

Fire Statement – FS 001.2

Project: Renaissance Residential Building
Subject: Fire Statement
Date: 9 December 2021
Author: Jack Dubbey
Checked: Adam Monaghan



1 Introduction

Design Fire Consultants (DFC) has been appointed by Property Alliance Group (PAG) to provide fire engineering services for the development of the Renaissance Residential Building located on Deansgate, Manchester.

The purpose of this fire statement is to provide support Gateway One of the Town and Country Planning (Development Management Procedure and Section 62A Applications) (England) (Amendment) Order 2021 by providing details on fire safety issues relevant to land use planning matters i.e. where fire safety issues relate to site layout and access. This fire statement is intended to demonstrate that the fire safety measures allowed for in the design are sufficient.

The fire safety design must meet the minimum standard required by Part B of Schedule 1 to the Building Regulations 2010¹. The fire strategy will be refined as the design develops to demonstrate compliance with Part B and will be used for obtaining approval from the Approving Authorities.

2 Site address

Renaissance, Deansgate

3 Description of proposed development including any change of use

The proposed development consists of the erection of a part ground + 13 storey, part ground + 26 storey building to form 300 no. residential flats and ground floor retail/ leisure floorspace (Class E/ Sui Generis), together with private amenity space for residents, new public realm including leisure/ food and beverage space (Class E/ Sui Generis), new landscaping, servicing, supporting infrastructure and associated works.

Levels -1 & -2 and previous riverside public realm have significantly changed and now include: car park (36 bays assigned to the residential building) with deck above the current level to the northern part of the site, publicly accessible route along the river with steps up to Victoria Bridge Street, residents' landscape on top of the car park deck and a platform lift from Victoria Bridge Street to the car park

¹ Statutory Instruments, '2010 No 2214 Building and Buildings, England and Wales, The Building Regulations 2010 (as amended)', December 2018

4 Name of person completing the fire statement, relevant qualifications, and experience

Table 1: Author Competencies

	Author	Reviewer
Name	Jack Dubbey	Adam Monaghan
Relevant Qualifications	BSc (Hons), MSc, AIFireE	BSc (Hons), CEng, FIFireE, MSFPE
Experience	Jack graduated with a BSc in Fire Safety and Risk Management in 2013 and with a Masters in Fire Safety Engineering in 2019. He has over 7 years of experience working as a fire engineer in the UK, specifically working with building design and construction. This has included a large number of purpose built residential developments. CV available upon request.	Adam joined DFC in 2015 and leads our Manchester office. He brings over 23 years' experience including leadership roles in multidisciplinary engineering environments. A Chartered Fire Engineer, Adam is an active Fellow of the Institution of Fire Engineers. He regularly speaks about delivery of competent fire engineering through design, construction, handover and operation. Adam is particularly interested in the behaviour of materials in fire. He has been involved in delivering fire strategies for over 20,000 apartments throughout his career. CV available upon request.

5 State what, if any, consultation has been undertaken on issues relating to the fire safety of the development; and what account has been taken of this

The RIBA Stage 3 report has been issued to Greater Manchester Fire and Rescue Service (GMFRS) in August 2021 to provide a high-level review and no adverse comments have been received back. A formal consultation will be carried out in RIBA Stage 4.

In addition to the above an introductory meeting has been held with GMFRS and Building Control on the 15th September 2021. This meeting was mainly to discuss the temporary construction arrangements of the site's car park however a general introduction to the residential portion of the scheme was provided.

6 Site layout plan

Figure 1: Site Layout



7 Building schedule

Table 2: Building Schedule

a) Block no	Block 1 (Residential Building)		
b) Block height	Approx. 97m		
Storeys above ground	27 (top level is an accessible roof terrace)		
Storeys below ground	2 (Levels -1 & -2)		
c) Proposed uses	Residential Flats	Residential Ancillary	Commercial Units
d) Location of use	Level -1 to 26	Level -2: Car Park / staff welfare Level -1: Bike Stores, Cinema & Lounge Level 01: Gym Level 14: Roof Terrace Level 27: Roof Terrace	Level 0
e) Standards	BS 9991	BS 9991	BS 9999
f) Balconies	Class A2-s1, d0 or better	No balconies	No balconies
g) External walls	Class A2-s1, d0 or better	Class A2-s1, d0 or better	Class A2-s1, d0 or better
h) Evacuation	Stay put	Simultaneous	Simultaneous
i) Suppression	Yes, residential sprinklers, full	Yes, residential sprinklers, full	Yes, commercial sprinklers, full
j) Accessibility	M4(1)	N/A non-resi	N/A non-resi

8 Explain any specific technical complexities in terms of fire safety and/or departures from information in building schedule above

Compliance with guidance is not mandatory for compliance with Part B of Schedule 1 to The Building Regulations 2010², and alternative solutions can be acceptable. Some elements of the fire safety design require alternative solutions due to the constraints of the building, and adequacy have been demonstrated in the RIBA Stage 3 fire safety strategy. The following alternative solutions detailed below have been discussed initially with Building Control and Greater Manchester Fire and Rescue and they are satisfied with the direction of travel being taken.

- The flats within the building are designed to be open plan, whereby the bedrooms are accessed direct from the living area instead of via an internal hallway. This places particular importance over the location and layout of cooking facilities to ensure that a fire in this location does not prevent escape from the bedrooms. Where kitchens are not enclosed, these layouts will be justified using radiation analysis, with the hob remote from the exit.
- The travel distance within the common corridors are extended above the recommended 15m distance. BS 9991 recognises the use of mechanical ventilations as an enhancement therefore this solution will be utilised here. The following corridor arrangements are proposed:
 - Levels -2 -> 13 will be provided with three mechanical smoke extract shafts – all with the ability to push and pull smoke. The corridor will be split into a series of zones in order to prevent smoke ingress into the stairs.
 - Levels 14 -> 25 will be provided with two mechanical smoke extract shafts – both with the ability to push and pull smoke. At the remote end of a corridor an inlet shaft will be provided to avoid smoke logging due to the stepped arrangement of the building as it progresses to the upper levels.
 - Levels 26 & 27 will be provided with a single extract shaft with the air inlet being provided from the AOV at the head of the stair.

Appropriate guidance will be used in the design of the mechanical ventilation such as the those published by the Smoke Control Association and will be validated by CFD analysis during the detailed design.

Prior to undertaking the CFD analysis DFC sought agreement from both Building Control and Greater Manchester Fire Service on the modelling, approach, and acceptance criteria. All have been agreed resulting in limited latent risk.

- It is proposed that the second firefighting stair is not provided with an AOV at high level. This is because the top storey of the stair (Level 13) is landlocked within the building (surrounded by flats) and therefore there is no direct access to vent straight to open air. AOV's at the head of stairs are typically required to provide make up air for the common corridor and assist firefighting operations by clearing smoke from the stair.

In the proposed corridor arrangement, supply air is provided by a series of mechanical smoke shafts located along the common corridor and therefore the extract shafts are not reliant on supply air from the head of this stair, when clearing smoke from the common corridors from floors -2 to 12.

For firefighting, the stair should remain clear of smoke during firefighting operations with the proposed corridor ventilation configurations. If any smoke did enter the stair, this could be cleared post firefighting. To provide this, post-firefighting, the extract shafts at level 12 would be put into

² Statutory Instruments, '2010 no 2214 Building and Buildings, England and Wales, The Building Regulations 2010 (as amended)', December 2018

extract mode and low-level vent is provided in the stair at ground level to provide fresh air to assist in clearing the smoke from the stair.

There is an additional BS 9991 compliant firefighting stair on each level this stair is present.

This approach has been discussed preliminarily with GMFRS and they were not objective of the proposed approach subject to the proposals in the detailed design being sufficient.

9 Explain how any issues which might affect the fire safety of the development have been addressed

The main variations to guidance are detailed in Section 8 above, these are to be developed and assessed at the next stage of the design.

10 Explain how any policies relating to fire safety in relevant local development documents have been taken into account

Not applicable, no local policies have been identified.

11 Explanation of fire service site plan provided in Section 15 (Figure 2)

Fire service access to the site is based on the guidance contained within BS 9991 and associated references to BS 9999.

The building is over 50m in height and therefore will be provided with a two firefighting shaft serving all levels from -2 to 26 (single stair approach from level 14), each of the stairs are provided with wet fire main and a firefighting lift located in close proximity to the stair which serves all floors. The firefighting lift and firefighting stairs give access to the residential corridors at all levels which will be provided with mechanical ventilation to control smoke spread during fire service operations.

Internal access for the fire service is as per below:

- Both stairs provided with a wet fire mains serving all storeys in accordance with BS 9990³ and BS 5041-1⁴.
- Outlets for the fire mains to be provided at every level such that all areas are accessible within 60m.
- Parking provided within 18 m of, and within sight of, a suitable entrance giving access to the wet fire main; and access is also provided within sight of the inlet for the emergency replenishment of the suction tank for the wet fire main.

At Level -02 the internal plant rooms are water tanks room and therefore pose a low fire risk. The remaining internal area is staff welfare accommodation.

The car park is proposed to be provided with electrical charges points but the risk of a fire compromising the residential stairs is mitigated by the following:

- Car Park is designed in accordance with BS 9991 where a mechanical smoke ventilation system is provided along with a BS 12845 sprinkler system.

³ BS 9990, 'Non automatic fire-fighting systems in buildings', 2015

⁴ BS 5041-1, 'Fire hydrant systems equipment – Specification for landing valves for wet risers, 1987

- The car park although provided with a mechanical smoke ventilation system is open along the River Irwell façade and therefore the opportunity for products of combustion to build up is reduced in comparison to a typical basement car park where all sides are enclosed.
- Multiple points of entry into the car park which are not just from the residential building. This will give attending fire crews flexibility on how they would fight a fire within the car park.

12 Emergency road vehicle access

Can emergency road vehicles access the site entrances indicated on the site plan?

Vehicle access to residential building is via Deansgate. This location gives clear access to the provisions set out in Section 11.

Is the emergency vehicle tracking route to the siting points for appliances clear and unobstructed?

Yes

A gate is provided between Deansgate and the second stair entry point. The gate will be provided with FB key access to always allow firefighting access.

The whole site is under the control of the same development Joint Venture. Whilst the end use service yard is under the control of the Hotel management there is an acceptance and understanding that the service yard must be used by residential and office building management. This has been discussed and agreed with all project stakeholders including the Greater Manchester Fire and Rescue Service.

13 Siting of fire appliances

Vehicle access to the site is provided via Deansgate which to the east of the site.

14 Suitability of water supply for the scale of development proposed

The building is over 50m in height therefore a wet rising main with dedicated stored water is has been provided. Water for firefighting can be supplemented by local hydrants.

There is at least one existing hydrant located approximately as indicated on Figure 2. This is within 90m of the building access points.

The development will be provided with sprinkler protection throughout the flats and non-residential areas. These will be supplied with water via storage tanks and pumps in the associated plant rooms on Levels -01 & -02

Nature of water supply:

Hydrant - Public

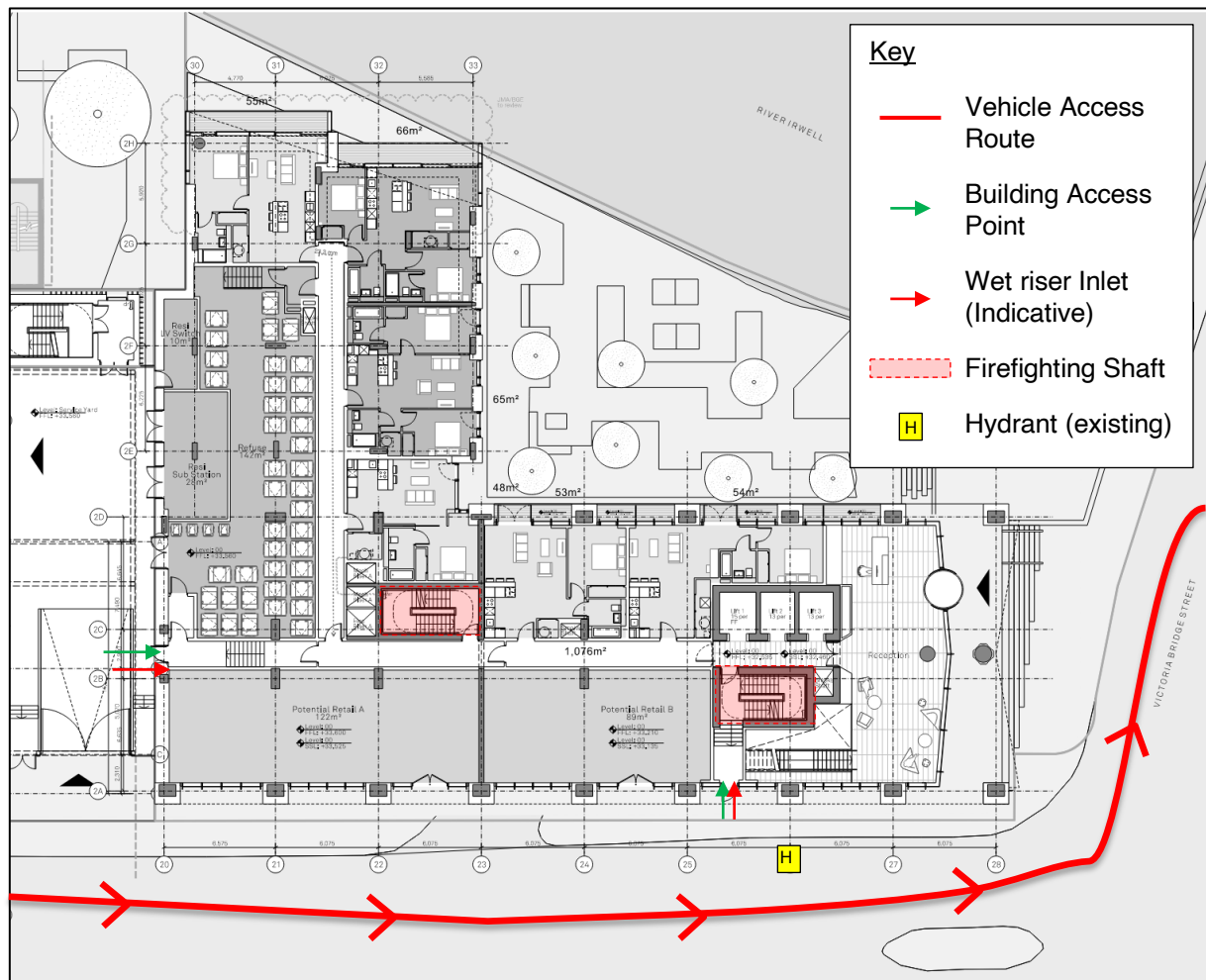
Does the proposed development rely on existing hydrants and if so are they currently usable / operable?

Yes, hydrant is existing and appears to be accessible.

Details are to be confirmed as the project progresses.

15 Fire service site plan

Figure 2: Fire Service Site Plan



Quality Assurance

This report has been prepared for the use by and takes into account the particular instructions and requirements of our Client. It is not intended for use by any third party, and Design Fire Consultants Ltd shall not be liable for the reliance on or use of the report by any third party.

Revision	Date	Issue Description	Author	Checked
02	09 Dec 2021	Updated report to address HSE comments	J Dubbey	A Monaghan
				
01	21 Oct 2021	Update to the lower levels of the scheme	J Dubbey	A Monaghan
				
00	08 Oct 2021	Fire Statement for planning application	J Dubbey	A Monaghan
				