 when tested under the relevant standard and classified in accordance with BS EN 13501-1.

Table 4 - Classifications on Internal Linings

Location	European Class
Small room not more than 4m ² in the residential accommodation	D-s3, d2
Other rooms	C-s3, d2
Circulation spaces within a dwelling	
Other circulation spaces (including common area of blocks of flats)	B-s3, d2

3.2 Compartmentation

Table 5 indicates the proposed compartmentation requirements for the building.

Table 5 - Compartmentation Summary

Floor / Wall Location	Fire Rating (mins)
Protected Entrance Halls	30
Wall Separating Apartments	60
Residential Corridor	60
Compartment Floors	60
Risers	60
Stairs	60
Plant & Refuse Rooms	60
Fire/Smoke Curtain	60

The stair window will need to be fire rated to 60 minutes as its within 1.8m of the corridor AOV.

3.3 Elements of Structure

As the height of the topmost occupied storey is less than 18m from lowest adjacent ground level, all elements of the structure should be provided with 60 minutes applied fire protection throughout the building.

3.4 External Wall Construction

As the building is less than 11m in height and greater than 1m from the boundary there is no limitations on the wall construction.

3.5 External Fire Spread

As part of the detailed design an external fire spread analysis will be undertaken in accordance with BR 187.

3.6 Roof Coverings

The roof coverings for the development will meet the recommendation in Table 6.

Table 6 - Limitations on Roof Coverings

Designation of roof covering	Distance from any point on the relevant boundary			
	Less than 6m	At least 6m	At least 12m	At least 20m
B _{ROOF} (t4)	◆	◆	◆	◆
C _{ROOF} (t4)	◇	◆	◆	◆
D _{ROOF} (t4)	◇	◆(1)(2)	◆(1)	◆
E _{ROOF} (t4)	◇	◆(1)(2)	◆(1)	◆
F _{ROOF} (t4)	◇	◇	◇	◆(1)(2)



4 FIREFIGHTING ACCESS AND PROVISIONS

4.1 Fire Fighting Access

Access to the site should be designed in such way that the fire service can easily access the site upon fire situation.

Any works to existing or new roads needs to be constructed in accordance with Table 7. It should be ensured that all access roads around the site will be adequate to accommodate the local fire service pump appliance.

Table 7 - Fire Appliance Route Specification

Appliance Type	Minimum widths of road between kerbs(m)	Minimum widths of gateways (m)	Minimum turning circle between kerbs (m)	Minimum turning circle between walls (m)	Minimum clearance height (m)	Minimum carrying capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	12.5

Figure 3 highlights the access arrangements for the fire appliance when they arrive. The fire appliance would not need to reverse more than 20m.

All areas of the commercial unit and the undercroft car park are within 45m from where a fire appliance will arrive. As the distance from the fire appliance to the furthest point on the upper levels exceeds 45m a dry riser will be provided.

4.2 Dry Rising Main

Dry risers serving residential buildings will need to serve all floors (including ground level) and should be maintained in accordance with BS 9990.

The dry riser inlet connection point is to be within 18m of fire appliance access point and visible from the fire appliance. The horizontal distance between the dry riser inlet point up to a point where the pipework becomes vertical will not exceed 18m.

The hose laying distances, between the outlet in the protected stair and a furthest point on the floorplate will not exceed 45m within the building.

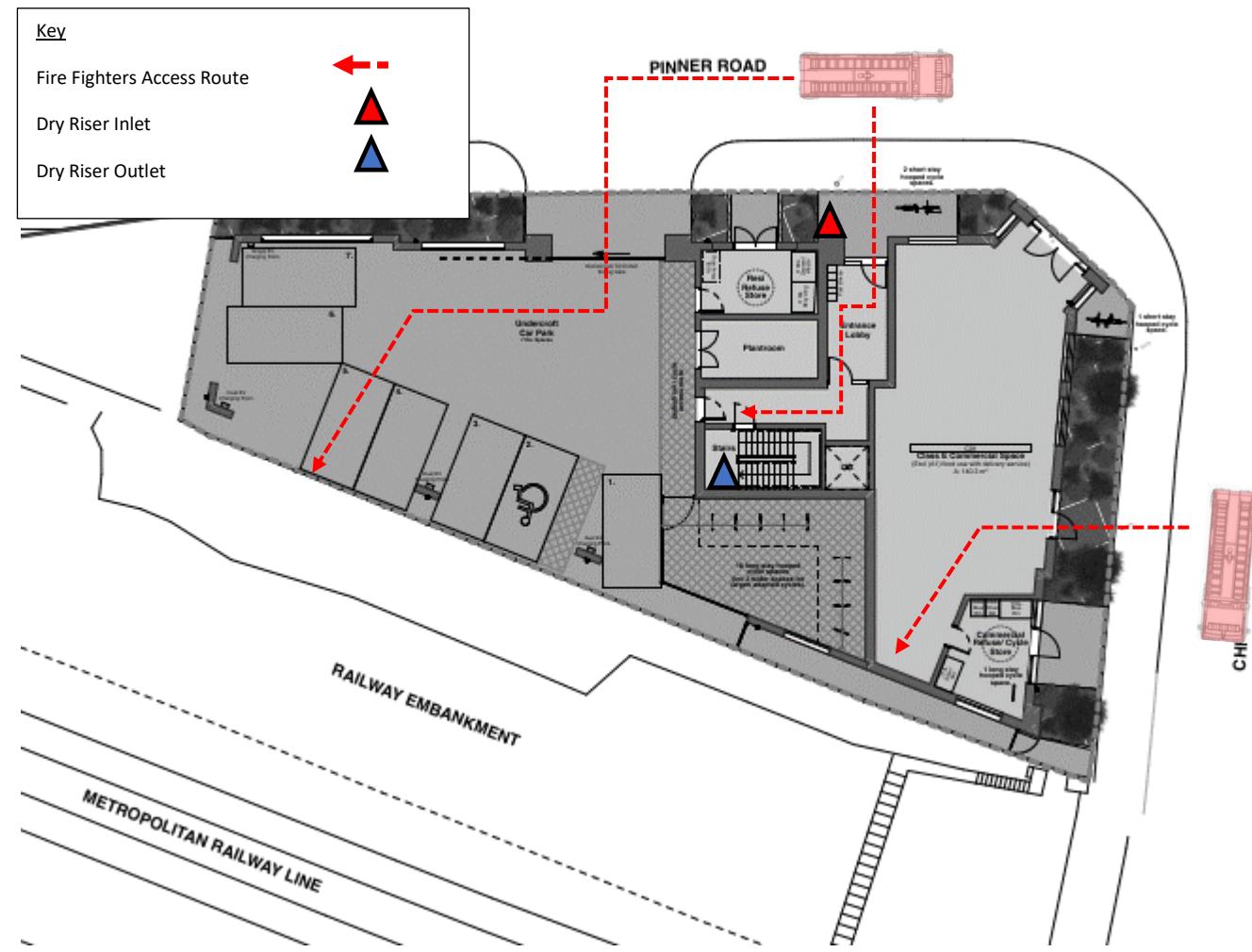


Figure 3 - Fire Service Access Routes

4.3 Fire Hydrant

As the car park compartment exceeds 280m² a new fire hydrant will be provided if an existing fire hydrant is not within 100m of the building.



5 CONCLUSION

The layout of the building is considered sufficient to meet the functional requirements of the Building Regulations, provided that the recommendations made throughout this report are incorporated in full.

This Outline Fire Strategy is to be submitted Building Control for formal approval. Until this report has been approved by the AHJ's this should not be relied upon.