LFB
LONDON FIRE BRIGADE

Senior Fire Safety Officers Report

Grenfell Tower

Lancaster West Estate

W11 1TG

OFFICIAL – Sensitive: Legal privilege
18 June 2017
Incident Number 076029-14062017

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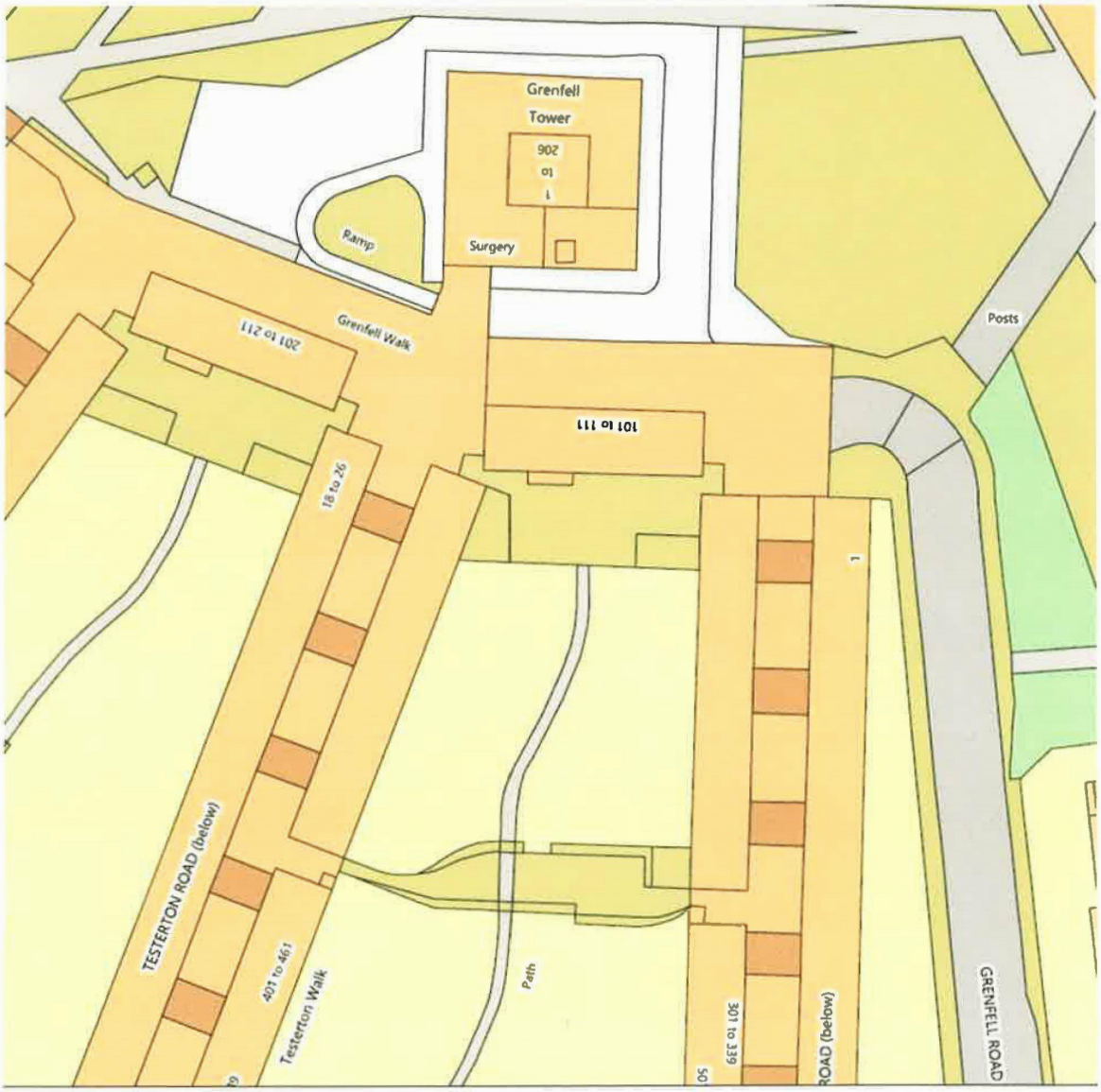

Grenfell Tower

Lancaster West Estate

London

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Protective Marking Status:	OFFICIAL - SENSITIVE - LEGAL PRIVILEGE
For fatal fire reports and to protect personal or commercial data, 'Official' is likely to be required. See policy for guidance.	

Part A – Data recording

SFSO details:	
Name:	Jim Flin
Call sign:	OE50
Tel.no:	[redacted]

Event details:			
Incident No:	076029-14062017	Date:	18/06/2017
Borough:	Kensington & Chelsea	Stn. Ground	G27 - North Kensington
Address (include Farynor file number if known): 12/020696 Grenfell Tower, Lancaster West Estate, London W11 1TG			

Reason for notification (tick box):	
Incident	☒
Request by Ops crews (not at incident)	☐
Request by FSR staff	☐
Alleged Fire Risk (AFR)	☐

AFR additional detail: *Only Complete this section if, as SFSO, you were the sole responder (i.e.: no Ops or other Officer attending)*	
If AFR, was response within 3 Hrs	
Time AFR received	Enter hh:mm
Time AFR responded to	Enter hh:mm

Action taken:	
Attended	Yes
Monitored only (including any remote action, eg: letters, phone calls)	No

Additional details:
40 Pump fire in residential block of flats, multiple fire survival guidance calls, multiple rescues, unprecedented fire spread externally, multiple loss of life.

Time spent:	
Time SFSO notified (hh:mm)	04:49
Monitoring time (mins)	30 mins
On site (mins)	1500 mins
Travelling (mins)	150 mins
Office time (mins)	750 mins

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Senior Fire Safety Officers Report

Part B – Premises Contact

Contact details:
Kensington and Chelsea Borough Council TMO

Part C – Premises Description

Premises description:
Residential block of flats of 24 floors, 130 flats concrete shell and core built in 1974. Undergone a refurbishment, completed in 2016. This included external cladding, replacement windows, internal heating system, up graded smoke ventilation system and as well as creating a further 10 flats, community room and boxing gym on the lower floors G - 3. At some point the residential flat entrance doors were replaced with composite fire doors.

Part D

Fire safety issues:
See additional report regarding fire safety findings in Appendix 1

Part E

Evidence gathered:
Contemporaneous notes and detailed photo log taken by SFSO Photoset 84046

Part F

Follow-up actions:
Full investigation to support and feed into public enquiry. Intrusive survey required in some areas which needs to be co-ordinated with the Police.

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Senior Fire Safety Officers Report

This form should be completed following every notification to a Senior Fire Safety Officer (SFSO). Even if you did not attend, record all actions and forward the completed form by email to:

- '@SFSO' mailbox (Includes: 'FSR-AdminSupport'/'FSR Policy Team'/'Press'/'@FCS FI FS Legal')
- FSR Team mailbox (e.g. 'FSR-BrentEaling')
- FSR Team Leader
- Area Fire Safety Manager
- Local Station Manager
- Local Borough Commander
- 'Petroleum Paps' mailbox (if applicable).

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Senior Fire Safety Officers Report

Notes for guidance on the completion of FSIGN208_01

A – Data Recording:

Completion of Part A will generate a Fire Safety Job FS20 to be completed by FSR Admin Support team. This job will be stored in Farynor and enable workload reports on individual SFSOs and the SFSO rota.

Within "Reason for notification" section if the request by Ops crews was at an incident, only tick "incident".

Within "AFR additional detail" section provide details of when the AFR information was provided to the Brigade. This is not the time the SFSO received the information, but when first contact was made with the Brigade. The response time should be the first Brigade attendance at the premise, whether an SFSO, appliance, Inspecting Officer, etc. It should be indicated whether the time taken from receiving the AFR to responding to the AFR was within 3 hours. Further guidance on what constitutes an AFR is within FSIGN 423.

Within "Additional details" provide details of the incident or event type, reason for notification or mobilisation and rationale for your decision to attend or monitor only.

Time you were notified is the actual time you were first informed or mobilised and not the Time of Call (TOC). This should be recorded using the 24 hr clock and all other time spent should be in minutes only.

B – Contact Details:

The details required in this section should be sufficient to assist the local Inspecting Officer who may have to follow up on this incident.

They should include telephone numbers and email addresses where possible.

C – Premises Description:

Describe the type, size and use of the building. Include the number of escape routes and fire safety systems available. Any fire engineered solutions present that were relevant to the incident should be included here.

D – Fire Safety Issues:

Describe the fire safety issues that you have identified. This should include structural elements, systems and management failings, whether insufficient or not present.

Ensure that these failings are recorded within your contemporaneous notes, form FSIGN208_02 .

E – Evidence Gathered:

State whether a photo set was taken, photo log recorded and uploaded to the image library.

If the Fire Investigation Team attended provide their contact details.

F – Follow-Up Actions:

If further action is required suggest what this could be, e.g. a follow-up inspection required by an Inspecting Officer.

Include your timescales for these recommendations appropriate to the risk identified.

Include recommendations for liaison with other agencies where applicable.

Any advice given to the occupier and any limitations or restrictions imposed as a result of the incident should be recorded here.

Where Prohibition Notice issued, detail the Articles contravened.

Appendix 1 - SFSO Observations Grenfell Tower

Overview

Grenfell tower was built in 1974 and is a 24 storey residential block of 130 flats around a concrete shell and core. The building is managed by Kensington and Chelsea TMO (Tenant Management Organisation) on behalf of the council. The building had a £10million refurbishment, which was completed in 2016. The large scale works included upgrading the external cladding, new windows, new heating system, lobby smoke control system, unused spaces were redeveloped to incorporate a number of new residential dwellings and an upgrade of the existing Crèche and community boxing club. Fire doors to existing flat entrance doors were also upgraded at some point.

*Note this report does not assess the external cladding, as this will be reported separately following deconstruction and detailed analysis by an independent company. This process is part of the ongoing police investigation.

1. Reception facilities

1.1. Access
Good access via Grenfell road to within 18m of dry rising main.

1.2. Fire fighting facilities
There is a dry rising main fitted which appears to be compliant, outlets are located in the lobby/ corridor rather than the staircase, that approach was supported in earlier versions of the design guides. It is unclear if the rising main should be a wet rising main as the building appears to have an occupied floor over 60m but this needs clarification.
There appears to be a firefighting shaft with firefighting lift with smoke ventilation at every lobby/ corridor level with a Permanent open vent (POV) at the head of the staircase.

1.3. Ventilation
The staircase has a POV at its head, the sizing needs to be checked, and there is smoke ventilation with firefighter override in every lift lobby/corridor.

1.4. Premises Information Box (PIB)
There was not a PIB on site at the time of my inspection. It was also noted that there was a lack of information for firefighters. For example the allocation of flats per floor indicating which flat is on what floor was not evident in the ground floor lobby. The floor numbers in the staircase indicating which floor occupants are on was also not indicated.

2. Flat Front doors

2.1. Fire rating
The building has undergone a refurbishment which was finished in 2016, this added an extra number of flats on the ground, 1st , second and third floor (10), which were previously open and commercial areas (Crèche and Boxing club).
The extra flats have 60 minute self closing with strips and seals (FD60s) front doors with low-level intumescent letterboxes. It appears the fire resistance to these doors have been upgraded as they share areas with the crèche and boxing gym that have also been refurbished. This arrangement needs to be checked with the original strategy. The upper floors 4th – 23rd have had the front doors upgraded to composite 30 minute fire doors with strips and seals (FD30s).

2.2. Strips and seals
All doors appear to have strips and seals that are mainly frame mounted.

2.3. Self closers
The flat front doors appear to have been fitted with self closing devices when they were originally Installed during the inspection of the building it was noted a significant number of the self closing devices on the composite fire doors to dwellings on floors above the 3rd have either had the self closing device removed or this device is broken and still in place but ineffective. In some cases the frame mounted self-close device has been replaced by an overhead device, but this arrangement is inconsistent.

2.4. Letter boxes
The letterboxes on the ground to 3rd floor dwellings were low level and appear to be intumescent, on floors 4 – 23 on the doors still in situ these had a centre mounted letterbox which has been demonstrated as intumescent in photo log number 146 & 147.

3. Openings between flats and corridors

3.1. Windows
There are no windows in the common areas that represent openings from the flats on the residential floors.
Flat windows have been upgraded as part of the refurbishment plans, these are grey powder coated aluminium windows and will be subject to a further survey in order to asses the different types of configuration.

3.2. Transoms above doors
There are no transoms above the doors. The services pass into the flats from the service riser at this point via the concrete structure and all examples seen are fire stopped.

3.3. Services
Services are provided via a central service riser in the common lobby/corridor. The individual flats are served individually via the ceiling above the front door. Access was available on some floors and fire stopping was in place.

There was an unusual arrangement in the staircase, as the gas pipe serving upper floors passed through the staircase concrete structure on every floor. The pipe was boxed in at all levels but was surface mounted where it appeared in the common lobby/ corridor. The gas pipe only penetrated the Staircore wall on some levels in order to supply the flats so was only observed within certain common lobby/corridor levels. This arrangement needs further investigation to justify this approach.

3.4. Fire stopping
Fire stopping between the flats and corridor appeared effective in the areas inspected.

4. External Vents into flats between flats

The only external vent directly into the flat was via the kitchen window, this was an extractor fan that appeared to be fitted as part of the window assembly. The bathroom ventilation system still needs to be interrogated as the assembly needed to be deconstructed in order to establish the route.

5. Condition and route of kitchen and bathroom extract systems

The kitchen extraction was in good condition as the window assembly is new, there was no duct work as the fan light was directly into the kitchen area. (Photo 136) See above for bathroom detail.

6. Flat window type

The windows of all flats was part of the refurbishment project, they appear to be grey powder coated aluminium openable windows with a variety of configurations. A window survey has been carried out to record the window configuration. This photo log is available

7. Fire alarm

7.1. Type domestic /commercial

The domestic flats have a mixture of coverage but most do have detection. The new dwellings on the lower floors have smoke detection in the entrance hallway (BS 5839 part 6 LD3) and others have smoke detection in the entrance hallway and a heat detector in the kitchen (BS 5839 Part 6 LD2). Other new dwellings have smoke detection in every room and heat detection in the kitchen (BS 5839 Part 6 LD1).
Most of the original flats on the 4th floor and upwards that were accessible and still had detection in place, had a hardwired smoke detector in the entrance hall and a heat detector in the kitchen (BS5839 Part 6 LD2). There were a small number of flats that didn't have any detection in place.

The commercial areas appeared to have a mixture of systems and coverage. The first floor community room had what appeared to be a BS5839 Part 6 domestic system with a detector in the lobby separating the residential lobby/ corridor however this detector had a cover on it (Photo 58)

The gym on the second floor had what appeared to be a BS5839 Part 1 L5 as there was a smoke detector in a lobby to the main escape staircase that operated an AOV however this detector had a cover attached. (Photo 64)

7.2. Coverage

The coverage was different in the new dwellings (as described above) and unclear in the commercial areas. The boxing gym only had detection coverage in the lobby attached to the main staircase but no further detection on the floor plate of the gym.

The residential lift lobbies had smoke detection in each lobby to actuate the smoke ventilation system

7.3. Operation / function

The operation / function of the detectors fitted in the residential accommodation was clear and would support a stay put policy, as the flat of origin would be the only flat to go into alarm. If smoke entered the common lobby/corridor then the smoke detector in this area would actuate the smoke ventilation and therefore keep the staircase clear of smoke.

It was not clear how the alarm in the mixed-use areas were managed and reacted to. This needs further investigation.

There were a number of covered smoke detectors including one at the base of the gas pipe at 1st floor level in the service riser. It was also unclear what systems function when the commercial detection actuates. There were a number of motorised windows in the main staircase at ground to third floor level that appeared to not be connected to smoke detection. Further detail is required regarding this arrangement

7.4. Panels

There was a ventilation panel in the ground floor lobby, at the time of the inspection this was not indicating any power supply as the power had been isolated. I did witness the panel on wedenesday 14th June 2017 at 10:16 with power at the time of the fire and it was showing extraction on the 18th floor.

No fire alarm panel was located at the time of the inspection.

8. Emergency lighting

There appears to be emergency lighting in the staircase and lobbies but this had no power at the time of the inspection. I again witnessed emergency lighting in these areas at the time of the fire on Wednesday 14th June 2017 at approximately 14:30hrs..

9. Means of escape

9.1. Condition

The condition of the means of escape was clear in most areas during the inspection. There were some areas where storage was still in place, one of these areas was on the third floor in the residential lobby/corridor. Two mobility scooters were stored and being charged as the charging cable was still in place through the letterbox of flat 9. (Photo 96)

The staircase was clear at the time of this inspection but this is after extensive firefighting operations including equipment clean up.

9.2. Configuration

The means of escape was via a common lobby/corridor into a single staircase leading to a final exit at ground floor. The common lobby /corridor had the entrance doors to the flats opening into it and the passenger / firefighting lifts. This area also included a refuse store/chute and service riser cupboard.

The area was protected by a mechanical ventilation system in order to mitigatesmoke entering the staircase.

9.3. Doors

All doors appeared to be self closing at some point, the operation of these devices is unclear as a number of residential doors didn't have closing devices attached.(A full survey of remaining residential doors has been undertaken with separate photo set). The staircase and

refuse rooms had self closing devices and strips and seals on the remaining doors which could be inspected.

9.4. Fire rating

The doors to the staircase and refuse stores did perform well and did have a level of fire resistance when closed as some of the photo log reflects. The fire rating of the residential doors needs to be confirmed by the responsible person. However, when closed the residential doors performed well as photo 144 shows on flat 36.

9.5. Strips and seals

There appeared to be strips and seals on the remaining doors still in place.

9.6. Self closing

The doors opening into the common lobby/ corridor should have been fitted with self-closing devices. The staircase doors and refuse room doors all appeared to have self-closing devices on the ones which remained in place. The residential flat doors had devices missing or broken. A full photographic survey of all remaining doors has been undertaken in a separate photo log on the 18th June 2017.

9.7. Fire fighting facilities

There was a dry rising main on all floors located in the lobby/ corridor. There was a firefighting lift but I was unable to confirm what standard of lift has been installed/upgraded due to power loss in the building. There was mechanical ventilation in the lobby/corridors on all levels. It is unclear if this was functioning at the time of the incident. Action needed to try and interrogate the ventilation panel for the cause and effect detail.

10. Fire stopping

10.1. Around service pipes

Service risers that were inspected did show a good level of fire stopping around all pipework. The service risers inspected were fire stopped at floor and ceiling level as well as having a set of locked shut fire doors in the lobby/corridor.

10.2. Within staircase

There was a boxed-in gas pipe in the staircase which needs further intrusive investigation to see if fire stopping was present where it penetrates the staircase wall into the residential areas. No other penetrations were seen. (Further information required)

10.3. Sizing

All services, which were seen during the inspection that served the individual flats, were appropriately fire stopped and sized. This included from the service risers.

10.4. Route

It appears that services were run from the service riser cupboards on each floor via a false ceiling in the common lobby. These fed into the individual flats from this point above the front doors of the flats. These were seen in a number of dwellings and again appropriately stopped and sized.

11. Ventilation

11.1. Type / coverage

The ventilation for the smoke control on each residential floor appears to be via two shafts opposite each other, with smoke dampers controlled by a smoke detector in the common lobby/ corridor. The inlet shaft has grills at a lower level and the extract shaft has grills on the opposite wall at a higher level in the common lobby/ corridor.

11.2. Condition

The condition of the system on the recently refurbished lower floors looked new and appeared to reflect the strategy on the upper floors.
The grills and dampers on the upper floors (4th – 23rd) appeared to be original design and it is unclear without further investigation if these were serviceable.

11.3. Operation

The operation of the ventilation is via a single smoke detector in the common lobby/ corridor, this operates the smoke dampers in both the inlet and extract shafts which should interlock out other floors to ensure compartmentation is maintained as per the instruction on the panel. It is unclear at the time of the fire if this worked as the system was showing extraction on floor 18 but the damper on the extract was still closed with the inlet in the open position. It was also logged via the door survey that the inlet and extract dampers on the 11th floor had also operated. A further investigation of the mechanical ventilation system is being carried out. Details will follow in a separate report..

The ventilation arrangements on the ground floor entrance level needs confirming, as there are a number of motorised windows (AOV's) that appear to not have any detection to operate them. The cause and effect of this area needs confirming.

It is also unclear how the commercial areas integrate with the residential ventilation strategy.

Main smoke ventilation fan and plant room with power controls is located at roof level.

11.4. Configuration

See above

11.5. Panel

There was a ventilation panel in the ground floor reception area. At the time of the fire it was showing extraction from the 18th floor.

12. Firefighting lift

12.1. Operation

There was a firefighting lift operated by a drop lift key at ground floor level. I was unable to establish what standard firefighting lift was fitted as power had been isolated. Further investigation required.

12.2. Type

See 12.1

12.3. Protection level

See 12.1

12.4. Cause and effect

See 12.1

13. Bin chute fire resistance / separation

A refuse chute into a central bin room served the building. The chute was accessed at each level from the 2nd to the 23rd. via the common lobby/corridor. The chute was separated from the residential accommodation by a self-closing fire door. On floors below the 4th, the chute had a 90min fire rating. It was unclear if the chute hatch in the refuse room on floors 4th to 23rd had a level of fire resistance. This needs further clarification.

14. Ancillary accommodation

The ancillary accommodation consisted of community rooms a boxing gym and plant rooms. The community rooms and boxing gym were located on the ground, first and second floors. It appears some thought had gone into how to protect the shared areas and lobbies and detection had been provided. however the level of detection needs clarifying in the strategy as it appears to be a domestic BS 5839 part 6 in one of the rooms which had a detector covered.
The coverage in the boxing gym also needs further clarification as the detection was limited and also had the detector covered. One area of the boxing gym was separated from the staircase by a ventilated lobby, but the additional exit from the main floor gym floor opened directly into the residential lobby. The boxing gym occupied area also lacked smoke detection.

The plant rooms and main refuse room are separated from the accommodation levels

15. Mixed use areas

As above

16. Other observations

The removal of the self-closing devices on the residential front entrance doors is a cause of concern. This needs further discussion with the responsible person regarding their lack of closing devices on a significant number of doors and crews to understand if entrance doors to the flats were open during the incident. I have carried out a full photographic survey of all remaining doors to understand how many door closers have been removed or broken.

The flat numbering is also a concern, as it appears the numbering is not intuitive and could have easily delayed or confused firefighters when trying to locate a flat front door. During my inspection I didn't find a list of flat numbers associated with floors and even during the inspection it was confusing.

Eg 4th floor flats 11 – 16
5th floor flats 21 – 26
6th floor flats 31 – 36
7th floor flats 41 – 46
8th floor flats 51 - 56 ?

17. Plans layouts

For standard floor layout of floors 4th to 23rd see contemporaneous notes

Report completed by James Flin, Station Manager, Fire Engineering

18th June 2017

Metropolitan Police Station

Exhibit No.	Cust No.	Serial No.
JAF/2		MPSZ13186198
Ex. Book No. 25/1517 **OCU:**	**Other Stn. Ref.**	**Lab Ref. No.**

Description of exhibit: Senior fire safety officers report

From place/person: JIM FLIN

Taken by: PAN FLIN **Date:** 22/3/18 **Time:** 2pm

Sealed by: PAN FLIN **Date:** 22/3/18 **Time:** 2pm

I IDENTIFY THIS EXHIBIT AS THAT REFERRED TO IN MY STATEMENT

Signature: [signature]

Signature(s) of additional witness(es)

[signature]

MP 1404/04 MPSZ13186198 Form 420B