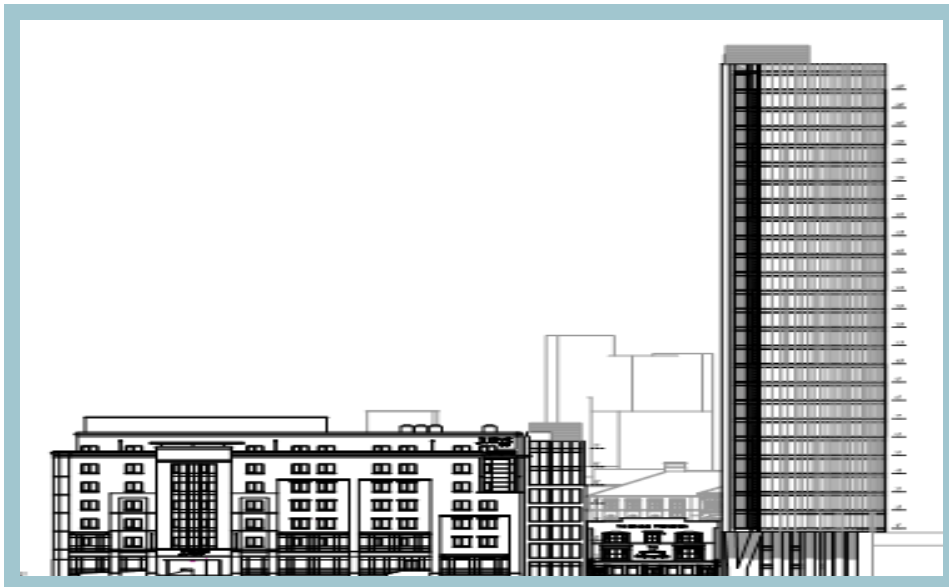


Gateway 1 Fire Planning Statement Apex Tower Residential Development

6 January 2022



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ENGINEERS**



Project	Apex Tower – Residential Development
Location	Apex Tower, Albion Street, Manchester
Title	Gateway 1 – Fire Planning Statement Rev.1
Date	06/01/2022
Prepared by	Dr. Athanasios Melandinos MEng(Hons) MSc PhD CEng MCIBSE MIFireE MIMechE
Prepared for	Swithenbank Property Consultants Ltd.

About the Author of this report:

Athanasios Melandinos is a professionally qualified engineer with 18 years of research and practical experience in the field of fire engineering and structural fire engineering. During his professional career Athanasios has provided fire strategies, fire risk assessments, fire safety management plans, external wall assessments, construction reviews, due diligence reports, structural fire engineering assessments and smoke modelling designs for over 300 projects in the UK and abroad. Athanasios holds the following Academic and Professional qualifications:

- MEng(Hons) Civil and Structural Engineering – University of Bradford UK (2002);
- MSc Structural Engineering – University of Surrey UK (2003);
- PhD Civil Engineering – University of Manchester UK (2007);
- CEng Engineering Council UK (Registration Number: 605283) – Year of Award 2013;
- MIFireE (Registration Number: 051017) – Year of Award 2013;
- MCIBSE (Registration Number: 043678) – Year of Award 2013;
- MIMechE (Registration Number: 80258636) – Year of Award 2015.

Athanasios is also keeping up to date with his Continuous Professional Development as part of his commitment to the UK Engineering Council.

1. Purpose of this Document

The objective of this statement is to present all the appropriate details and standards of the development, which satisfies Gateway 1 of the Fire Planning Statement (as part of the MCHLG introduction on the 1st of August 2021) which aims to ensure the safety of people in and around the development. The proposed statement will stand as an independent fire strategy and will detail how the proposed development will function in terms of the sections presenting below.

1.1 Building Construction

Projects undertaken within the UK are subject to the requirements of The Construction (Design and Management) Regulations (CDM) 2015 and therefore all methods, products and materials used will be in accordance with The Construction (Design and Management) Regulations 2015. All products and materials used in the construction of the project must be accompanied with relevant testing data for their application and suitability.

The relevant guidance documents used to develop the fire strategy report at Gateway 2 will be BS9991:2015, Approved Document B and associated British Standards. The potential implications of the recently drafted BS 9991: 2022 will also be considered as part of the design process. However, it must be noted that this document will not be formalised until late 2022.

1.2 Site Plan

Figure 1 and 2 below show the site plans of the proposed residential development: Apex Tower

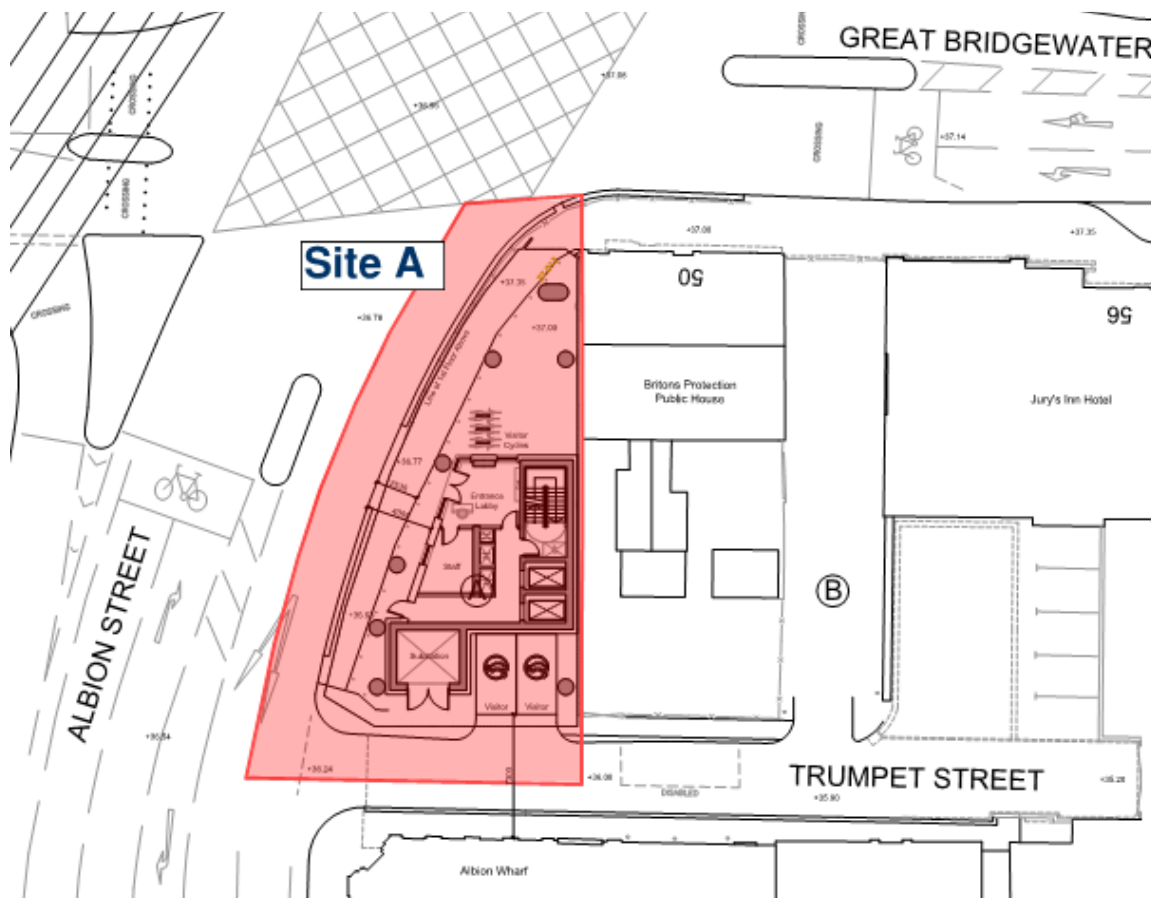


Figure 1: Site plan (Site A)

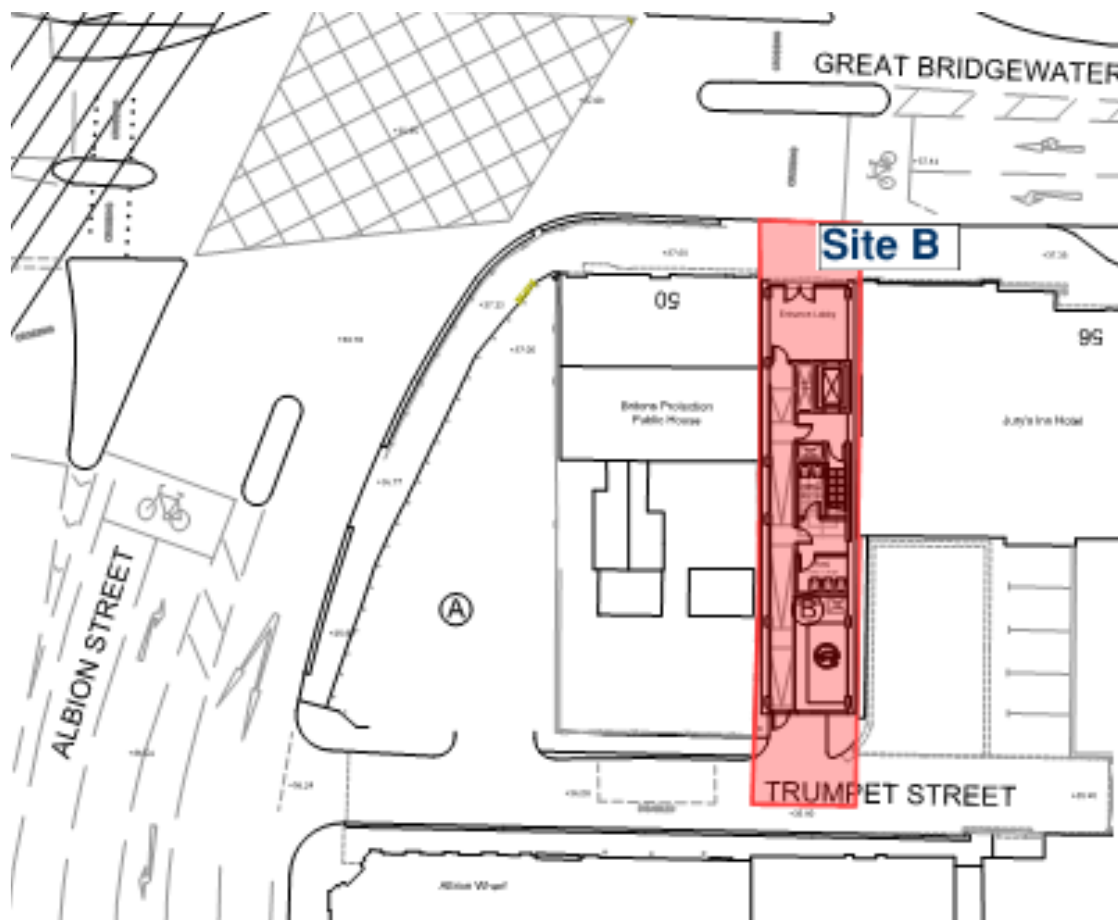


Figure 2: Site plan (Site B)

1.3 Building Description

The development consists of two residential blocks of flats which are not attached to each other as illustrated in the two figures above.

Block A (Site A) consists of basement, ground, first, lower mezzanine, upper mezzanine and twenty-four upper floor levels (80.7m in height above ground). Ground, first and the two mezzanine floor levels (lower and upper) comprise of ancillary areas such as cycle store, staff room, refuse store, life safety room, switch room, parcel room and elect room whilst all the other upper floor levels are provided with residential apartments. All upper floors levels will be served by a single protected stair and two lifts. Due to the height of the building all floor levels must be served by a firefighting shaft (fire-fighting stair and fire-fighting lift) and a wet riser main.

Block B (Site B) consists of ground and six upper floor levels (21.7m in height). Ground floor level comprises of some ancillary area such as refuse stores, entrance lobby whilst first and second floor level are provided with office areas. From the third to top floor level, the block is provided with residential apartments. All upper floors levels will be served by a single protected stair and one lift. Due to the height of the building all floor levels must be served by a firefighting shaft (fire-fighting stair and fire-fighting lift) and a dry riser main.

The Figures below illustrate a typical floor level of the two blocks.

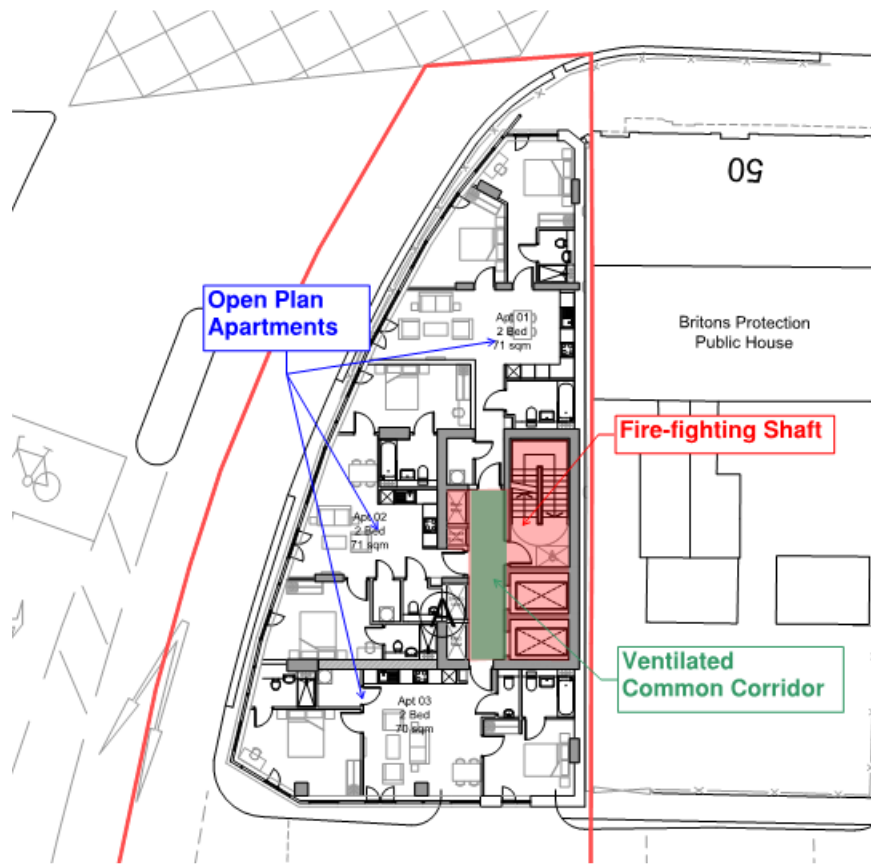


Figure 3: Typical Floor Plan (Block A)

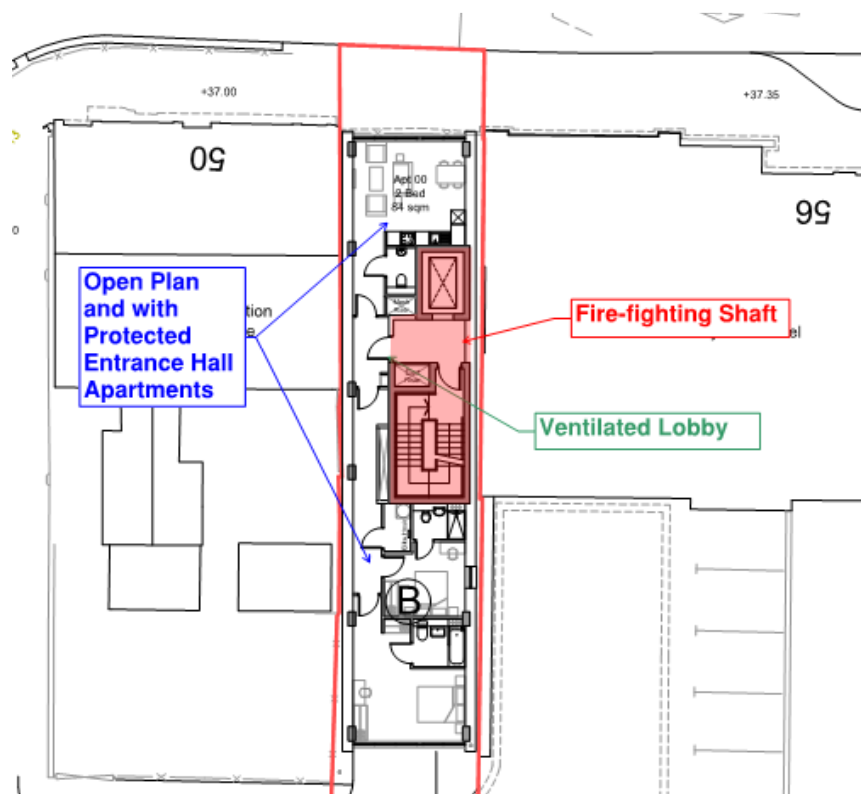


Figure 4: Typical Floor Plan (Block B)

1.4 Means of Escape for all Building Users

The evacuation strategy for the occupants within the residential apartments (both blocks) will be based on the 'defend in place' principle. This means that only the affected apartment evacuates initially and all other apartments / areas remain in place. The evacuation of other apartments and unaffected areas of each floor will be under the instructions of the Fire and Rescue Service and/or if the occupants decide to evacuate voluntarily. Please note that the evacuation strategy from ancillary areas of both Blocks and the office areas from Block B will be based on simultaneous evacuation.

Furthermore, it should be noted that besides the evacuation philosophy for the residential apartments, the building has been designed to allow safe (simultaneous) evacuation to all the occupants, ensuring safe routes to outside. The common corridors / lobbies of basement, ground and all upper levels will be provided with automatic smoke detection.

Regarding the internal layout the following recommendations should be followed: Where flats are provided with a protected entrance hall by which all habitable rooms are accessed directly from, the maximum travel distance within the entrance hall is limited to 9m, measured from the flat entrance door to the door of any habitable room. As per BS 9991 recommendations, open-plan flats should adhere to the following provisions:

- A Grade D1, LD1 detection and alarm system should be provided in accordance with BS 8539-6;
- A sprinkler system should be provided throughout the flat;
- The size of the flat should not exceed 16m × 12m;
- Ceiling within the flat should have a minimum height of 2.25m;
- The kitchen should be enclosed in flats with an area greater than 8m × 4m. Cooking areas be located remotely from the entrance to the flat and from the internal escape route.

Travel distances and final exit widths on all areas are within the limits of BS9991:2015 and therefore they satisfy the Part B (Fire Safety) functional requirements of the Building Regulations.

The strategy for evacuating people with mobility impairments from the residential areas of the building will be identical to the fully mobile people ('stay put policy'). Disable refuge areas are not required in the residential parts of the building due to the 'stay put' policy and sufficient compartment construction between the various building areas. For unaffected apartments the MIP will remain in their dwelling. For the affected apartment the MIP will safely evacuate via the common areas and use the lift to safely exit the building. The lift will serve the purpose of both access to the upper floor levels and evacuation in case of an emergency (i.e., evacuation lift).

The minimum widths of the stair (both blocks) should be no less than 1100mm as it serves both means of escape and firefighting purposes. The storey and final exits widths will follow the guidance of Approved Document B Vol.2 for the non-residential parts and BS 9991 for all residential areas.

Doors should open in the direction of escape. Exit doors should be fitted with simple fastenings in the direction of escape. All access-controlled doors should be available in the event of fire (either automatically unlock on activation of fire alarm or overridden from the side by people making their escape). Magnetic locks (if any) on all exit doors should be linked to fire alarm, failsafe open on power failure and/or fire alarm activation and be provided with an emergency break glass release on the escape side.

1.5 Balconies / Roofs and External Wall Systems

All balconies and external wall systems will be designed to satisfy Regulation 7 meaning that all materials used from inside to outside will be of limited combustibility, achieving A2-s1, d0 or A1 (BS EN 13501-1).

Roof coverings refer to the external material layers, not the roof structure as a whole. The table below describes the separation distances according to the type of roof covering as described within Clause 18.6.1 of BS 9991:2015.

Designation of Covering of Roof or Part of Roof		Minimum Distance from any Point to Relevant Boundary			
National Class	European Class	Less than 6 m	At least 6m	At least 12 m	At least 20 m
AA, AB or AC	B _{ROOF} (t4)	Acceptable	Acceptable	Acceptable	Acceptable
BA, BB or BC	C _{ROOF} (t4)	Not Acceptable	Acceptable	Acceptable	Acceptable
CA, CB or CC	D _{ROOF} (t4)	Not Acceptable	Acceptable	Acceptable	Acceptable
AD, BD (or CD [^])	E _{ROOF} (t4)	Not Acceptable	Acceptable	Acceptable	Acceptable
DA, DB, DC (or DD [^])	F _{ROOF} (t4)	Not Acceptable	Not Acceptable	Not Acceptable	Acceptable

Note[^]: Not acceptable on any of the following buildings;

- Buildings with a volume of more than 1500m³

Note*: Acceptable on buildings if part of the roof is no more than 3m² in area and is at least 1500mm apart from any other similar section of roof, with roof between the parts covered with a material of limited combustibility

For more information on roof coverings see Clause 18.6.1 of BS 9991:2015

1.6 Features which Reduce the Fire Risk

The development will be provided with fire safety systems that will reduce the risk in case of fire emergency. A category 4 sprinkler system will be provided throughout residential areas (both Blocks) in accordance with BS 9251 (2021 edition). All non-residential areas will also require to be covered by a suppression system to a BS EN 12845 standard.

For all the residential apartments a category LD1 (Grade D1) fire alarm and detection system in accordance with BS 5839: Part 6 will be installed and maintained. For the common areas of the residential parts of the building a category L2 system (BS 5839: Part 1) will be provided. All non-residential areas such as ancillary and office areas will also be provided with an L2 system (BS 5839: Part 1).

Any roof or terrace areas that residents may be able to access will also need to be provided with an appropriate alarm system which will alert any maintenance personnel and other occupants in case of emergency.

Also, emergency lighting will be provided to ensure safe passages to all building users in case of emergency. Every escape route will be distinctively and conspicuously marked by emergency exit signage complying with recommendations of BS 5499: Part 1. In addition, the design and installation of the emergency escape lighting will be in accordance with BS 5266: Part 1.

1.7 Access for Fire Service Personnel and Equipment

In case of emergency, fire service personnel will be able to access the development (both Blocks) via Great Bridgewater Street and Albion Street and internally they will be able to use the firefighting shafts to access all levels of the building. The firefighting shafts will comprise of a firefighting stair, firefighting lift, dry riser (only block B), an AOV at the head of the stair and an AOV at the firefighting lobby. The firefighting shaft will also be enclosed in 120 minutes fire resistance. Provisions will be made for a firefighting appliance to be able to park within 18m from a dry riser / wet riser inlet. A public hydrant should be within 90m from a dry riser inlet at ground floor level. If this is not achieved then a private hydrant will need to be provided within 90m.

Please note that due to the height of Block A (over 50m) a wet riser, instead of dry riser should be provided, 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.

1.8 Future Modifications

This fire statement relates to Apex Tower residential development and it will follow the prescriptive recommendations of BS991:2015 and Approved Document B – Volume 2 Buildings other than Dwellings and the supporting British Standards to comply with Part B (Fire Safety) of the Building Regulations. Any potential future modification to the building needs to follow a new fire strategy that includes all the appropriate details considering all the modifications. The fire strategy for this development is based on the current design and cannot be used if any changes / modifications will be provided in the future.

1.9 Signature and Date

This fire statement has been prepared on the 6 of January 2022.

Yours sincerely



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Fire Engineer

Director – AM Pyro LTD