



Design Note No. DN01

Project The Pinnacle, 20 Tudor Road, Reading

Date 23rd June 2025

Subject Fire Statement

1.0 DOCUMENT CONTROL

Issue	Date	Description	Author	Reviewed
-	23/06/25	Initial issue	BW	BH

2.0 INTRODUCTION

BWC Fire Limited (BWC) have been commissioned to produce the fire strategy for the development works at the building known as The Pinnacle in Reading and then to provide support to the planning application. The proposals discussed in this report summarise the fire strategy principles which will be further developed during the Building Regulations stages later.

The building fire strategy principles have been assessed against the guidance within Approved Document B, Volume 1 (including up to 2025 Amendments). It is considered that by ensuring that the design will comply with Building Regulations then this standard will also address planning requirements by default.

3.0 BUILDING DESCRIPTION

This project entails the conversion of an extension office building into residential apartments. The building is known as The Pinnacle and is located at 20 Tudor Road in Reading, RG1 1NH.

The Pinnacle in its current condition is a notionally L-shaped office building consisting of ground plus five floors, with a sixth floor that is currently solely plant accommodations. The building has two staircases: a main stair and lift core which is located at the central intersection of the two lengths of the floor plate plus a secondary staircase located at the remote east end of the floor plate. At ground floor the internal accommodations are limited to a small corner which forms the main entrance and some local office space. The remainder of the space forming the footprint of the building is then car parking. The car parking also extends to the rear of the building as open air car parking. The sixth floor currently is purely cellular plant rooms which are accessible from the two staircases.

At completion of these planning proposed works the office accommodations in the existing building will be converted into a series of individual apartments that access the two staircases via central common corridors. This will apply consistently to the first to fifth floors inclusive. The sixth floor will have the unnecessary plant decommissioned and removed however this floor will still be retained as solely a plant level. At ground floor the existing car parking areas will be retained. The office areas at ground floor will be converted to two residential apartments plus the main building entrance.

The only passenger lifts in the building are located with the main core in the centre of the floor plate.

The vehicle access into the site is via a shuttered entry point off Tudor Road, adjacent to the secondary staircase location. There is a pedestrian route leading to the rear of the building to the north of the footprint from Caversham Road.

The building height when measured in accordance with Approved Document B (i.e. external ground level on the lowest side of the building to finished floor level on the fifth floor) is approximately 19.2m.

The accommodation within the development is classified in the following Purpose Groups under ADB:

Accommodation	Purpose Group
Residential Apartments	1(a)
Car Parking	7(b)

Note – The plant and store rooms have been considered ancillary to the main building uses.

4.0 SUMMARISED FIRE STRATEGY PRINCIPLES

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, Volume 1 (including up to 2025 Amendments). This level of safety therefore satisfies the functional requirements of the Building Regulations relating to fire safety. As the proposals show that Building Regulation standards in relation to fire safety are met then by extension it is proposed that planning requirements for fire safety are also addressed.

The fire strategy can be summarised as follows.

Design Item	Recommendations
Evacuation Philosophy	- A defend in place strategy is proposed for the apartments whereby in the event of a fire in an apartment the fire alarm system locally in that apartment will activate only. All other apartments will not automatically evacuate. - No automatic fire alarm or warning systems are proposed to the residential common areas. - The car park areas are completely separate and will evacuate simultaneously on independent basis from the residential areas. - As the building is over 18m high the entire building will also be covered by a BS8629 communal evacuation alert system such that the fire service can potentially evacuate some or all of the building as they see fit.
Escape within apartments	<u>Apartments with entrance halls</u> - The apartments of this type possess an internal entrance hallway that links each room to the entrance. - The apartment will include residential sprinklers and minimum LD2, Grade D1 automatic fire alarm and detection systems. - Based on the above facilities internal travel distances in the apartment entrance hallway will be limited to 9m. The entrance hallway will also afford 30minutes fire resistance with minimum FD30 doors. - The apartments will be separated from all other accommodation and the common areas on that floor by at least 60minutes fire resistance with FD30S self closing doors. - The two ground floor apartments will both be provided with an escape window direct to outside for secondary escape purposes should a fire event impede the main entrance. <u>Studio apartments</u> - Each of these apartments is a single open plan space with inner rooms limited to bathrooms, utility rooms and stores. - The apartments will include residential sprinklers and minimum LD2, Grade D1 automatic fire alarm and detection systems. - Based on the above facilities internal travel distances in the apartments will be limited to 9m. No internal fire resistance is needed in the units. - The apartments will be separated from all other accommodation and the common areas on that floor by at least 60minutes fire resistance with FD30S self closing doors. - The cooking hobs in accordance with ADB should be remote from the escape route. As “remote” is undefined in ADB it is proposed to adopt the quantification in BS9991: 2024 as a means of demonstrating remoteness. Following this the cooking hobs will be at least 1.8m away from the nearest edge of the escape route. At least a 900mm escape width being allowed for on that route. In order for the apartment entrance door to be usable the hobs should also be at least 2.3m away from the apartment entrance door handle.

Design Item	Recommendations
Escape within apartments (Cont)	The two ground floor apartments will both be provided with an escape window direct to outside for secondary escape purposes should a fire event impede the main entrance.
Escape within the Common Areas	- The building has a floor over 18m high and therefore each upper floor is served by two common staircases which are linked by a connecting common corridor. - Travel distances in the common corridors are limited to 7.5m in dead ends and 30m in multiple direction routes. These distances are easily met based on the size of the floor plate and the staircase distributions. - The secondary staircase discharges to outside at ground floor adjacent to the vehicle entrance into the car park which is separated and secured with a fire shutter. There is no direct link between this staircase and the non-residential areas of the building. - The main staircase discharges both to the main building entrance on Tudor Street and also to open air at the rear of the building. Based on these two routes of discharge it is considered reasonable for the two ground floor apartments to open onto the main entrance route. It should be noted that the two ground floor apartments are also proposed as being provided with an escape window for secondary escape purposes. Equally the main staircase rear door must be an FD60S self closing door due to the close proximity of the car parking spaces. - The common corridors are sub-divided with minimum 30minute fire separation and FD30S self closing doors. Sub-division points are located in two locations on the upper floors (i.e. approximately midway along the common corridor between the two stairs and also to isolate the main stair access and dead end corridor zone from the remainder of the common corridors). - Each section of common corridor that directly adjoins a staircase will be provided with automatic smoke venting. The dead end corridor zone adjoining the main staircase will be ventilated by a 1.5sqm natural smoke shaft that serves all upper floors before discharging at roof level. The ground floor main entrance and also the corridor linking directly to the secondary staircase at each upper floor will be ventilated by independent 1.5sqm natural AOV windows. Both common staircases also includes a 1sqm natural AOV at their heads. - The exit doors generally in the building should be a minimum of 750mm clear opening width as an absolute minimum (albeit larger widths are likely for other Building Regulation purposes e.g. Part M and K). - The main staircase is designated as a fire fighting shaft and therefore this staircase should have a clear width of 1100mm. All doors on the discharge route at ground floor from the main staircase to outside should maintain the 1100mm clear opening width. - The secondary staircase for purely fire safety purposes should afford a clear width of 1000mm. The final exit door to outside at ground floor for this staircase should maintain a minimum clear width of 1000mm. All doors on the discharge route from the staircases to outside should open in the direction of escape. - In the accommodations generally as individual doors are unlikely to be used by more than 60 people these can generally open in either desired direction as required for the wider design. - The common discharge routes at ground floor should be maintained unobstructed and free of fire load. - Any access control devices fitted to the common escape route doors should be fitted with a manual override mechanism from the escape side of the door to enable occupants to escape without the need for a key in an emergency.
Escape within non-residential areas	- There is no plant or accommodations located on the roof itself. Should access be needed then this would be achieved via external access from sections of the sixth floor flat roof or via access from the staircase smoke vents. Travel distances in the open air on the roof will also be limited to less than 60m in dead ends or 100m in multiple directions. - The plant rooms on the sixth floor will retain travel distances of 9m in dead ends and 18m in multiple direction routes locally within the rooms themselves. These distances will be increased to an overall distance of 18m and 45m respectively for the aggregated overall travel distance to a storey exit.

Design Item	Recommendations
Escape within non-residential areas (Cont)	• The plant rooms will be separated into maximum 100sqm fire compartments (each compartment affording 60minutes fire resistance). The various compartments will generally link to the staircases via protected access corridors. • All ancillary rooms will be separated from the common staircases by a minimum 60minute fire rated lobby. The lobbies will include a 0.4sqm permanent natural vent that discharges to outside. • Due to the occupancy being less than 60 people all exit doors and routes on the sixth floor will maintain clear opening widths of 750mm, with the direction of door swings not critical for escape purposes. • The above parameters also apply to the plant, bin and bike store rooms on the ground floor which are externally accessed and use the same exit routes as the general car park. • The car park at ground floor level will have escape in dead ends limited to 25m and 45m in multiple direction routes. • There are 37 car parking spaces in total and therefore the car park should include at least two exits that are 850mm clear widths. In this case the car park shuttered route will form one of the routes and therefore the shutter will include a manual override facility to enable the shutter to be raised in the event of an emergency. The main staircase can also be used for escape, as will the pedestrian pathway to the north-west of the site. • These areas are to be completely fire separated from the new residential areas and associated escape routes with minimum 90minutes fire resistance.
Disabled Evacuation	• In general disabled refuge facilities are not needed in residential accommodation for Building Regulation purposes and it is understood that there are no planning or third party requirements for such provisions in this building.
Fire alarm and detection system	• The fire alarm and smoke detection within the flats should be designed in accordance with BS 5839 Part 6 and be to a LD2, Grade D1 standard. These fire alarm systems are standalone systems local to the respective flats. They are not linked to any of the other flats or common areas. • A common zoned smoke detection system should be provided in the common corridors on each residential floor of the building. The purpose of the detection system is to initiate the operation of the life safety automatic opening ventilators. No sounders or manual call points should be provided in the common areas. This detection system should be designed following the principles of BS5839 Part 1 to an L5 standard. • The car park and non-residential areas (bike and bin stores) will be covered by a separate Manual fire alarm system as discussed BS5839 Part 1. This system will provide standard coverage solely to these non-residential areas. • As the building is over 18m high the entire building will also be covered by a BS8629 communal evacuation alert system such that the fire service can potentially evacuation some or all of the building as they see fit.
Fire Suppression	• BS9251 residential sprinklers are proposed within all apartments and residential common areas. Due to the extent of this coverage a minimum Category 4 standard will apply to the sprinkler systems. It is proposed that the enclosed plant rooms forming the top floor are also covered by the residential sprinkler systems subject to each plant room being limited to 100sqm fire compartments. • The non-residential areas of the building will be covered by a BS EN 12845 commercial sprinkler system.
Emergency Lighting	• This should be installed in accordance with ADB and BS 5266 Part 1 recommendations.
Escape signage	• Directional fire escape signage will be provided to all common area escape routes and the basement areas. Fire service access signage will be provided to indicate floors in line with ADB and June 2022 Amendments to Approved Document B, Volume 1. • All fire doors in the building will include appropriate fire signage indicating their purpose as fire doors.
Elements of Structure	• All elements of structure across the building will afford 90minutes fire resistance as applicable for buildings that are more than 18m high. • Any elements which only support themselves and or a roof can be non-fire rated.

Design Item	Recommendations
Compartmentation	- Each apartment will be separated from their neighbours and the common areas by a minimum of 60 minute fire resistant compartment walls and floors with FD30S self closing apartment entrance doors. - Minimum 30minute fire resistance with FD30 doors will be provided to entrance hallways within apartments where these are present. - All apartments will include residential sprinklers and minimum LD2 standard fire alarm systems. - All floors should be compartment floors with a fire resistance of 90minutes. - The secondary common staircase will be separated from the common areas and all adjacent accommodation with 90minutes fire resistance and FD60S self closing doors. - The main staircase (fire fighting stair) will be separated from the common areas and all adjacent accommodation with 120minutes fire resistance and FD60S self closing doors. - All service risers should be constructed as 90minute fire resistant protected vertical shafts with FD60S lockable doors. The passenger lift will afford 90minutes fire resistance with FD60 lift landing doors. The fire fighting lift will afford 120minutes fire resistance with FD60 lift landing doors. - The smoke shaft will afford 120minutes fire resistance with FD120 smoke shaft doors/dampers. - The ancillary stores will also be separated from the adjacent areas by 60minutes fire resistance. The car park will be separated from the residential areas with 90minutes fire resistance. Commercial sprinklers will be provided to these non-residential areas. - The car park includes a shutter between the car park area and outside. As this shutter protects the secondary staircase discharge route the shutter should afford a minimum 30minute fire resistance. - The plant rooms which are internal rooms will afford at least 30minutes fire resistance, however where sub-division to support the sprinklers are required (i.e. maximum 100sqm compartments) this will be increased to 60minutes fire resistance.
Cavity Barriers, Fire Stopping and Linings	- Fire stopping and cavity barriers should be provided as recommended in ADB. - All linings within the apartments and ancillary rooms should have a minimum C-s3, d2 rating. - All linings within the residential common areas should be a minimum B-s3, d2 rating.
External Fire Spread	- Due to the sprinklers present for each apartment to be fully unprotected would require a minimum separation distance of 1.75m. This is achieved for all apartments in the building. Notwithstanding this all areas of the external walls which are not windows or doors should be fire rated from the accommodation side of the construction to a 90minute standard. - As above the car parking area is existing and only being improved within these works by the introduction of sprinklers. There are generous elevations onto the highways for the car park, as well as internally onto the external courtyard such that no unprotected areas are present associated with the car park openings. Notwithstanding this all areas of the external walls which are not windows or doors should be fire rated from the accommodation side of the construction to a 90minute standard. - The building is over 18m high and therefore the entire external wall build ups for the building will be formed of non-combustible materials (i.e. Euroclass A2 or better materials).
Fire Service Access	- The building is over 18m high and therefore the main staircase will be designated as a fire fighting shaft. This fire fighting shaft will include a fire fighting lift, a fire fighting stair, a dry rising main in the staircase, water ingress protection to the lift and smoke venting. - Based on the sprinklers present all apartments will be covered within a 60m hose distance from the dry main outlets in the fire fighting staircase. - The floor plate at each level is less than 900sqm and therefore only a single fire fighting shaft is needed. - The ground floor car parking areas can be covered within 45m of fire appliance parking positions on the highways or from the dry riser in the main staircase. - As no new compartment larger than 280sqm is being created no consideration is needed to additional fire hydrants within the works. Notwithstanding this there is an

Design Item	Recommendations
Fire Service Access (Cont)	existing fire hydrant in Caversham Road just beyond the junction with Tudor Road. This fire hydrant is less than 40m from the building entrance and associated dry main inlet positions.
Smoke Clearance	- No smoke clearance facilities are needed directly from the flats accommodation. - The car park areas that are under the footprint of the building will be provided with permanent natural openings which afford at least 5% of the covered car park floor areas. Of which half of this venting will be achieved on opposing walls. This will be achievable within the car parks but may require some new openings in the public highway elevations to achieve the cross flow. - The common areas will be provided with automatic smoke ventilation as described in the common areas escape section.
Power Supplies	- The life safety facilities in the building will be provided with suitable back up power supplies (i.e. fire alarm systems, emergency lighting, smoke venting, fire fighting lifts, sprinklers, fire shutters etc). In general low power consumption systems will have back up power supplies in the form of self contained battery backups. - The fire fighting lift and also residential sprinklers will be provided with a formal back up power supply facility via either a back up generator, UPS or secondary HV supply to the site as applicable.

5.0 AUTHOR DETAILS

This report has been completed by Ben Whitaker BEng (Hons.) CEng MIFireE MCMI, a qualified Fire Consultant and Chartered Engineer holding a Bachelors Degree in Fire Engineering with more than 20 years' experience in the field of Fire Consultancy. This report has been reviewed by Ben Haskell BSc (Hons.) AIFireE, a qualified Fire Consultant holding a Bachelors Degree in Fire Safety Engineering with more than 10 years' experience in the field of Fire Consultancy.

Ben Whitaker BEng (Hons.), CEng, MIFireE, MCMI

Qualifications & Membership

- BEng (Hons.) in Fire Engineering – University of Leeds
- Chartered Fire Engineer (Registration No. 591905)
- Member of the Institute of Fire Engineers (Member No. 00033383)
- Member of Chartered Management Institute (Member No. 2267777)

Career Profile:

- Current (Since November 2011): Director, BWC Fire Limited
- 2011 – 2011 (7 months): Associate Director, BB7 Fire Safety Engineering
- 2010 - 2011: General Manager, The Fire Strategy Company / Zeta Compliance Services
- 2006 - 2010: Associate / Senior Associate Fire Engineer / Group Manager, FDS Consult
- 2001 - 2006: Fire Engineer / Senior Fire Engineer, Locke Carey Consulting

6.0 REPORT LIMITATIONS

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In preparing this report it has been assumed that detailed aspects of the design and construction will, unless stated otherwise in this report, be in accordance with the recommendations of the relevant Approved Documents to the Building Regulations, applicable British Standards and other relevant codes of practice.

This report relates only to statutory requirements associated with Building Regulations. Additional fire safety measures necessary during construction or for insurance, loss prevention or environmental protection purposes are not considered.

The terminology “will” or “will be” as used in this report represents the recommendation/understanding of BWC Fire Limited regarding the proposed design, construction or management of the premises. The validity of this report is reliant upon these items being implemented as described.

This report relates to a project that is subject to third party ratification and it must be ensured that the contents of this report are agreed with all the relevant approval bodies prior to implementation.