

Fire statement form

Application information	
1. Site address line 1	Crown Street Phase 3
Site address line 2	Great Jackson Street
Site address line 3	
Town	Manchester
County	Lancashire
Site postcode (optional)	
2. Description of proposed development including any change of use (as stated on the application form):	The Crown Street Phase 3 development site is bound by Silvercroft Street and Plot B of the Great Jackson Street Framework to the North, Melbourne Street and Plot F of the Great Jackson Street Framework to the South, Owen Street and Deansgate Square to the East, and Crown Street Phase 2 to the West. The development will consist of four new-build residential towers (Buildings C7, C8, E1 and E2) that are located at each corner of the site and arranged around central landscaping/public realm space (see site plan in 5 below). Each building will be designed to function independently (i.e.no sharing of services or accommodation) and will generally comprise of: • Three levels of basement residents' parking and ancillary plant spaces, • A two-storey 'podium' formed by the larger footprint Ground and Level 01 floors, providing independent commercial units, ancillary accommodation, and residents' amenity accommodation. • Level 02 residents' amenity accommodation and roof terrace. • Residential apartments from Level 03 upwards. Buildings C7 and C8 will each be 51 storeys in height and will each contain 422 apartments, provided as a mix of 1, 2, and 3 bed units. Buildings E1 and E2 will each be 47 storeys in height and will each contain 451 apartments, provided as a mix of 1, 2, and 3 bed units. Access to the basement levels will be provided to each tower independently, from Melbourne Street, Owen Street and Silvercroft Street.
3. Name of person completing the fire statement (as section 15.), relevant	Alec Storey – Principal Fire Engineer at Tenos BSc (Hons) CEng MIFireE

qualifications and experience. Guide: no more than 200 words	Alec has worked within the Fire Safety Engineering sector for over 18 years since obtaining a first class degree in Fire Science from the University of Leeds and is a Chartered Engineer through the Institution of Fire Engineers. He has led the Fire Engineering design for projects across all sectors and sizes, both within the UK and internationally, including a significant number of high-rise residential buildings.
4. 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. Guide: no more than 200 words	A fire strategy design review meeting for the Crown Street Phase 3 development (and adjacent Plot D development) was undertaken with the Greater Manchester Fire Service high-rise team and Manchester City Council Building Control on 30/11/2022, in which the principals for the proposed fire strategy were agreed. The minutes from this meeting have been appended to the end of this Fire Statement Form. Further consultations and design development will be implemented as the detailed design progresses prior to formal Building Regulations and Planning Gateway 2 submission.
5. Site layout plan with block numbering as per building schedule referred to in 6. (consistent with other plans drawings and information submitted in connection with the application)	
Site layout plan is: inserted in the form The Crown Street Phase 3 development site will provide four independent new-build residential towers (Buildings C7, C8, E1 and E2) that are located at each corner of the site and arranged around central landscaping/public realm space, as highlighted on the site plan below:	



The principles, concepts and approach relating to fire safety that have been applied to the development

6. Building schedule

Site information				Building information			Resident safety information		
a) block no. as per site layout plan above	b) • block height (m) • number of storeys excluding those below ground level • number of storeys including those below ground level	c) proposed use (one per line)	d) location of use within block by storey	e) standards relating to fire safety/ approach applied	f) balconies	g) external wall systems	h) approach to evacuation	i) automatic suppression	j) accessible housing provided
Building C7	145.7m to top finished floor level. 51 storeys (excluding basement). 54 storeys including basement floors.	residential flats, maisonettes, studios	Levels 03 to 50	BS9991	no balconies	class A2-s1, d0 or better	stay put	yes-residential sprinklers, full	none
Building C7	145.7m to top finished floor level. 51 storeys (excluding basement). 54 storeys including	flexible use	Ground floor, Level 01 & Level 02	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi

	basement floors.								
Building C7	145.7m to top finished floor level. 51 storeys (excluding basement). 54 storeys including basement floors.	shop	Ground floor	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building C7	145.7m to top finished floor level. 51 storeys (excluding basement). 54 storeys including basement floors.	car parking	Basement levels B1, B2 & B3	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building C8	145.7m to top finished floor level. 51 storeys (excluding basement). 54 storeys including basement floors.	residential flats, maisonettes, studios	Levels 03 to 50	BS9991	no balconies	class A2-s1, d0 or better	stay put	yes-residential sprinklers, full	none

Building C8	145.7m to top finished floor level. 51 storeys (excluding basement). 54 storeys including basement floors.	flexible use	Ground floor, Level 01 & Level 02	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building C8	145.7m to top finished floor level. 51 storeys (excluding basement). 54 storeys including basement floors.	shop	Ground floor	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building C8	145.7m to top finished floor level. 51 storeys (excluding basement). 54 storeys including basement floors.	car parking	Basement levels B1, B2 & B3	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building E1	134.3m to top finished floor level. 47 storeys (excluding basement).	residential flats, maisonettes, studios	Levels 02 to 46	BS9991	no balconies	class A2-s1, d0 or better	stay put	yes-residential sprinklers, full	none

	50 storeys including basement floors.								
Building E1	134.3m to top finished floor level. 47 storeys (excluding basement). 50 storeys including basement floors.	flexible use	Ground floor, Level 01 & Level 02	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building E1	134.3m to top finished floor level. 47 storeys (excluding basement). 50 storeys including basement floors.	shop	Ground floor	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building E1	134.3m to top finished floor level. 47 storeys (excluding basement). 50 storeys including basement floors.	car parking	Basement levels B1, B2 & B3	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building E2	134.3m to top finished floor level.	residential flats,	Levels 02 to 46	BS9991	no balconies	class A2-s1, d0 or better	stay put	yes-residential	none

	47 storeys (excluding basement). 50 storeys including basement floors.	maisonettes, studios						sprinklers, full	
Building E2	134.3m to top finished floor level. 47 storeys (excluding basement). 50 storeys including basement floors.	flexible use	Ground floor, Level 01 & Level 02	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building E2	134.3m to top finished floor level. 47 storeys (excluding basement). 50 storeys including basement floors.	shop	Ground floor	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
Building E2	134.3m to top finished floor level. 47 storeys (excluding basement). 50 storeys including basement floors.	car parking	Basement levels B1, B2 & B3	BS9999	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi

7. Specific technical complexities

Explain any specific technical complexities in terms of fire safety (for example green walls) and/or departures from information in building schedule above

Guide: no more than 500 words

Each building will be arranged around two adjacent, but separated, stair and lift cores at the centre of the building footprint.

For Buildings C7 and C8, each stair/lift lobby will be ventilated by means of a single mechanical smoke extract shaft, activated by smoke detection within the associated common corridor and lobby (i.e. system in each half of floor activates independently). Each extract shaft system will incorporate pressure sensors and a fan inverter, so that extract rates can be ramped up and down to prevent excessive pressure differentials. As the common corridor travel distances within Buildings C7 and C8 will not exceed 7.5m, they will not be ventilated.

For Buildings E1 and E2, as common corridor travel distances will exceed 7.5m, common corridors will each be ventilated by means of a single mechanical smoke extract shaft provided at the end of common corridor remote from the stair. In addition, each stair/lift lobby will be provided with a single mechanical air inlet shaft, which will provide replacement air for the corridor extract shaft and maintain a net air flow away from stair core. Ventilation provisions will be activated by smoke detection within the associated common corridor and lobby (i.e. system in each half of floor activates independently).

Due to the reduction in floorplate at Level 02 of Buildings E1 and E2, the common corridor mechanical smoke extract shafts will terminate at Level 03. Therefore, the core ventilation arrangement at Levels 02 down to B3 will be configured to work as per Buildings C7 and C8.

For each building, mechanical shaft systems serving the stair/lift lobbies at the above Ground floors will continue down to serve the lobbies at the three basement floors. The basement car parking in each building will be provided with sprinklers and an impulse jet fan mechanical smoke ventilation system (providing 10ACH). It is proposed that basement plant rooms and ancillary rooms will not be provided with dedicated smoke ventilation provisions, but will be provided with access doors directly from the ventilated car parking, such that smoke within these rooms may be ventilated via the car parking smoke ventilation system.

The external wall construction for each of the buildings will meet the requirements of Regulation 7(2) with regards to the external wall construction. Each of the buildings will include an external terrace accessed from the residents' amenity accommodation at Level 02. The furniture, finishes and materials of the terraces are subject to further development and consideration, but, in line with initial discussions with Greater Manchester Fire Service high-rise team and Manchester City Council Building Control on 30/11/2022 (see appended minutes), it is proposed that greening/trees/etc on the terraces will be provided at least 4m away from the façade of the towers.

8. Issues which might affect the fire safety of the development

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

Guide: no more than 500 words

Each building will be fully sprinklered and will be of reinforced concrete construction, providing a minimum of 120 minutes structural fire resistance. Within each building, all residential apartments will implement a 'stay put' evacuation strategy, whilst the residents' amenity and ancillary accommodation at Levels 02, 01 and Ground and the three basement car parking levels will implement simultaneous evacuation strategies.

Although the provision of more than one stair to serve the upper apartment floors of each building is not a requirement of the current BS 9991, it is proposed that the central core of each building will be provided with two protected escape stairs that are accessed from separate mechanically ventilated lift lobbies; namely, a main firefighting stair and a secondary escape stair. The secondary stair in each building will terminate at Ground floor, whilst the firefighting stair will continue down to serve the basement floors but will be sub-divided at Ground floor.

Within each building, the residents' amenity accommodation at Level 01 (i.e. workspaces, gym, etc) will be provided with escape via the central main core and an additional dedicated escape stair.

Evacuation lifts will be provided to serve the upper floors, which will terminate at Ground floor.

As noted above, for each building, the mechanical shaft systems serving the stair/lift lobbies at the above Ground floors will continue down to serve the lobbies at the three basement floors.

Secondary power for life safety systems in each building will be provided by means of a dedicated standby generator per building.

9. Local development document policies relating to fire safety

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

Guide: no more than 500 words

No specific local development documents relevant to fire safety are applicable. Therefore, the design will follow latest Building Regulations guidance documents.

Emergency road vehicle access and water supplies for firefighting purposes

10. Fire service site plan

Explanation of fire service site plan(s) provided in 14. including what guidance documents have informed the proposed arrangements for fire service access and facilities?

Guide: no more than 200 words

As indicated by means of the red dashed lines on the Fire Service site plan in 14 below, Fire Service vehicle access to the buildings will be provided via the surrounding public highways (Crown Street, Great Jackson Street, Silvercroft Street, Melbourne Street, and Owen Street), in accordance with the recommendations of BS 9991 and BS 9999. Fire Service vehicle parking will be available directly adjacent to each building on the surrounding public highways and from these parking locations access into the building will be possible via the main building entrances (see green arrows on the Fire Service site plan in 14 below), the two access points into the firefighting shaft of each building (see red arrows on the Fire Service site plan in 14 below), and the wet fire main inlet valve for each building (located adjacent to the firefighting shaft access door).

The basement smoke extract outlet point for each building is highlighted in blue on the Fire Service site plan in 14 below, in order to demonstrate separation between smoke outlet and the building main entrance and primary firefighting stair entry/discharge door.

Existing fire hydrants are located in proximity to each building, as indicated on the Fire Service site plan in 14 below – the exact flow rates are subject to confirmation.

11. Emergency road vehicle access

Specify emergency road vehicle access to the site entrances indicated on the site plan

Guide: no more than 200 words

As indicated in the Fire Service site plan in 14 below, Fire Service vehicle access will be provided to the buildings via the surrounding public highways (Crown Street, Great Jackson Street, Silvercroft Street, Melbourne Street, and Owen Street). From these parking locations, access will be possible via the main building entrances (see green arrows on the Fire Service site plan in 14 below), the two access points into the firefighting shaft of each building (see red arrows on the Fire Service site plan in 14 below), and the wet fire main inlet valve for each building (located adjacent to the firefighting shaft access door).

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

yes

12. Siting of fire appliances

Guide: no more than 200 words

As described above and in the Fire Service site plan in 14 below, Fire Service vehicle parking will be provided adjacent to each building on the surrounding public highways.

13. Suitability of water supply for the scale of development proposed

Guide: no more than 200 words

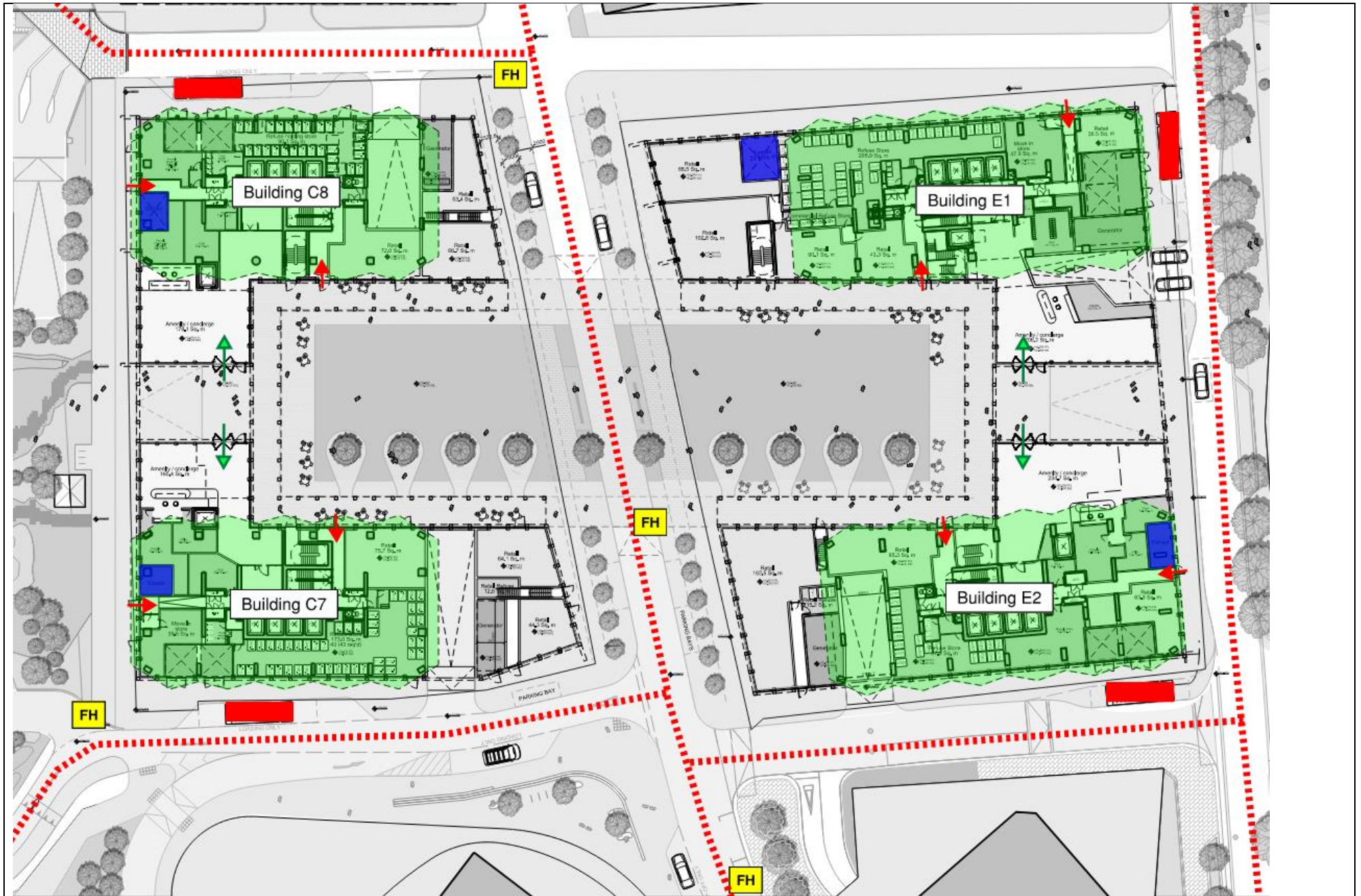
Existing fire hydrants are located in proximity to the site, as indicated via the yellow 'FH' symbols on the Fire Service site plan in 14 below – the exact flow rates are subject to confirmation of suitability.

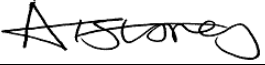
Nature of water supply:
hydrant- public

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

14. Fire service site plan

Fire service site plan is:
inserted in the form



Fire statement completed by	
15. Signature	
16. Date	12/04/2023

 Meeting minutes

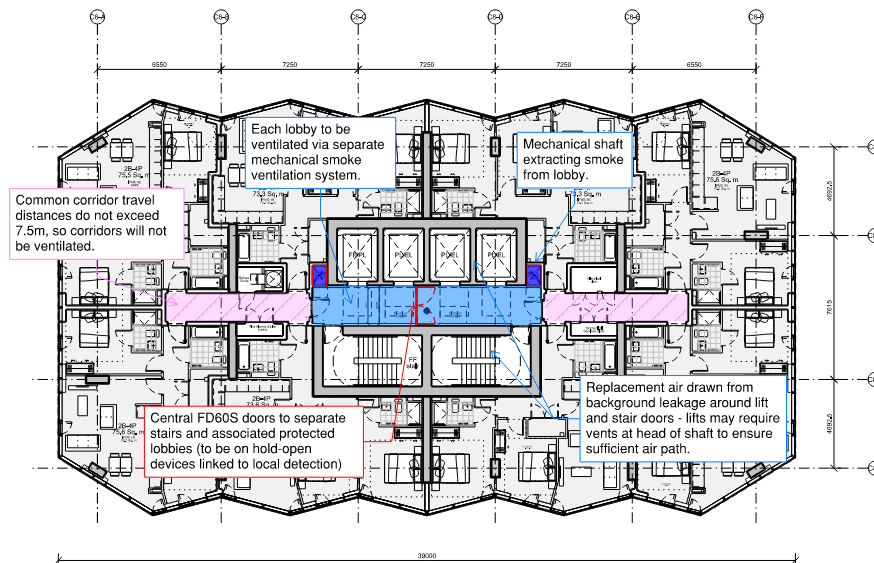

Meeting: Great Jackson Street, Crown Street Phase 3 and Plot D – Fire Safety Design Review Date: 30/11/2022
Time: 10.30am

Location: SimpsonHaugh, 4 Riverside, Commercial St, Manchester

Attendees: Peter Devine & Neil Unsworth - GMFRS (High-rise Team)
Alex Dowsett & Scott Bonner - MCC Building Control
Dave Green & Andy Edwards - SimpsonHaugh
Pete Mills & James Sidlow - Renaker
Alec Storey & Hamish Parkes - Tenos

Item No.	Notes
1	Development overview
1.1	DG provided an overview of the development that will comprise of two sites; CS3 site and Plot D site. CS3 site will provide four residential towers - E1 & E2 @ 51 storeys and C7 & C8 @ 53 storeys. Plot D site will provide a single residential tower (@ 71 storeys) and a lower-rise independent office building adjacent. Each tower is to be served by two adjacent, but separated, stair cores. DG confirmed that each residential tower (including its associated basement car park) will be designed to operate as an independent building (i.e. no sharing of services, generator, fire safety systems, etc).
2	CS3 Site
2.1	DG provided latest design developments, confirming that each tower will comprise: • Ground floor - residential entrance, BOH/ancillary accommodation, and independent retail units • Level 01 – Residents amenity accommodation only • Level 02 – Four apartments within a 'recessed' floorplate • Level 03+ – Typical apartment levels • Three basement levels – Residents car parking and plant
2.2	AS outlined that the general fire strategy provisions proposed for each building have been developed with consideration of the current and draft BS 9991 guidance, based on each being >45m in height, as follows: • 120 minute structure (reinforced concrete). • BS 9251 sprinkler system to residential apartments and corridors. • BS EN 12845 sprinkler system serving basement and ancillary accommodation areas (NB – system to be design to BS EN, as referenced in guidance documents, rather than LPC property protection standards). • Firefighting stair and lift serving upper floors, accessed from sterile lobby. • Evacuation lifts serving upper floor, accessed from sterile lobby. • Basement is less than 10m deep, so does not require firefighting lift to serve. • Wet rising fire main. • Mechanical smoke ventilation systems to protect cores and common corridors (see Section 3 below). • Impulse jet fan mechanical smoke extract system to basement car parking levels. • Evacuation Alert system.

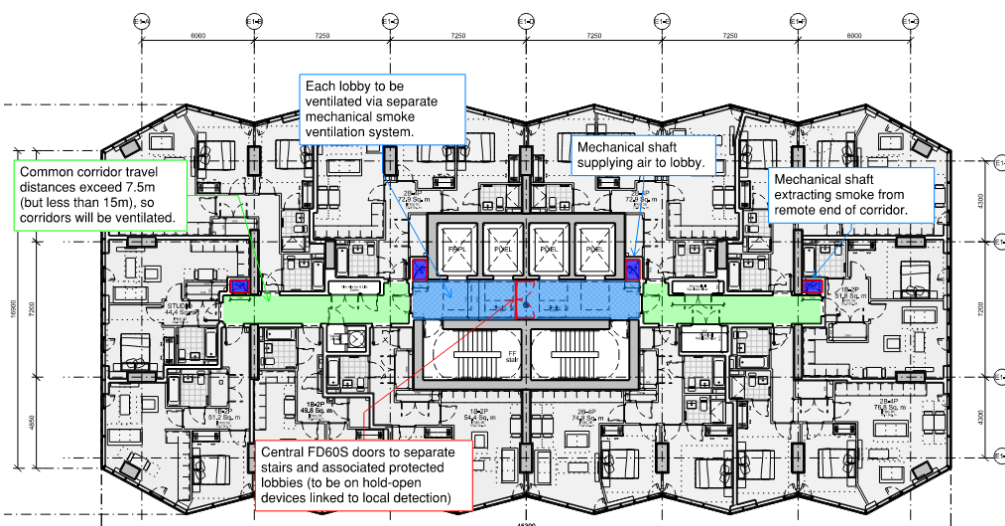
2.3	MCC BC noted that, due to the height of the buildings (i.e. >50m), key fire safety provisions should not be simply 'by the book' but should be fully considered and justified within the fire strategy report. AS noted that 120 minute structural fire resistance has been considered reasonable on the basis of reinforced concrete construction, Regulation 7 compliant external walls, sprinklers throughout, and high level of compartmentation at each apartment floor level - GMFRS and MCC BC stated provisional acceptance of this.
2.4	GMFRS agreed with proposal to provide protected corridor access to the firefighting shaft of each tower from the adjacent roadway, which will provide vehicle parking and access to the wet fire main inlet point. On this basis, Fire Service vehicle access will be to surrounding roadways only (i.e. not into site landscaping). Each tower is to have 24-hour concierge, so it is highly likely that the initial point of arrival for the Fire Service will be reception (from where the FF shaft can also be accessed).
2.5	DG confirmed that the 'undercroft' pedestrian route between each pair of towers (i.e. adjacent to the entrance reception spaces) will be covered by a roof at Level 02 but will be an 'external' space open at each end.
2.6	GMFRS confirmed their preference for the main fire alarm panel, Evacuation Alert system panel, and disabled refuge panel in each building to be within the Ground floor entrance reception space. Repeater panels for the fire alarm systems should be provided in the firefighting stair access corridors.
2.7	GMFRS confirmed that they would not require a wet rising fire main within the secondary stair in each tower, on the basis that the hose distances from the wet fire main outlet within the firefighting stair to the most remote part of each floor does not exceed 60m.
2.8	GMFRS noted requirement for Building Information Box for each tower and stated preference for a 'high rise information plaque' incorporating a typical floor plan to be provided at access level (details to be confirmed).
3	CS3 core/ventilation arrangement
3.1	Towers E1 and E2, which have a slightly larger footprint will share the same core, corridor and ventilation arrangement. The slightly smaller towers C7 and C8 will share same core, corridor and ventilation arrangement, which will differ to Blocks E1 and E2. Each tower is to be served by two adjacent, but separated, stair cores – typical floor level layouts for each tower were presented (see Figures 1 and 2 below).
3.2	GMFRS and MCC BC confirmed that they will require the doors separating the lobbies of the adjacent stair cores in each building to be retained as currently shown (regardless of what the final recommendations of the updated BS 9991 are) and requested that these doors are provided with hold-open devices, linked to localised smoke detection, so that they are not 'damaged' through daily use (i.e. held open in all but fire conditions).
3.3	AS outlined ventilation provisions for towers C7 and C8 as follows: - Each stair/lift lobby will be ventilated by means of a single mechanical smoke extract shaft, activated by smoke detection within the associated common corridor and lobby (i.e. system in each half of floor activates independently). - Each extract shaft system will incorporate pressure sensors and a fan inverter, so that extract rates can be ramped up and down to prevent excessive pressure differentials. - Replacement air to ventilated lobby will be drawn from leakage around stair and lift doors - AOV to be provided at head of stair and vents may be required to lift shafts to increase background leakage (TBC as part of system design). - As the common corridor travel distances do not exceed 7.5m, they will not be ventilated, in line with BS 9991 guidance for ventilated sterile lobby arrangement.

Figure 1 – Towers C7 and C8 indicative core arrangement

3.4

AS outlined ventilation provisions for towers E1 and E2 as follows:

- As common corridor travel distances will exceed 7.5m (but not 15m), they will each be ventilated, by means of a single mechanical smoke extract shaft provided at the end of common corridor (i.e. remote from the stair core).
- Each stair/lift lobby will be provided with a single mechanical air inlet shaft, which will provide replacement air for the corridor extract shaft and maintain a net air flow away from stair core.
- The door between the stair/lift lobby and common corridor will open into the corridor to enable self-balancing of pressure differentials (i.e. door may be pulled open slightly), if necessary (TBC as part of system design).
- AOV to be provided at head of stair.
- Ventilation provisions will be activated by smoke detection within the associated common corridor and lobby (i.e. system in each half of floor activates independently).

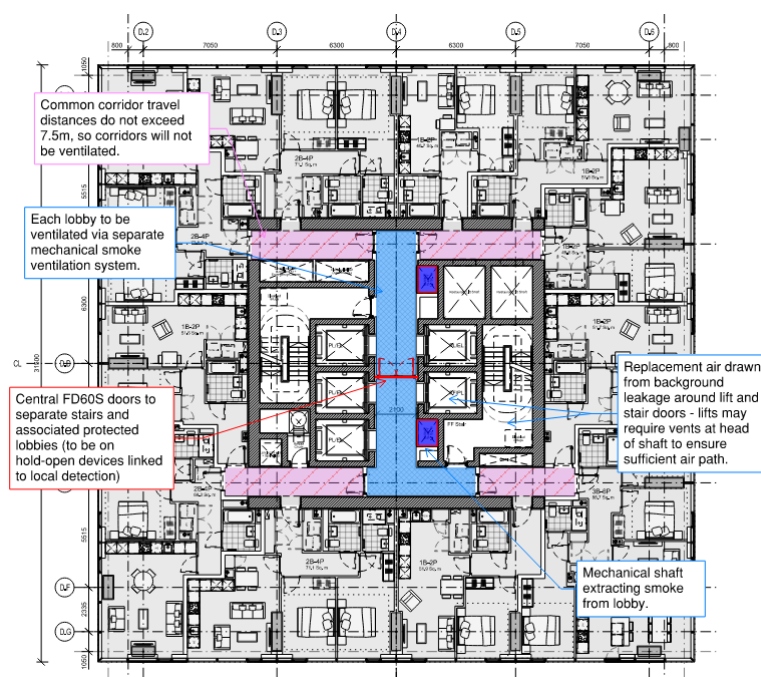
Figure 2 – Towers E1 and E1 indicative core arrangement

3.5

GMFRS confirmed acceptance of ventilation proposals on the basis that the mechanical smoke ventilation system designs will be demonstrated to not create adverse pressure

	differentials (that may result in door opening difficulties) and will be modelled to demonstrate continued operation when subject to adverse wind conditions. CFD modelling and cold-smoke testing will be provided by the specialist designer/sub-contractor.
3.5	MCC BC noted their preference for a pressurisation system in high-rise buildings, but acknowledged that the proposals as presented appear to comply with the draft BS 9991 guidance. Cross-reference to the final issue of the new BS 9991 (when released) would be required to ensure the solution is still compliant.
3.6	MCC BC and GMFRS agreed that cables laid in metal cable trays (installed facing upwards to support cables) and water and sprinkler pipework may reasonably be run within the ceiling void of the sprinklered common corridors and sterile lobbies without the need for fire-resisting ceilings, but no pieces of plant equipment (e.g. air-handling units) should be housed in these ceiling voids.
3.7	MCC BC requested that studio apartments (i.e. without an internal protected entrance hall) are provided with upgraded entrance doors (i.e. FD60S) and kitchen cooking equipment is located remote from escape route through apartment (i.e. as per draft BS 9991 guidance).
3.8	DG noted that each CS3 building will be provided with a third escape stair that serves the Level 01 amenity accommodation only (and discharges direct to outside at Ground floor), in order to achieve compliant travel distances and provide adequate escape width for the proposed occupancy within this accommodation.
4	CS3 basement car park
4.1	AS outlined that each tower will have a three storey basement providing residents car parking, cycle storage and plant (i.e. sprinkler, wet riser and domestic water tanks) and will be served by a single stair (firefighting stair) and single dedicated basement access lift (NB - as the lowest basement level is less than 10m in depth the firefighting lift will not continue down to serve the basement levels). Basement levels will be sprinklered and the car parking will be ventilated by means of an impulse jet fan mechanical smoke extract system (plant/ancillary rooms accessed from the car parking to be accessed directly to enable smoke ventilation via the car park system). The basement of each tower is completely independent with 120 minute compartment walls between each tower basement.
4.2	AS noted that it has been considered reasonable for escape calculations for basement levels to be based on 1 person per parking space, given that this is a residential car park only. On this basis, the occupancy at each basement level will be less than 60 persons.
4.3	GMFRS requested that consideration be given to the location of EV parking bays. GMFRS stated a preference for EV parking bays to be located away from the stair core, to be outside of the tower footprint above, to be adjacent to the smoke extract point, and to be at the uppermost basement level, where possible.
4.4	Discussion was had with regards to the locating the dedicated basement lift in each building adjacent to the main core, such that the protected lobbies are connected, in order to assist with disabled evacuation from the basement levels.
5	Plot D site
5.1	AE provided an overview of the Plot D site, which will comprise of the residential tower and the adjacent office building. The Plot D tower will comprise: • Ground floor - residential entrance, BOH/ancillary accommodation, and independent restaurant entrance • Level 01 – Residents amenity accommodation, including roof terrace • Level 02 – Core and upper roof terrace only

	• Level 03 – Core only (double height space over upper roof terrace) • Levels 04-66 – Typical apartment levels • Levels 67-69 – Residents amenity accommodation (including gym and pool) • Level 70 – Restaurant (open to the general public) • Three basement levels – Residents car parking and plant The office building will comprise: • Ground floor – Office entrance, BOH/ancillary accommodation, and cafe • Level 01 – Office and roof terrace • Level 02 – Office • Level 03 – Office • Level 04 – Office and roof terrace
5.2	MCC BC requested that consideration be given to materials and contents of terraces/podium roofs as plan develop, but advised that greening/trees/etc can be placed on the podium roofs provided they are at least 4m away from the tower façade.
5.3	AS noted that the general fire strategy provisions proposed for the Plot D residential tower aligns with towers C7 and C8 of the CS3 site, as follows: • 120 minute structure (reinforced concrete). • BS 9251 sprinkler system to residential apartments and corridors. • Two separate BS EN 12845 sprinkler systems will be provided – the first to serve basement and lower ancillary accommodation areas and the second to serve the top-floor restaurant and amenity accommodation at the upper floors (NB – systems to be design to BS EN, as referenced in guidance documents, rather than LPC property protection standards). • Firefighting stair and lift serving upper floors, accessed from sterile lobby. • Evacuation lifts serving upper floor, accessed from sterile lobby. • Basement is less than 10m deep, so does not require firefighting lift to serve. • Wet rising fire main. • Mechanical smoke ventilation systems to protect cores. • Impulse jet fan mechanical smoke extract system to basement car parking levels. • Evacuation Alert system.
5.4	AS outlined that the residential levels ventilation provisions for the Plot D tower will align with towers C7 and C8 of the CS3 site, as follows (and Figure 3 below): • Each stair/lift lobby will be ventilated by means of a single mechanical smoke extract shaft, activated by smoke detection within the associated common corridor and lobby (i.e. system in each half of floor activates independently). • Each extract shaft system will incorporate pressure sensors and a fan inverter, so that extract rates can be ramped up and down to prevent excessive pressure differentials. • Replacement air to ventilated lobby will be drawn from leakage around stair and lift doors - AOV to be provided at head of stair and vents may be required to lift shafts to increase background leakage (TBC as part of system design). • As the common corridor travel distances do not exceed 7.5m, they will not be ventilated, in line with BS 9991 guidance for ventilated sterile lobby arrangement.

Figure 3 – Plot D indicative core arrangement

6	Plot D upper floors amenities and restaurant
6.1	AE provided an overview of the restaurant and amenity accommodation in the lantern at the uppermost floor levels.
6.2	The top floor restaurant is to be accessed via dedicated lifts from Ground floor entrance to Level 70 that do not serve any floors in between (NB – 120 minute emergency access hatches will be provided at intervals). However, for escape purposes occupants of the restaurant and amenity levels will be provided with access to both stair cores.
6.3	Fire Service access to the amenity and restaurant levels will be via the firefighting stair and lift serving the residential levels, which will both continue up to Level 70. Potential for use of the restaurant lifts for Fire Service access to the restaurant was dismissed due to the non-compliant arrangement and potential complexities in Fire Service operations.
6.4	AS confirmed that it is intended that the amenity accommodation and restaurant are to be provided comprehensive automatic fire detection and evacuated together, however, consideration will be given to providing staging of the evacuation between restaurant and amenity accommodation, to allow for an investigation period and to limit the impact of false alarms. Amenity accommodation and restaurant exit widths have been reviewed on the basis of BS 9999, assuming simultaneous evacuation of all four floors. Restaurant capacity is limited by stair width, which is currently at 1100mm. Using base BS 9991 values of 4.1mm per person, 1100m storey exits can accommodate up to 268 persons within the restaurant, however, when considering additional measures this may be reduced to 3.3mm per person (giving capacity for over 300 persons).
6.3	PM clarified that the intended occupancy of the top floor restaurant would be 150 covers, plus staff.

	GMFRS and MCC BC questioned how restaurant occupancies would be limited to meet exit capacity limits, noting that a conventional restaurant floor space factor could infer a much higher potential occupancy.
	MCC BC raised the question of security measures to prevent members of public leaving restaurant and entering residential corridors. GMFRS suggested that consideration be given the use of CCTV within stair/lift lobbies at each floor level to assist with security and provide additional means of identifying fire incidents.
7	Plot D basement car park
7.1	AS outlined that the Plot D tower will sit above a three storey basement providing residents car parking, cycle storage and plant (i.e. sprinkler, wet riser and domestic water tanks) and will be served by the firefighting stair within the main core (with multiple lobby access points), a secondary escape stair (not indicated at the time of meeting, but now included , which discharges direct to outside at Ground floor), and a single dedicated basement access lift (NB - as the lowest basement level is less than 10m in depth the firefighting lift will not continue down to serve the basement levels). Basement levels will be sprinklered and the car parking will be ventilated by means of an impulse jet fan mechanical smoke extract system (plant/ancillary rooms accessed from the car parking to be accessed directly to enable smoke ventilation via the car park system).
7.2	AS noted that it has been considered reasonable for escape calculations for basement levels to be based on 1 person per parking space, given that this is a residential car park only. On this basis, the occupancy at each basement level will be less than 80 persons.
7.3	GMFRS requested that consideration be given to the location of EV parking bays. GMFRS stated a preference for EV parking bays to be located away from the stair core, to be outside of the tower footprint above, to be adjacent to the smoke extract point, and to be at the uppermost basement level, where possible.
8	Plot D office
8.1	AE provided an overview of the independent five-storey office building adjacent to the Plot D tower. It was noted that the height of the building was subject to review as currently marginally over 18m. The office building will be served by a main stair and lift core and a secondary escape stair, which will both discharge to outside at Ground floor (either directly or via a protected corridor). Whilst located above the Plot D basement, the office building will not connect to the basement and will not share any provisions/services.
8.2	AS noted that, as the office building is under 30m and unconnected to the Plot D basement, it is not intended for it to be sprinklered.
8.3	<u>Post-meeting Note:</u> Plans for the office building have been amended and the top finished floor level of the building is now below 18m. As such, in accordance with Building Regulations guidance, there is no longer a requirement for a firefighting shaft and associated secondary power supply back-up generator, plus the building structure now only requires 60 minutes fire-resistance. The secondary basement escape stair discharging direct to outside at Ground floor will be located within the footprint of the office building but will be entirely separated from the office building accommodation by means of imperforate 120 minute construction.