

Supplementary Report of Roger Hawkins

Concerning the lifts at Grenfell Tower

For the Grenfell Tower Inquiry

Phase 2

April 2021

Mr Roger Hawkins
Ove Arup & Partners Limited
13 Fitzroy Street
London W1T 4BQ

Report of Roger Howkins

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A. Introduction

1. I have been instructed by the Grenfell Tower Inquiry to report on the following issues.
 - 1.1. Relevant legislation, regulation and guidance for fire lifts and firefighting lifts in the 1970s (original design and construction), 2005 (first lift refurbishment) and 2012-2016 (second lift refurbishment) ("the Relevant Standards").
 - 1.2. Did the lifts as installed/refurbished in 1972, 2005 and 2012-2016 comply with the Relevant Standards?
 - 1.3. Did the Tenant Management Organisation's policy on firefighting lifts comply with the Relevant Standards?
 - 1.4. If they did not, to what extent did they fail to comply and what impact would this have had on their functionality, particularly with regard to fire safety and their ability to function in a fire?
 - 1.5. Were the lifts maintained to an appropriate standard and in compliance with the Relevant Standards and industry practice?
 - 1.6. How did the lifts perform on the night of the fire? What were the reasons for any failure to perform?
2. I have produced an initial report, dated September 2020, {RHO00000003} accompanied by Appendices {RHO00000004} which addresses these questions.
3. In that initial report, I stated at paragraphs 498 and 641 that I was awaiting a statement from Michael Arnold and that I would produce a supplementary report once I had received that statement. I have now received that statement. I have also received a limited amount of further evidence which I consider in this report, and there are further documents which have been brought to my attention.

B. Bureau Veritas

B.1 Witness statements of Michael Arnold

4. I have reviewed the two witness statements of Michael Arnold, dated 27 November 2020 {BVL00000017} and 18 February 2021 {BVL00000019}. He was an Engineer Surveyor who inspected the lifts at Grenfell Tower on 10 April 2017, on behalf of Bureau Veritas. I comment on the witness statements in the paragraphs below.
5. In relation to the statement dated 27 November 2020, I have considered Michael Arnold's response to question 1, set out at pages 1 to 2 of his witness statement. I have reviewed Michael Arnold's summary of his employment and qualifications. In my view, his employment and qualifications are typical requirements for an Engineer Surveyor and I consider he was sufficiently qualified to carry out a Thorough Examination of a lift.
6. In relation to the statement dated 27 November 2020, I have considered Michael Arnold's response to question 2, set out at page 2 of his witness statement. I have no comments on this paragraph. I have seen the reports of Thorough Examination dated 12 April 2017 for lifts H090 and H091 which state they are authenticated by Michael Arnold {BVL00000008}.
7. In relation to the statement dated 27 November 2020, I have considered Michael Arnold's response to question 3, set out at page 2 of his witness statement. In relation to the first paragraph, I agree with Michael Arnold's description of the purpose of a Thorough Examination of Lifting Equipment. I have seen the documents referred to in the second paragraph of his response.
8. In relation to the statement dated 27 November 2020, I have considered Michael Arnold's response to question 4, set out at page 3 of his witness statement. In relation to the first paragraph, I would expect that the examination would be carried out in accordance with this legislation. As to the second and third paragraphs, I have seen the 2017 Bureau Veritas Inspection or Testing Document provided {BVL00000011} and I have seen the 2014 procedure provided {BVL00000013}. In the next paragraph, Michael Arnold refers to Procedure GEN 001. I have considered these three documents in the section below.
9. In relation to the statement dated 27 November 2020, I have considered Michael Arnold's response to question 5, set out at pages 3 to 4 of his witness statement. He states that before carrying out his own inspection of the lifts he had sight of the reports of Thorough Examination of Lifting Equipment dated 2 November 2016 and the PS1016 Report produced by his colleagues. In my view, this is normal practice, and I would not have expected him to have reviewed any other documentation before carrying out his inspection. He states that he was not advised as to whether the lifts were firefighting lifts. The lifts at Grenfell Tower were not firefighting lifts and so I do not find this comment surprising. I would have expected him to have observed during his visit that the lifts had a fire control switch but I would not necessarily have expected him to have been informed of this before his visit.

10. I have considered Michael Arnold's response to question 6(a) in his statement dated 27 November 2020, set out at pages 4 to 5 of his witness statement. The procedure set out in the first paragraph is the procedure I would expect would be carried out.
11. In the second paragraph of the 27 November 2020 statement, he says that generally an examination of the first three floors would take approximately 1 hour, with each floor thereafter taking a further 7 minutes. Grenfell Tower had a total 24 floors, therefore according to Michael Arnold's approximate timings, a visit would take approximately 3.5 hours. In Mr Arnold's supplementary statement, dated 18 February 2021, he clarified that he meant 3.5 hours per lift, and therefore 7 hours in total. In my view, this timing is appropriate and what I would have expected. I note that Michael Arnold's colleague, Isiaka Lasisi, stated in his witness statement at paragraph 12 {BVL00000015/3} that a Thorough Examination of the two lifts would probably have taken about 7 hours.
12. In the third and fourth paragraphs of the 27 November 2020 statement, Michael Arnold sets out his description of testing of the fire control switch. In the supplementary statement, dated 18 February 2021, Mr Arnold provides more detail as to the method of testing he used on pages 2-3.
13. I comment that:
 - 13.1. Mr Arnold's statements describe testing whether the lift would return to the ground floor when the fire control switch was activated. He also tested that the lift would not respond to landing calls when in fire control mode.
 - 13.2. Mr Arnold's statements note that he didn't go in the lift car, so it cannot be known whether, for example, the door open/door close feature was operational or whether the lift would respond to multiple car calls (it should not, in fire control mode).
 - 13.3. Overall, Mr Arnold tested part of the firefighting lift control system, but not the entire system. In my view he should have tested the whole system.
 - 13.4. However, he did check that the lift would return to the ground floor on activation of the fire control switch. Crucially, on the night of the fire, the fire control switch did not work.
14. Although I cannot come to a safe conclusion as to why the lifts did not work for the firefighters on 14 June 2017, I would have expected the testing which Michael Arnold says he carried out to have picked up a significant fault which would have prevented an operator taking control of the lifts, as happened on the night of the fire.
15. I have considered Michael Arnold's response to question 6(b) of the 27 November 2020 statement, set out at page 5 of his witness statement. I would have expected Michael Arnold to have been provided with a drop key by Bureau Veritas and therefore I have no comment on this statement.
16. I have considered Michael Arnold's response to question 6(c) of the 27 November 2020 statement, set out at pages 5 to 6 of his witness statement. He states that, unless the fire control switch was found to be defective, he would not have recorded testing of the switch or the outcome on the report of Thorough Examination of Lifting Equipment. In my view,

this is an accurate statement of the position at the time. I would agree that, unless the fire control switch was defective, at the time it would not have been standard practice for testing to have been recorded in a Report of Thorough Examination of Lifting Equipment. However, as noted at paragraph 500 of my previous report, I do consider that it would have been good practice if Bureau Veritas had recorded testing of the fire control switch in their reports.

17. I have considered Michael Arnold's response to question 6(d) of the 27 November 2020 statement, set out at page 6. I have considered the Bureau Veritas testing procedures in more detail below.
18. I have considered Michael Arnold's response to question 6(e) of the 27 November 2020 statement, set out at page 6. As set out in my previous report at paragraph 501, it was not Bureau Veritas' responsibility to consider or report on whether the lifts at Grenfell Tower ought to have been firefighting lifts or not. This is still my view and therefore I have no further comment on this paragraph of Michael Arnold's statement.
19. I have considered Michael Arnold's response to question 7 of the 27 November 2020 statement, set out at pages 6 to 7. He states that, in his opinion, the lifts at Grenfell Tower as inspected on 10 April 2017 were in good working order and demonstrated a good standard of maintenance and upkeep.
20. I have reviewed Michael Arnold's report for Lift H090. In the section 'Other Defects' he states:

"1. The dirty Lift well pit should be suitably cleaned free. 2. The damaged various Floors Landing door Lock release rollers should be suitably renewed. 3. The motor and gear units oil Leak should be suitably sealed and spilt oil suitably cleaned free and de greased. 4. The spilt oil on the motor and gear units brake drum should be suitably cleaned free and de greased. 5. The Lift car door safety edge devices should be suitably earth bonded. 6. The temperamental / inoperative various Landing door emergency release facilities should be suitably adjusted and rectified. 7. The inoperative Lifts various Lift car push button permanent illumination bulbs and call acceptance bulbs should be suitably replaced / reinstated."

21. By way of explanation:

- 21.1. *The dirty lift well pit should be suitably cleaned free* – my interpretation of this statement is that there was rubbish (possibly oil) in the lift pit which would be a safety hazard, including fire, e.g. if a discarded cigarette end was dropped into the lift pit from the landing.
- 21.2. *The damaged various Floor Landing door Lock release rollers should be suitably renewed* – my interpretation of this statement is that the lock release rollers were worn and required replacement. This could cause malfunctions of the landing locks and therefore a lift breakdown.

- 21.3. *The motor and gear units oil Leak should be suitably sealed and spilt oil suitably cleaned free and de greased* - my interpretation of this statement is that it indicates poor housekeeping and a safety hazard to authorised persons entering the motor room due to oil leaking onto the motor room floor, which is a slipping hazard as well as a potential fire hazard.
- 21.4. *The spilt oil on the motor and gear units brake drum should be suitably cleaned free and de greased* - my interpretation of this statement is that it refers to a similar problem as point 3 but refers to the brake drum, which will affect the levelling of the lift car and is a safety hazard. By levelling of the lift car I mean this could affect the operation of the lift when it is arriving at a floor and has to brake.
- 21.5. *The Lift car door safety edge devices should be suitably earth bonded* - my interpretation of this statement is that it refers to potential safety risks with the safety edge not being earth bonded.
- 21.6. *The temperamental / inoperative various Landing door emergency release facilities should be suitably adjusted and rectified* – my interpretation of this statement is that it refers to emergency door release facilities. The emergency door release facility is usually found on every floor and it is a hole in the landing door. This is different from the fire control switch. The express drop key is inserted into the hole and can be used by twisting the key to open the landing doors. This is used when a passenger is trapped in the lift, to open the doors and release the passenger. It can also be used by lift engineers to gain access to the lift car roof and also lift pit. The express drop key referred to is the same type of key that would be used in the fire control switch.
- 21.7. *The inoperative Lifts various Lift car push button permanent illumination bulbs and call acceptance bulbs should be suitably replaced / reinstated* – my interpretation of this statement is that it refers to the situation when a passenger enters a call and they do not know if the call has been accepted because the lights on the buttons are not working. This is especially important for someone with visual impairment.
22. I have also reviewed Michael Arnold's report for Lift H091. In 'Other Defects' he states:
- "1. The dirty Lift well pit should be suitably cleaned free. 2. The damaged Various Landing door Lock release rollers should be suitably replaced. 3. The motor and gear units oil Leak should be suitably sealed and spilt oil suitably cleaned free and de greased. 4. The oil on the motor and gear units brake drum should be suitably cleaned free and de greased. 5. The Lift car door safety edge devices should be suitably earth bonded. 6. The Lift car poor Levelling should be suitably corrected. 7. The missing 1 x bottom bolt from the 4th Floors Landing door self closing arm plate on the Landing door should be suitably replaced. 8. The temperamental / inoperative various Landing door emergency release facilities should be suitably adjusted and rectified. 9. The inoperative Lifts various Lift car push button permanent illumination bulbs and call acceptance bulbs should be suitably replaced / reinstated."*

23. Many of the defects are the same as those reported in the report for Lift H090. The only additional defects reported are:
- 23.1. *6. The Lift car poor Levelling should be suitably corrected* – as I commented in paragraph 21.4 above, spilt oil on the brake drum (defect 4) can affect the levelling of the lift car. In my view this statement is a reference to a problem with the levelling of the lift car caused by the excess oil.
- 23.2. *7. The missing 1 x bottom bolt from the 4th Floors Landing door self closing arm plate on the Landing door should be suitably replaced* – this means that the self-closing arm has a bolt missing which could possibly affect the safety of the landing door as it would not properly self-close.
24. Overall, having considered both reports, in my view Michael Arnold identified a number of defects with Lifts H090 and H091. In my opinion, the lifts do not appear to be well kept and maintained and so I would disagree with his comment that they demonstrated a good standard of maintenance and upkeep.
25. I have compared the November 2016 Reports of Thorough Examination with the April 2017 Reports of Thorough Examination and note that some defects are reported by both engineers in both sets of reports. Although it is possible that the same defects recurred, this indicates that the defects reported had not been rectified in the period between November 2016 and April 2017. It would have been the responsibility of PDERS to rectify these defects. The fact that they have not been rectified suggests to me that there were problems with the standard of maintenance provided by PDERS and this is consistent with other evidence I have seen (see Section M.2 of my previous report). However, I note none of the defects relate to the fire safety features of the lifts.
26. In connection with these comments, I have recently seen an email from Peter Maddison regarding the lifts, which were discussed at a meeting on 9 February 2017 {TMO00880541}. It is clear from the email that the lifts were unreliable. Again, I note that none of the defects were related to the fire safety features of the lifts.
27. I have considered Michael Arnold's response to question 8, set out at page 7 of his November witness statement. As set out above and in my previous report at paragraph 501, it was not Bureau Veritas' responsibility to consider or report on whether the lifts at Grenfell Tower ought to have been firefighting lifts or not. This is still my view and therefore I have no further comment on this paragraph of Michael Arnold's statement.
28. I have considered Michael Arnold's response to question 9, set out at page 7 of his November witness statement. I would repeat my comments in the previous paragraph and I have no further comment on this paragraph of Michael Arnold's statement.
29. I have no further comment to make in relation to Michael Arnold's answer to question 10. I have reviewed the reports referred to.
30. In conclusion:
- 30.1. It is a matter for the Chairman of the Inquiry as to whether he accepts Michael Arnold's account of his testing of the fire control switch.

- 30.2. The testing of the fire control switch described, in my view, was correct but I would have expected further testing of the firefighting lift control system.
- 30.3. However, I note that Michael Arnold states that he was able to take control of the lifts with his Bureau Veritas-issued express drop key.
- 30.4. I would disagree with Michael Arnold's statement that the lifts at Grenfell Tower demonstrated a good standard of maintenance and upkeep.

B.2 Bureau Veritas Testing Procedures

- 31. Michael Arnold refers in his statement on page 3 to following Procedure GEN 001. I have seen this document {BVL00000018}. It is a general procedure to be followed for all site visits and does not contain any specific reference to inspection of lifts. Procedure GEN 001 states at 17.2: *"Commence examination routine to the appropriate Inspection Procedure."*
- 32. I have seen the document which was the Inspection Procedure for lifts until February 2017 - {BVL00000005}. I note that at paragraph 4, the inspection procedure says (highlighting added):
 - 4. Proceed with the examination and functional testing observing the condition of the lift installation. Including the following areas:-
 - Enclosure of lift-well
 - Landing doors and car door[s]
 - Landing doors and car door[s] interlocks and other fastenings
 - Car or platform, fittings, safe working load, controls, guides, buffers, interior of lift-well, floor levelling
 - Over running devices including measurement of over travel clearances
 - Machine room
 - Suspension ropes and / or chains and their attachments
 - Safety gear and over-speed governor
 - Brake
 - Worm or reduction gear, sheaves, pulleys and sprockets
 - Electrical system
 - Other safety devices, switches and alarms
- 33. In my opinion, the phrase 'other safety devices, switches and alarms' would have included the fire control switch. However, in my view the procedure should have been more specific and should have stated that the fire control switch or other fire safety features should be tested for correct operation.
- 34. I have also reviewed the Inspection Procedure for lifts which applied from February 2017 {BVL00000001}. I note that on the fourth page, in the section entitled 'Begin Examination' the procedure requires the engineer to take into account additional control features including firefighting or fire recall features (highlighting added).

Key Points

Begin Examination



Can the examination be conducted safely? If yes, begin the examination. If no, **STOP WORK** and issue a 'Not Available Report' (PS1017).



Important ! If any defect is found during the examination that would render any further examination of the lift dangerous **STOP WORK** and issue a PS1016 'Preliminary Report' and a 'Not Available Report' (PS1017). A copy of the report is then to be sent to the relevant Enforcing Authority. In Section C of the report the client should be made aware that the examination was incomplete and should be reexamined following the repair and before putting back into service. The next examination date should be set to the same date the examination took place. For example, if the examination took place on the 0909-2016 the next examination date should be set to the same, 09-09-2016.



- Set up 'Caution - Lift Under Examination – Please Do Not Use' signs on landings, in car and machine room.



- Take into account any additional control features i.e. Fire fighting, Fire recall, Vandal resistant.
- Any area of the equipment that is not accessible may preclude a Thorough Examination from being completed.

35. Having considered these two inspection procedures, in my view, Bureau Veritas' procedures did imply that the fire control switch should be tested. However I think that both procedures should have been more explicit and specific about testing of the fire control switch and other fire safety features. I also note that the Reports of Thorough Examination produced for Grenfell Tower do not record whether or not the fire control switch was tested, and it is a matter for the Inquiry to come to a conclusion as to whether it was tested or not.

B.3 RBKC and Bureau Veritas Contract

36. I have reviewed this document provided by RBKC {RBK00059518}. It appears to be the contract between RBKC and Bureau Veritas for the provision of engineering services from 1 April 2012 to 1 April 2015 .
37. The document states:

Service Provided

Bureau Veritas will provide in service inspections in respect of the plant and equipment described within the schedule. We will provide written reports of inspection, certificates, written schemes of examination and other relevant documents following the performance of the service.

Bureau Veritas may adjust the Contract following an annual review to take into account additional or deleted Plant or any other change to the Inspection Service such as change to the interval between inspections. Assumes free and unhindered access to site. Inspections with in Normal working hours Monday to Friday, 8am to 6pm,

Contract is subject to our standard terms and conditions

38. From my position as a Lifts expert only, the contract appears to me to be as expected and not unusual. The document contains a Schedule of Plant. Grenfell Tower appears on page 302 as follows:

LOCATION Kensington and Chelsea Royal BC (KCRBGRENFELL)
Grenfell Towers, Silchester Road Estate
London
W10 6SE

| Reference / Sub location | Description | Serial Number | Frequency |
|--------------------------|---------------------------------|---------------|-----------|
| H017 / 00013 | Doors | | 12 |
| 1-892312748 | Control Panel | | 24 |
| H002 | Electric Passenger / Goods Lift | R8MYV67661 | 6 |
| H090 | Electric Passenger / Goods Lift | V2VEC86129B | 6 |
| H091 | Electric Passenger / Goods Lift | V2VEC86129A | 6 |

39. This suggests that Lifts H090 and H091 were to be examined every 6 months which is consistent with the rest of the documentation and statements which I have seen. I have no further comment on this document.

B.4 Evidence of Warren Jenchner – Apex

40. I have considered the supplementary statement of Warren Jenchner dated 10 December 2020 {APX00008783}.
41. Warren Jenchner sets out at pages 1 to 2 his answer to question 1.
42. As to the first paragraph of his answer, I would agree that Butler and Young would have had the relevant initial discussions with the client and understood their requirements. As I set out in my previous report, I would have expected Butler & Young to have discussed compliance issues with the TMO at this stage, but as noted in my previous report, I have not seen any evidence that this took place.
43. As to the second paragraph, I would accept that if discussions about compliance between Butler & Young and the TMO took place, they would have happened before Apex were engaged as a contractor. However, in my view, when Apex carried out their site survey, prior to tendering, and then tendered for the contract, they should and they could have raised any concerns they had about compliance with the Relevant Standards, including firefighting lift standards.
44. As to the third paragraph, I would agree with Warren Jenchner that any issues could have been raised with Butler & Young at the initial site meetings, after they were awarded the contract. In my view, if the issue of firefighting lift standards had not been raised at the tender stage, it should have been raised at this stage.
45. Ultimately, my view is that Apex should have raised concerns with Butler & Young regarding compliance with firefighting lift standards. Butler & Young should have in turn raised this issue with the TMO. It was ultimately up to the TMO to take the final decision but Apex and Butler & Young should have raised the issue of firefighting lifts.
46. I disagree with Warren Jenchner's comments in response to question 2. First, my view, as set out in my initial report, is that, according to industry good practice at the time, the lifts should have complied with firefighting lift standards, in so far as it was reasonably

practicable, specifically BS 5588-5: 1991, BS EN 81-72: 2003 and BS 5588-5: 2004. Also, I note that Warren Jenchner says that the lifts complied with EN 81-1. This European Norm only applies to new lifts and I note that Warren Jenchner has maintained throughout that the lifts at Grenfell Tower were not new lifts. There appears to therefore be an inconsistency in his views as to whether the lifts were new lifts or not. My view, as set out in my previous report, is that the lifts should have been classified as new lifts.

47. In response to Warren Jenchner's comments regarding question 3, I note that he accepts that Apex could have raised concerns with Butler & Young at the pre start meetings. As set out above and in my previous report, my view is that Apex should have raised concerns and I also note that there is no evidence that they did.
48. In terms of Warren Jenchner's response to question 4, I comment that, although Butler & Young were the lift consultants, Apex would still have had input into (for example) producing the drawings for the lifts. As part of this process, as well as at the pre-start meetings, and even earlier during the tender process, I would have expected Apex to have raised concerns about compliance with the firefighting lift standards. Again, as to the second paragraph, I reiterate that my view is that according to industry good practice at the time, the lifts should have complied with firefighting lift standards, in so far as it was reasonably practicable and so I would disagree with Warren Jenchner.
49. In response to Warren Jenchner's comments replying to question 5, I reiterate my conclusions in my previous report and my opinion has not changed. Furthermore, I note that Warren Jenchner states that the lifts were not new lifts, but he states earlier that they had to comply with EN 81-1 which is a standard which only applies to new lifts. In my view, this demonstrates an inconsistency as to whether he considers that the lifts were new lifts or not.
50. In response to Warren Jenchner's answer to question 6, I consider I have already addressed these matters. I note that Warren Jenchner accepts that, at the stage of Project 1, there was an opportunity to improve the firefighting capacity of the lifts. I have no further comments in relation to questions 7 or 8.
51. Overall, the further information in Warren Jenchner's statement does not change my opinion as set out in my initial report.

C. TMO

C.1 Evidence of Robin Cahalarn

52. In my original report I referred to the unsigned statement of Robin Cahalarn {TMO00873798}. I have now seen the signed statement dated 8 October 2020 {TMO00879767}. There are two very minor amendments to this statement at paragraphs 9 and 10 but these amendments do not change my opinion or comments on this statement in any way.

C.2 TMO Policy and Procedure on Lift Safety, Breakdown and Trap In

53. It has been brought to my attention that there are a number of TMO policies and procedures on lift safety, breakdown and trap in which I had not previously seen. I have reviewed the following documents:

| URN | Description |
|---------------|--|
| {TMO00899279} | Lift Breakdown & Trapping Procedure Note - Version 2 dated 28 January 2009 (Update to include lift trappings) Author/Owner: Robin Cahalarn |
| {TMO00899287} | Lift Breakdown & Trapping Procedure Note - Version 3 dated 14 April 2010 (Update lift number, 80 Elm Park Gdns removed) Author/Owner: Robin Cahalarn |
| {TMO00880413} | Lift Breakdown & Trap In Policy and Procedure for the TMO Version 3 dated 14 April 2010 Update lift number, 80 Elm Park Gardens removed Author: R Cahalarn |
| {TMO00880415} | Lift Breakdown & Trap In Policy and Procedure for the TMO Version 3 dated 14 April 2010 Also states on front page Version 4, 18/07/11, changed to incorporate lift safety policy and amendments Contains track changes Author: R Cahalarn |
| {TMO00880416} | Lift Breakdown & Trap In Policy and Procedure for the TMO Version 4 dated 19 July 2011 Amalgamation of Lift Safety Policy, Procedure Statement issued to Estate Staff, change in LFB role/responsibilities Author: R Cahalarn J Borra |
| {TMO00880418} | Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 4 dated 19 July 2011 Amalgamation of Lift Safety Policy, Procedure |

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| | Statement issued to Estate Staff, change in LFB role/responsibilities Author: R Cahalarn J Borra |
| {TMO00880419} | Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 4 dated 19 July 2011 Amalgamation of Lift Safety Policy, Procedure Statement issued to Estate Staff, change in LFB role/responsibilities Author: R Cahalarn J Borra |
| {TMO00880420} | Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 5 dated 8 August 2011 Items raised following meeting held 4/8/11 Author: R Cahalarn J Wray J Borra |
| {TMO00880421} | Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 6 dated 17 August 2011 Items raised at meeting 17/8/11 Author: R Cahalarn J Wray J Borra |
| {TMO00880424} | Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 6 dated 17 August 2011 Items raised at meeting JB/RC/JW/AM 17/8/11 Author: R Cahalarn J Wray J Borra |
| {TMO00880422} | Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 6 dated 17 August 2011 with tracked changes Items raised at meeting 17/8/11 |

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| | <p>Author: R Cahalarn J Wray J Borra</p> |
| {TMO00880423} | <p>Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 6 dated 17 August 2011 with tracked changes Items raised at meeting 17/8/11 Author: R Cahalarn J Wray J Borra</p> |
| {TMO00880425} | <p>Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 7 dated 1 September 2011 Final feedback from KF re electrical appliance testing/ KPI & Keystone reference Author: R Cahalarn J Wray J Borra</p> |
| {TMO00880426} | <p>Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 8 dated 27 September 2011 Reference to statute added (asbestos) Author: R Cahalarn J Wray J Borra</p> |
| {TMO00880427} | <p>Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 8 dated 27 September 2011 Reference to statute added (asbestos) Author: R Cahalarn J Wray J Borra</p> |
| {TMO00880428} | <p>Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 9 dated 13 December 2011</p> |

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| | <p>Procedure consolidation where trap-in attendance by Contractor delayed</p> <p>Author: R Cahalarn</p> <p>J Wray</p> <p>J Borra</p> |
| {TMO00880429} | <p>Lift Safety, Breakdown & Trap In</p> <p>Policy and Procedure for TMO Staff</p> <p>Version 9 dated 13 December 2011</p> <p>Procedure consolidation where trap-in attendance by Contractor delayed</p> <p>Author: R Cahalarn</p> <p>J Wray</p> <p>J Borra</p> |
| {RBK00058227} | <p>Lift Safety, Breakdown & Trap In</p> <p>Policy and Procedure for TMO Staff</p> <p>Version 10 dated 20 June 2012 with tracked changes</p> <p>Feedback from lift engineer</p> <p>Signed off by H&S Committee</p> <p>Author: R Cahalarn</p> <p>J Wray</p> <p>J Borra</p> |
| {TMO00880430} | <p>Lift Safety, Breakdown & Trap In</p> <p>Policy and Procedure for TMO Staff</p> <p>Version 11 dated 20 June 2012 with tracked changes</p> <p>Feedback from lift engineer</p> <p>Signed off by H&S Committee</p> <p>Author: R Cahalarn</p> <p>J Wray</p> <p>J Borra</p> |
| {TMO00849330} | <p>Lift Safety, Breakdown & Trap In</p> <p>Policy and Procedure for TMO Staff</p> <p>Version 11 dated 20 June 2012 with tracked changes</p> <p>Feedback from lift engineer</p> <p>Signed off by H&S Committee</p> <p>Author: R Cahalarn</p> <p>J Wray</p> |

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| | J Borra |
| {TMO00880431} | Lift Safety (Passenger, Goods and Fireman's) Policy and Procedure 23 September 2013 |
| {TMO00880432} | Lift Safety, Breakdown & Trap In Policy and Procedure for TMO Staff Version 12 dated 21 January 2014 Deletion of emergency release by Estate Services Assistant Author: R Cahalarn J Wray J Borra |
| {TMO00880433} | KCTMO Lift Safety Policy & Procedure February 2014 Janice Wray |
| {TMO00880434} | KCTMO Lift Safety Policy & Procedure Version 12 dated February 2014 Deletion of emergency release by Estate Services Assistant Revision to provide more detail re legislative requirements Janice Wray |
| {TMO00880435} | KCTMO Lift Safety Policy & Procedure Version 13 dated March 2014 Initiators Janice Wray J Borra A Cheney |
| {TMO00880436} | KCTMO Lift Safety Policy & Procedure Version 13 dated March 2014 Initiators Janice Wray J Borra A Cheney |

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| {TMO00880440} | KCTMO Lift Safety Policy & Procedure Version 14 dated June 2017 General refresh Authors Janice Wray J Borra A Cheney |
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C.2.1 2012 Policy

54. The 2012 Policy {TMO00849330} was the first policy out of the list set out in the table above, which was brought to my attention. I therefore reviewed the 2012 policy first and have commented on it below. I subsequently reviewed the older versions of the policy (set out in the table above) and had no further comments to make arising out of that review. Therefore, I have only commented in detail upon the 2012, 2014 and 2017 policies.
55. The 2012 policy {TMO00849330} is headed:

KENSINGTON & CHELSEA TMO

LIFT SAFETY, BREAKDOWN & TRAP IN POLICY & PROCEDURE

Latest Working Document Dated 20th June 2012 Version Eleven

56. Much of the document concerns maintenance and health and safety when using or maintaining the lifts.
57. Sections 10 and 11 concern maintenance:

10.0 MAINTENANCE

- 10.1** All lifts, hoists and stair lifts are to be inspected periodically by a competent engineer at the periods required by statutory regulations, British Standards and manufacturers' instructions. Inspections are to be recorded.

11.0 INSPECTION & TESTS

- 11.1** Testing and inspections are to be arranged and records kept of the results for all equipment in accordance with statutory regulations, British Standards and Codes of Practice. Where manufacturers' instructions supplement the statutory requirements, additional tests are to be arranged. Certified equipment, i.e. lifting gear, ladders, slings, jacks, etc., are not to be used when the statutory inspection/test certificate is out of date. Routine maintenance is to be done on a predetermined basis according to the needs of the installation. Records are to be kept of all tests, inspections and maintenance.

58. I note that the policy states that all lifts should be inspected periodically at the periods required by British Standards, and such inspections are to be recorded. In my previous report I noted that BS 5588-5: 1991 recommends, at section 17.2, that firefighting lift switches should be tested on a weekly basis, which does not appear to have taken place at Grenfell Tower (see Section L.6 of my previous report). I also note in my previous report that no record of the testing of the fire control switch was kept by PDERS (see Section M of my previous report).
59. Section 17 of the document concerns fire precautions. The policy states:

17.0 FIRE PRECATIONS

- 17.1 Fire Extinguishers:** Every lift machine room is to have a carbon dioxide fire extinguisher installed on the escape side of any machinery and switch gear. Hydraulic lifts are also to have a dry powder extinguisher or foam (confined space)
- 17.2 Building Regulations:** All lifts lift machine rooms and shafts are to be constructed in accordance with the latest regulations in relation to fire.
- 17.3 Knowledge of Procedure:** All personnel having responsibility for the areas served by a lift are to know the local fire procedure.
- 17.4 Fire Alarm Action:** The lifts should not be used in the event of a fire. All passengers are to vacate the lifts, and the lifts should remain empty until the London Fire Brigade takes over.
(The TMO blocks have a "defend in place / stay put" evacuation strategy and as such only the residents in the flat where the fire emanates are required to evacuate initially.)
60. I note that at 17.2 the policy states that "*all lifts lift machine rooms and shafts are to be constructed in accordance with the latest regulations in relation to fire.*" As set out in my previous report, my view is that the lifts at Grenfell Tower did not meet the relevant standards for firefighting lifts. As to 17.4, I note that, on the night of the fire, the LFB were not able to take over the lifts, as envisaged.
61. Appendix E of the Policy concerns checks to be carried out by the caretakers and the TMO Senior Lift Engineer (Robin Cahalan).
62. The policy notes that Estate Staff/caretakers should:

Appendix E - Checks

1. Checks by Staff - Caretakers

The following visual checks are to be made by caretakers on a regular, periodic basis according to site. Reports of damage, etc., are to be reported immediately to the TMO's Senior Lift Engineer. Estate staff are to check for:

- i) Damage to and security of landing and car doors.
- ii) Breakage to vision panels, where fitted.
- iii) Damage or missing escutcheon plates at apertures in the landing doors. Missing or damaged plates which allow the doors to be opened by any instrument. Doors should only be opened by approved release keys.
- iv) Damage to buttons and indicators.
- v) Correct functioning of the alarm and door control panel buttons.
- vi) Car or landing safety edges are in good condition and working order.
- vii) That the lift levels at landing places within the tolerances allowed for each type of lift (normally +/- 20 mm).
- viii) That lift car lights are in working order.
- ix) That lift lobby lights are in working order.
- x) That all lift machine room and other lift plant doors are secure.
- xi) That tracks are clean and clear of obstructions.

63. Of most significance is the next section, which sets out the duties of the TMO Senior Lift Engineer.

2. Checks by Staff – TMO Senior Lift Engineer

Periodic checks are to be by the TMO lift engineer to cover safety gear, emergency alarms, emergency car lighting, lift machine room emergency lighting, etc., in accordance with statutory regulations.

The above to include:

- i) That all Fireman's switches, where fitted, operate correctly (monthly)
- ii) Ensure that hand winding wheel and brake release are in correct place (monthly)

64. This part of the policy suggests that the TMO Senior Lift Engineer, i.e. Robin Cahalarn, was to check the fire control switch each month. There is no evidence that such checks took place. I note that in his first witness statement at paragraph 28, Robin Cahalarn states:

- 64.1. *"In my role, I tried to visit each of the 160 lifts in the TMO portfolio every six months. Most of our lifts would have been a standard drop release key. As indicated, Zurich*

carried out checks every six months and the maintenance contractor, ILS, every month, which would include using a standard drop release key."

65. It therefore appears that the TMO Lift Policy dated June 2012 was inconsistent with the actual practice at the TMO. The witness evidence from the lift maintenance contractors is that the fire control switch was tested each month. There is no record of those tests in the documents. In any event, as set out above, the fire control switch should have been tested each week.

C.2.2 2014 Policies

66. I have also seen subsequent versions of the TMO Lift Policy, dated February 2014 {TMO00880433}, {TMO00880434}. These documents appear to be the same, apart from the first page. In this version of the policy, there is no longer any reference to checking of the fire control switch by the TMO Lift Engineer. I assume this has been removed as Robin Cahalarn no longer worked for the TMO and it appears from Robin Cahalarn's first witness statement that the TMO no longer employed an in-house lift engineer, relying instead on external contractors.
67. In relation to maintenance, the 2014 version of the Policy states:

4. STATUTORY INSPECTIONS AND MAINTENANCE

4.1 Planned Preventative Maintenance

KCTMO appoints a competent lift contractor to carry out the necessary inspection, testing, maintenance and attend lift shut-ins, breakdowns etc. Inline with the statutory requirements this contractor will be responsible for the following –

- ☐ carry out monthly maintenance checks on all lifts to ensure they are operating correctly
- ☐ ensure that all maintenance carried out is recorded on the lift log card located in the Lift Motor Room
- ☐ carry out any maintenance highlighted by the inspection as soon as practical

(This is supplemented by the regular inspections of the lift cars by the estate staff and health & safety staff.)

Lift Inspection & Maintenance - H&S Rules are set at Appendix C.

68. I note that the policy no longer refers to maintenance being carried out in accordance with the recommendations of British Standards. In my view maintenance ought to be carried out in accordance with British Standards.
69. In relation to fire precautions, the 2014 policy states:

5.5 Fire Precautions

Every Lift Motor Room to be provided with at least one easily accessible Carbon Dioxide fire extinguisher.

If there is a fire alarm in the building it must be audible in the lift motor room.

Contractors should familiarise themselves with the local fire procedure.

70. I note that the previous reference to Building Regulations, and the construction of the lifts and lift motor rooms in accordance with Building Regulations, has been removed from the 2014 policy.
71. In relation to fire procedure, the corresponding section of the 2014 policy is the same as the 2012 policy.

11. MISCELLANEOUS

11.1 Fire Procedure in residential blocks

The lifts should not be used in the event of a fire. All passengers are to vacate the lifts, and the lifts should remain empty until the London Fire Brigade takes over.
(The TMO blocks have a "defend in place / stay put" evacuation strategy and as such only the residents in the flat where the fire emanates are required to evacuate initially.)

72. I have also seen a version of the TMO Lift Policy dated March 2014 {TMO00880435}. There is nothing further of significance in this version of the policy. I have also reviewed a further version from March 2014 which again does not contain anything of significant in terms of my opinion {TMO00880436}.

C.2.3 2017 Policy

73. I have also reviewed a version of TMO Lift Policy dated June 2017 {TMO00880440}. It is not clear to me whether this document pre-dates or post-dates the fire at Grenfell Tower. Document metadata suggests that the document post-dates the fire and is dated 28 June 2017. In any event, I have reviewed the document.
74. There is nothing in this version of the policy that is materially different from the previous versions of the policy which I have reviewed. For completeness, I have set out below the equivalent parts of the 2017 policy which I have discussed previously:



KCTMO
LIFT SAFETY POLICY & PROCEDURE
Latest Working Document Dated June 2017 Version Fourteen

| | | | | |
|----------|-----------|-----------------|--|--|
| points | | | | |
| Fourteen | June 2017 | General refresh | | |

75. The first page of the policy indicates that the 2017 version of the policy was amended as part of a 'general refresh'.

76. In terms of maintenance, the 2017 policy is materially the same as the 2014 policy. It states:

4. STATUTORY INSPECTIONS AND MAINTENANCE

4.1 Planned Preventative Maintenance

KCTMO appoints a competent lift contractor **with suitably qualified, capable and experienced operatives** to carry out the necessary inspection, testing, maintenance and attend lift shut-ins, breakdowns etc.

4

In accordance with the statutory requirements, **the Lift Contractor**, will be responsible for the following –

- carry out monthly maintenance checks on all lifts to ensure they are operating correctly
- ensure that all maintenance carried out is recorded on the lift log card located in the Lift Motor Room
- carry out any maintenance highlighted by the inspection as soon as practical

(This is supplemented by the regular inspections of the lift cars by the **TMO** Estate staff and TMO Health & Safety staff.)

Lift Inspection & Maintenance - H&S Rules are set in **Appendix C**.

77. Furthermore, the relevant sections on fire precautions are materially the same as the 2014 policy:

5.5 Fire Precautions

Every Lift Motor Room to be provided with at least one easily accessible Carbon Dioxide fire extinguisher.

If there is a fire alarm in the building it must be audible in the lift motor room.

Contractors should familiarise themselves with the local fire procedure.

11. MISCELLANEOUS

11.1 Fire Procedure in residential blocks

The lifts should not be used in the event of a fire. All passengers are to vacate the lifts, and the lifts should remain empty until the London Fire Brigade takes over.

(The TMO blocks have a “defend in place / stay put” evacuation strategy and as such only the residents in the flat where the fire emanates are required to evacuate initially.)

78. Finally, the section on Estate Staff checks is materially the same as previous versions of the policy:

KCTMO ESTATE STAFF INSPECTION CHECKS

APPENDIX B

Checks by TMO Estate Staff

The following visual checks are to be made by **Estate Services Assistants** as part of their regular inspection regime. Reports of damage, etc., are to be reported immediately to the CSC.

Specifically, checks are to include:

1. Damage to and security of landing and car doors.
2. Breakage to vision panels, where fitted.
3. Damage or missing escutcheon plates at apertures in the landing doors. Missing or damaged plates which allow the doors to be opened by any instrument. Doors should only be opened by approved release keys
4. Damage to buttons and indicators.
5. Correct functioning of the alarm and door control panel buttons.
6. Car or landing safety edges are in good condition and working order.
7. That the lift levels at landing places within the tolerances allowed for each type of lift (normally +/- 20 mm).
8. That lift car lights are in working order.
9. That lift lobby lights are in working order.
10. That all lift machine room and other lift plant doors are secure.
11. That tracks are clean and clear of obstructions.
12. Signage in car to outline procedure in event of lift breakdown

C.3 TMO Fire Safety Strategies

79. In my initial report, I referred to a number of TMO Fire Safety Strategies in Section L.1. In Section L.1.1, I wrote:

79.1. *“The date of the first version of the Strategy which I have seen is somewhat unclear but, looking at the Appendices and other parts of the document, it appears to be dated September 2012, or thereabouts {TMO10001582}...”*

80. Subsequently, it was brought to my attention by the Inquiry legal team that the document which I had referenced, {TMO10001582}, was not a final version of the document. The document appears to have been an 'autosaved' file i.e. a file which had been created when a word processing programme automatically saves the file while the author is working on it. In that sense, it was not a final document and therefore I do not wish to draw conclusions on the basis of this document.
81. I have seen four other documents, dated 17 September 2012, disclosed to the Inquiry: {TMO10001585}, {TMO10001587}, {CST00001188} and {CST00001810}. The part of {TMO10001582} which I had referred to in my initial report is also contained within all of these four documents. Therefore, for my purposes only, there is no material difference between the documents relating to the lifts, and I maintain the conclusions I came to in Section L.1.1 of my previous report, specifically paragraph 378.
82. For the avoidance of doubt, I have set out a table below with the relevant parts of text from each version of the document, to confirm that there are no material differences between the documents.

| {TMO10001582} Quoted in my initial report | {TMO10001585} | {TMO10001587} | {CST00001188} | {CST00001810} |
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| <p><i>Fire Safety & TMO lifts</i></p> <p><i>As much of the housing stock is medium and high rise the TMO have a large number of residential blocks which are served by one or more lifts. Not all of the criteria which define a “fire fighting lift” are appropriate to our lifts. Specifically, for example the requirement to have a trap door in the roof the lift car etc. could be detrimental to the safety of our lifts. However, TMO lifts serving blocks of a height greater than 18meters do meet a significant number of these fire-fighting lift criteria and these are set out below –</i></p> <ol style="list-style-type: none"> <i>1. Minimum car size (1100mm wide x 1400mm deep) for 8 persons capacity (630kg).</i> <i>2. dedicated power supply serving lift (3 phase). Additionally, ancillary items such as lift alarm, lighting</i> | <p><i>18. Fire Safety & TMO lifts</i></p> <p><i>18.1 Lift Safety – information for residents who become shut in</i></p> <p><i>Information is available on the TMO’s website and is periodically reproduced in the Link magazine. Copy is available at Appendix 6.</i></p> <p><i>18.2 Fire fighting lifts</i></p> <p><i>As much of the housing stock is medium and high rise the TMO have a large number of residential blocks which are served by one or more lifts. Not all of the criteria which define a “fire fighting lift” are appropriate to our lifts. Specifically, for example the requirement to have a trap door in the roof the lift car etc. could be detrimental to the safety of our lifts. However, TMO lifts serving blocks of a height greater than 18meters do meet a significant number of these fire-fighting lift</i></p> | <p><i>Fire Safety & TMO lifts</i></p> <p><i>As much of the housing stock is medium and high rise the TMO have a large number of residential blocks which are served by one or more lifts. Not all of the criteria which define a “fire fighting lift” are appropriate to our lifts. Specifically, for example the requirement to have a trap door in the roof the lift car etc. could be detrimental to the safety of our lifts. However, TMO lifts serving blocks of a height greater than 18meters do meet a significant number of these fire-fighting lift criteria and these are set out below –</i></p> <ol style="list-style-type: none"> <i>1. Minimum car size (1100mm wide x 1400mm deep) for 8 persons capacity (630kg).</i> <i>2. dedicated power supply serving lift (3 phase). Additionally, ancillary items such as lift alarm, lighting</i> | <p><i>18. Fire Safety & TMO lifts</i></p> <p><i>18.1 Lift Safety – information for residents who become shut in</i></p> <p><i>Information is available on the TMO’s website and is periodically reproduced in the Link magazine. Copy is available at Appendix 6.</i></p> <p><i>18.2 Fire fighting lifts</i></p> <p><i>As much of the housing stock is medium and high rise the TMO have a large number of residential blocks which are served by one or more lifts. Not all of the criteria which define a “fire fighting lift” are appropriate to our lifts. Specifically, for example the requirement to have a trap door in the roof the lift car etc. could be detrimental to the safety of our lifts. However, TMO lifts serving blocks of a height greater than 18meters do meet a significant number of these</i></p> | <p><i>18. Fire Safety & TMO lifts</i></p> <p><i>18.1 Lift Safety – information for residents who become shut in</i></p> <p><i>Information is available on the TMO’s website and is periodically reproduced in the Link magazine. Copy is available at Appendix 6.</i></p> <p><i>18.2 Fire fighting lifts</i></p> <p><i>As much of the housing stock is medium and high rise the TMO have a large number of residential blocks which are served by one or more lifts. Not all of the criteria which define a “fire fighting lift” are appropriate to our lifts. Specifically, for example the requirement to have a trap door in the roof the lift car etc. could be detrimental to the safety of our lifts. However, TMO lifts serving blocks of a height greater than 18meters do meet a significant number of these</i></p> |

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| <p>etc. are also served by their own dedicated power supply</p> <p>3. 2-way communication on new lifts includes connection to Customer Service Centre / out of hours monitoring service when the lift alarm is activated</p> <p>4. Firemans Control Switch fitted. When operated this causes the lift to return to ground floor and open to allow the fire fighters access. It stops landing calls being registered and allows the authorised person e.g. LFB operative to take control of the lift (by applying a constant pressure on any call button).</p> <p>5. lift car and landing doors are composed of stainless steel that is not less than 16SWG thick and over 2 hours fire resistance.</p> <p>Additionally, the TMO</p> <p>6. has a comprehensive servicing and maintenance contract is in place for all lifts. This includes monthly inspections.</p> <p>7. employs Engineers responsible for the</p> | <p>criteria and these are set out below –</p> <p>1. Minimum car size (1100mm wide x 1400mm deep) for 8 persons capacity (630kg).</p> <p>2. dedicated power supply serving lift (3 phase). Additionally, ancillary items such as lift alarm, lighting etc. are also served by their own dedicated power supply</p> <p>3. 2-way communication on new lifts includes connection to Customer Service Centre / out of hours monitoring service when the lift alarm is activated</p> <p>4. Firemans Control Switch fitted. When operated this causes the lift to return to ground floor and open to allow the fire fighters access. It stops landing calls being registered and allows the authorised person e.g. LFB operative to take control of the lift (by applying a constant pressure on any call button).</p> <p>5. lift car and landing doors are composed of stainless steel that is not less than</p> | <p>etc. are also served by their own dedicated power supply</p> <p>3. 2-way communication on new lifts includes connection to Customer Service Centre / out of hours monitoring service when the lift alarm is activated</p> <p>4. Firemans Control Switch fitted. When operated this causes the lift to return to ground floor and open to allow the fire fighters access. It stops landing calls being registered and allows the authorised person e.g. LFB operative to take control of the lift (by applying a constant pressure on any call button).</p> <p>5. lift car and landing doors are composed of stainless steel that is not less than 16SWG thick and over 2 hours fire resistance.</p> <p>Additionally, the TMO</p> <p>6. has a comprehensive servicing and maintenance contract is in place for all lifts. This includes monthly inspections.</p> <p>7. employs Engineers responsible for the</p> | <p>fire-fighting lift criteria and these are set out below –</p> <p>1. Minimum car size (1100mm wide x 1400mm deep) for 8 persons capacity (630kg).</p> <p>2. dedicated power supply serving lift (3 phase). Additionally, ancillary items such as lift alarm, lighting etc. are also served by their own dedicated power supply</p> <p>3. 2-way communication on new lifts includes connection to Customer Service Centre / out of hours monitoring service when the lift alarm is activated</p> <p>4. Firemans Control Switch fitted. When operated this causes the lift to return to ground floor and open to allow the fire fighters access. It stops landing calls being registered and allows the authorised person e.g. LFB operative to take control of the lift (by applying a constant pressure on any call button).</p> <p>5. lift car and landing doors are composed of stainless steel that is not less than</p> | <p>fire-fighting lift criteria and these are set out below –</p> <p>1. Minimum car size (1100mm wide x 1400mm deep) for 8 persons capacity (630kg).</p> <p>2. dedicated power supply serving lift (3 phase). Additionally, ancillary items such as lift alarm, lighting etc. are also served by their own dedicated power supply</p> <p>3. 2-way communication on new lifts includes connection to Customer Service Centre / out of hours monitoring service when the lift alarm is activated</p> <p>4. Firemans Control Switch fitted. When operated this causes the lift to return to ground floor and open to allow the fire fighters access. It stops landing calls being registered and allows the authorised person e.g. LFB operative to take control of the lift (by applying a constant pressure on any call button).</p> <p>5. lift car and landing doors are composed of stainless steel that is not less than</p> |
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| <p><i>supervision and monitoring of the contract / contractors.</i></p> <p>8. <i>has the Council's Insurers, Bureau Veritas, carry out 6-monthly inspections which include a full safety check.</i></p> <p>9. <i>Neighbourhood Management staff (Estate Services Assistants, porters, inspectors and Estate Services Team Leaders) and Health & Safety staff carry out regular estate inspections which include visual inspection of the lift car and testing of the lift alarm.</i></p> <p><i>Attached at Appendix 7 is a comprehensive list of all TMO lifts (fire fighting lifts as described above are indicated by bold type).</i></p> | <p><i>16SWG thick and over 2 hours fire resistance.</i></p> <p><i>Additionally, the TMO</i></p> <p>6. <i>has a comprehensive servicing and maintenance contract is in place for all lifts. This includes monthly inspections.</i></p> <p>7. <i>employs Engineers responsible for the supervision and monitoring of the contract / contractors.</i></p> <p>8. <i>has the Council's Insurers, Bureau Veritas, carry out 6-monthly inspections which include a full safety check.</i></p> <p>9. <i>Neighbourhood Management staff (Estate Services Assistants, porters, inspectors and Estate Services Team Leaders) and Health & Safety staff carry out regular estate inspections which include visual inspection of the lift car and testing of the lift alarm.</i></p> <p><i>Attached at Appendix 7 is a comprehensive list of all TMO lifts (fire fighting lifts as described above are indicated by bold type).</i></p> | <p><i>supervision and monitoring of the contract / contractors.</i></p> <p>8. <i>has the Council's Insurers, Bureau Veritas, carry out 6-monthly inspections which include a full safety check.</i></p> <p>9. <i>Neighbourhood Management staff (Estate Services Assistants, porters, inspectors and Estate Services Team Leaders) and Health & Safety staff carry out regular estate inspections which include visual inspection of the lift car and testing of the lift alarm.</i></p> <p><i>Attached at Appendix 7 is a comprehensive list of all TMO lifts (fire fighting lifts as described above are indicated by bold type).</i></p> | <p><i>16SWG thick and over 2 hours fire resistance.</i></p> <p><i>Additionally, the TMO</i></p> <p>6. <i>has a comprehensive servicing and maintenance contract is in place for all lifts. This includes monthly inspections.</i></p> <p>7. <i>employs Engineers responsible for the supervision and monitoring of the contract / contractors.</i></p> <p>8. <i>has the Council's Insurers, Bureau Veritas, carry out 6-monthly inspections which include a full safety check.</i></p> <p>9. <i>Neighbourhood Management staff (Estate Services Assistants, porters, inspectors and Estate Services Team Leaders) and Health & Safety staff carry out regular estate inspections which include visual inspection of the lift car and testing of the lift alarm.</i></p> <p><i>Attached at Appendix 7 is a comprehensive list of all TMO lifts (fire fighting lifts as described above are indicated by bold type).</i></p> | <p><i>16SWG thick and over 2 hours fire resistance.</i></p> <p><i>Additionally, the TMO</i></p> <p>6. <i>has a comprehensive servicing and maintenance contract is in place for all lifts. This includes monthly inspections.</i></p> <p>7. <i>employs Engineers responsible for the supervision and monitoring of the contract / contractors.</i></p> <p>8. <i>has the Council's Insurers, Bureau Veritas, carry out 6-monthly inspections which include a full safety check.</i></p> <p>9. <i>Neighbourhood Management staff (Estate Services Assistants, porters, inspectors and Estate Services Team Leaders) and Health & Safety staff carry out regular estate inspections which include visual inspection of the lift car and testing of the lift alarm.</i></p> <p><i>Attached at Appendix 7 is a comprehensive list of all TMO lifts (fire fighting lifts as described above are indicated by bold type).</i></p> |
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C.4 LFB Email regarding walkway fire control switch

83. Document {LFB00000850} has been brought to my attention. This is an email between two LFB employees – Alastair Jackson and Suhail Dadabhoy – dated 17 July 2014. The text of the email is:

FW: Grenfell tower access

Sent: Mon 7/28/2014 8:56:28 AM (UTC+01:00)

From: HALLISSEY, DANIEL

To: *North Kensington

All

FYI Can you all make a familiarisation visit please?

From: JACKSON, ALASTAIR
Sent: 17 July 2014 13:51
To: DADABHOY, SUHAIL
Cc: HALLISSEY, DANIEL
Subject: Grenfell tower access

Suhail,

As per a request from my station manager I visited Grenfell tower today to look over the proposed new access for firefighters. On arrival I met with project manager, Simon O'Connor, who showed me what they were proposing to do. Currently the AFA panel, dry riser and lift override control is all located through the main lobby on the ground floor. After talking to Simon it was decided that logistically it would be best if the AFA panel and dry riser to remain where they are but that they move the lift control to the walkway level. The AFA panel and dry riser will be sectioned off to allow full access for fire crews.

Simon informed me they intended to create a new main entrance at the walkway level which will give full access to the lifts. It is here they intend to put the lift over ride control as the lifts will no longer go down to the ground floor due the works they are carrying out in that area.

The proposed date at which point the new layout will take effect is the 7th of August, I suggest all watches visit to familiarise themselves with the new layout.

Simon O'Connor's phone number is: [REDACTED] and he is more than happy to accommodate crews wishing to conduct a familiarisation visit.

If you require any more information please don't hesitate to contact me.

FF Alastair Jackson
North Kensington (G27)
Green Watch

Tel: [REDACTED] ext: [REDACTED]



84. This email refers to a 'lift override control'. In my view it is likely that this is a reference to the fire control switch.
85. In my previous report in Section Q.1.2, paragraphs 530 to 542, I concluded that the evidence available to me at that time suggested that the fire control switch was originally located on the ground floor but a new switch was installed on the walkway floor temporarily because of the building works occurring. In my previous report I was unable to conclude when this was likely to have happened.
86. This email provides further confirmation that a new fire control switch was likely installed on the walkway floor due to the building works. The email suggests that this took place in August 2014. As set out in my previous report at paragraph 538, the evidence suggests that the ground floor fire control switch had been reconnected by August 2016.

C.5 Email regarding Trellick Tower fire control switch

87. An email dated 16 March 2012 {TMO10037573} between Janice Wray and Lornette Pemberton from KCTMO has also been brought to my attention. The email states:

· Two separate visits to Trellick - one at the request of Neighbourhood Management to inspect the disused laundry room and the car park areas to assess suitability for a forthcoming councillors / RBKC visit. Second visit, accompanied by our senior lift engineer, to investigate concerns raised following attendance at the block by firefighters from the local LFB station. Specifically these related to a faulty FB override switch etc. which have now been resolved & LFB advised.

88. The email states that LFB had concerns about a faulty fire override switch at Trellick Tower. This email dates from 2012, it relates to a different building, I do not know what type of fire control switch was installed at Trellick Tower, and I do not know what the alleged fault with the switch was and therefore I consider it to be of limited significance.
89. In terms of placing this email in context, it may also assist the Inquiry to refer to an email chain which was referenced in the chronology of my original report (page 27), at {TMO00855611} which stated:

From: Janice Wray [mailto:jwray@kctmo.org.uk]
Sent: 18 July 2013 14:11
To: Richard Bourke
Subject: RE: Grenfell Tower Lifts

Richard

Appreciate your comprehensive response. Grateful if you could advise on one simple point please – how should the LFB operate this switch ? I was on site recently with them and witnessed them turn the key in both directions (panicking) as they were unclear of what to do and further they were not sure when the lifts had transferred to their control and when they were still available to passengers for normal use. Therefore, if I could provide the LFB with very simple instructions on how they should proceed I think that would be helpful them and would reduce the likelihood of our lift becoming damaged etc.

Please advise

Thanks

Janice

Janice Wray
TMO Health, Safety & Facilities Manager

90. This email refers to the lifts at Grenfell Tower and suggests that the LFB had issues in 2013 with operating the fire control switch. There is not enough information for me to comment on whether this was likely due to a failure by LFB to use the correct drop key, or to use the switch properly or a fault with the switch itself.
91. I also note that in an email dated 17 July 2013, Richard Bourke comments that the fire recall function had been tested on that day and was operational. I cannot be sure whether the reference to fire recall function is a reference to the automatic fire recall function or the

manual fire control switch but given the context of the email (concerns about the manual fire control switch) I consider it most likely that this is a reference to the manual switch.

From: Richard Bourke [mailto:Richard.Bourke@independentliftservices.co.uk]
Sent: 17 July 2013 15:45
To: Don Ruredzo; Janice Wray
Cc: Tony Wagstaff; Dawn Purvis
Subject: RE: Grenfell Tower Lifts

The fire recall function was checked by our engineer today and was found to be fully operational.

D. Further evidence relating to the fire recall function

D.1 RGE Certificates

92. In my previous report, in Section J.1.6 (paragraphs 347 to 351) I concluded that it appeared likely that an automatic fire recall function was installed at Grenfell Tower as part of the Project 1 lift works, i.e. in 2006. I also concluded in Section L.5.1 (paragraphs 437 to 453) that the available evidence suggested that this system was disconnected at some point, but I was unable to conclude when this happened. In any event, no such system operated on the night.
93. Three further documents have been brought to my attention relevant to this issue, listed in the table below. Each document is entitled 'Service/Maintenance Certificate' and has been produced by RGE Services. The documents appear to be test certificates of the smoke control system but the smoke control system is outside of my expertise. On each certificate, in the box 'Input/Output Units' the certificates refer to 'lift control' twice and 'lift recall' in the final document, as set out in the table below.

| URN | Description | | | | | | | | | | | | | | | |
|----------------------|---|--|--------------------|--------------|--------------|--------------------------|----------------------|-----------|---------|-----|--------------------|---------------------------------|------------|------------|------------------|----|
| {TMO00879760} | RGE Services - Service/Maintenance Certificate – 12 August 2013 | <table><tr><th>SYSTEM DESCRIPTION</th><th>IF YES, TYPE</th></tr><tr><td>Door Magnets</td><td>230v + 24v (3)</td></tr><tr><td>Sounders/Bells/Voice</td><td>24v Bells</td></tr><tr><td>Beacons</td><td>N/A</td></tr><tr><td>Input/Output Units</td><td>Door, Vent + lift control</td></tr><tr><td>Cable Type</td><td>FP200 + M1</td></tr><tr><td>UPDATED LOG BOOK</td><td>ts</td></tr></table> | SYSTEM DESCRIPTION | IF YES, TYPE | Door Magnets | 230v + 24v (3) | Sounders/Bells/Voice | 24v Bells | Beacons | N/A | Input/Output Units | Door, Vent + lift control | Cable Type | FP200 + M1 | UPDATED LOG BOOK | ts |
| SYSTEM DESCRIPTION | IF YES, TYPE | | | | | | | | | | | | | | | |
| Door Magnets | 230v + 24v (3) | | | | | | | | | | | | | | | |
| Sounders/Bells/Voice | 24v Bells | | | | | | | | | | | | | | | |
| Beacons | N/A | | | | | | | | | | | | | | | |
| Input/Output Units | Door, Vent + lift control | | | | | | | | | | | | | | | |
| Cable Type | FP200 + M1 | | | | | | | | | | | | | | | |
| UPDATED LOG BOOK | ts | | | | | | | | | | | | | | | |
| {TMO00879761} | RGE Services - Service/Maintenance Certificate – 7 November 2013 | <table><tr><th>SYSTEM DESCRIPTION</th><th>IF YES, TYPE</th></tr><tr><td>Door Magnets</td><td>24v window vents on gate</td></tr><tr><td>Sounders/Bells/Voice</td><td>24v Bells</td></tr><tr><td>Beacons</td><td>N/A</td></tr><tr><td>Input/Output Units</td><td>(5) Vent control + lift control</td></tr><tr><td>Cable Type</td><td>FP200 + M1</td></tr><tr><td>UPDATED LOG BOOK</td><td>ts</td></tr></table> | SYSTEM DESCRIPTION | IF YES, TYPE | Door Magnets | 24v window vents on gate | Sounders/Bells/Voice | 24v Bells | Beacons | N/A | Input/Output Units | (5) Vent control + lift control | Cable Type | FP200 + M1 | UPDATED LOG BOOK | ts |
| SYSTEM DESCRIPTION | IF YES, TYPE | | | | | | | | | | | | | | | |
| Door Magnets | 24v window vents on gate | | | | | | | | | | | | | | | |
| Sounders/Bells/Voice | 24v Bells | | | | | | | | | | | | | | | |
| Beacons | N/A | | | | | | | | | | | | | | | |
| Input/Output Units | (5) Vent control + lift control | | | | | | | | | | | | | | | |
| Cable Type | FP200 + M1 | | | | | | | | | | | | | | | |
| UPDATED LOG BOOK | ts | | | | | | | | | | | | | | | |

| | | | | |
|---------------|---|---------------------------|---|------------------------------|
| {TMO00879753} | RGE Services - Service/Maintenance Certificate – 7 February 2014 | SYSTEM DESCRIPTION | | IF YES, TYPE |
| | | Door Magnets | | window vents |
| | | Sounders/Bells/Voice | | 24v Bells |
| | | Beacons | | N/A |
| | | Input/Output Units | ① | smoke control + 4 fire alarm |
| | | Cable Type | | FF200 + M1 |
| | | UPDATED LOG BOOK | | Yes |

94. These maintenance certificates suggest to me that there was a system of automatic lift recall and that this was connected to the smoke control system until, at least, February 2014. As set out in my previous report in Section L.5.1, it appears that by September 2015 this system had been disconnected, although there appears to have been confusion surrounding this.

D.2 RINA Report

95. The smoke extraction system falls outside the scope of my report and my expertise. However, I have reviewed a further expert report received from the Metropolitan Police Service {MET00072161}. The report concerns the reconstruction and testing of the Grenfell Tower smoke extraction system carried out by RINA Tech UK Limited. However, I note that this report refers to investigations carried out as to whether there was any connection between the lifts and the smoke extraction system.
96. The report explains at page 5 that:
- “The smoke extraction system in the tower was controlled by a programmable logic controller (PLC) housed in a Master panel located in the ground floor Hub room. This system also communicated with the building management system (BMS), situated in the basement. The BMS was responsible for controlling the boiler system.”*
97. The PLC was extracted and examined. The report goes on to state at page 10 that:
- “The program refers to each floor of the Tower as a fire zone. Each fire zone had three inputs, a firefighter’s override switch (FOS), a pressure sensor (PS), and a smoke detector (SDE).”*
98. At page 11, the report states (underlining added):
- “The program is designed to read inputs from all floors and control the dampers and ventilation fans accordingly.*
- No inputs, outputs or other references to the lift control were found in the program.”*
99. My understanding of this part of the report is that the programmable logic controller was not programmed to control or interact with the lifts in any way.
100. Further on page 11, the report states (underlining added):

"In the event of a fire being detected by a smoke alarm, the outputs of the logic system:-

Controlled the ventilation using the Master Panel relays, and over Modbus communication

Fan speeds

Isolation vents

Smoke dampers

Operated a relay in the Master Panel labelled FDR1 which

Activates the auto dial

Sends a signal to the BMS

Activated a high pitch audible signal from the HMI (also activated if an error in the system is detected)

Displayed scrolling text on the HMI with the location of the smoke

The logic program did not include any references to a lift connection or a building wide audible alarm/siren."

101. Again, this part of the report confirms that there was no connection between the lifts and the smoke extraction system and its detectors.
102. In Section 10, Discussion, the report confirms again at page 25 that:
"The installed system was not programmed to provide any control or signal to the lifts in the tower in the event of a fire."
103. This conclusion is repeated on page 26 in Section 11, Conclusions, and in the Executive Summary on page 2.
104. Overall, the RINA report confirms that there was no programmed connection between the smoke extraction system and the lifts. This confirms the conclusions I had reached in my previous report regarding the lack of an automatic fire recall function.
105. In my previous report, I also noted the findings of BRE's investigations set out in a report dated 10 February 2020, {MET00065879}, Appendix 8 of my report, which primarily looked at the smoke control system. At section 2.6 the report considers whether there was a connection between the lift controller and the smoke detection system. In summary, the findings of the report are that the relevant cables were all disconnected, with straight cut ends.
106. Overall, the RINA report confirms that there was no connection between the lifts and the smoke extraction system. At paragraph 451 of my previous report I noted that the BRE report dated 10 February 2020 {MET00065879} found that there was no physical connection between the lift controller and smoke detection system. The RINA report appears to confirm that there was no programmed connection between the lift controller and the smoke extraction system either.

E. Additional witness statement of Michael Burke of calfordseaden

107. I have seen an additional witness statement produced by Michael Burke, a former employee of calfordseaden {CAL00000049}.
108. In my previous report at Section K (paragraphs 362 to 371) I commented on the involvement of calfordseaden. I concluded that calfordseaden did not have a duty to flag the lifts' non-compliance with relevant legislation, standards and codes, but that Michael Burke should not have included a reference in his March 2015 report to the lifts' compliance with British Standards. I also concluded that Michael Burke should have tested the fire control switch.
109. I have now reviewed the additional statement of Michael Burke dated 18 December 2020. In this statement, he sets out at paragraph 4 the scope of his brief:
- "My survey was therefore intended to provide an indication of the general condition and reliability of the lifts and identify any maintenance or repair work, such as replacing worn parts, which could be done to help provide a more reliable lift service to residents during the period of the forthcoming building works."*
110. The scope set out in paragraph 4 is somewhat narrower than the brief which appears to have been set out in the correspondence which I referred to in my original report at paragraphs 362 to 364. It is matter for the Inquiry to decide whether the statement of Michael Burke's brief as set out in his second witness statement is accurate.
111. Assuming that the statement at paragraph 4 above is an accurate statement of Michael Burke's brief, I note that Michael Burke now accepts that he should not have stated in his March 2015 report that: *"The lifts comply with the current British Standards and Health & Safety requirements applicable at the time of the installation/refurbishment"*. This is consistent with my opinion.
112. Furthermore, I note that at paragraphs 21 to 28 I note that Michael Burke does not accept that he should have tested the fire control switch. Assuming that his brief was as set out in paragraph 4 of this second statement, I would now accept that Michael Burke was not required to check the fire control switch during this survey. The scope of his brief set out in paragraph 4 was to check the condition and reliability of the lifts, and I do not consider that checking the fire control switch was a requirement of this survey. I therefore have no criticism of Michael Burke.

F. Additional witness statement of Michael Fallis-Taylor of PDERS

113. I have seen an additional witness statement produced by Michael Fallis-Taylor {PDR00000052}, which addresses a number of additional questions posed by the Inquiry.

114. In paragraph 3 of his witness statement, Mr. Fallis-Taylor accepts that there is no evidence of a condition and asset report having been produced for the Grenfell Tower lifts, even though the Service Information and Preambles required such a report to be produced. This is in line with my conclusions within the original report that such a condition and asset report ought to have been provided. I also note that, although there may well be some crossover in terms of what monthly service visit reports and the condition and asset report record, their scopes and purposes are different. As such, it cannot be assumed that material that would be within the more substantial initial report would always be picked up in the monthly reports.
115. In paragraph 9 of Mr. Fallis-Taylor's supplementary statement, he disagrees with the observation in my original report to the effect that the initial survey ought to be carried out by a senior technical surveyor, rather than the lift engineer assigned to that maintenance route. I take Mr. Fallis-Taylor's point that the seniority of member of staff is not the crucial issue; however, I maintain that this individual's professional focus/expertise is very important. It would not be contrary to industry practice to have a technical surveyor (i.e. even if not a senior technical surveyor) carry out this function, but I remain of the view that it is not common/normal for a maintenance engineer to carry out the initial survey (especially on a large maintenance contract such as this). Having said all this, given that PDERS appears to accept that it had failed to carry out the initial survey at all, the seniority/specialism of the individual attending to this task is not particularly material.
116. Mr. Fallis-Taylor's statement deals in some detail with the impact of the LEIA Code of Practice referenced in my original report. In summary, his view is that this Code did not create the practical expectation of the incoming maintenance contractor recording, as part of the initial survey, what type of lift was installed (i.e. full fire firefighting lift or not), because this Code was not incorporated as part of the contract between TMO and PDERS.
117. Whether or not that is (as a matter of contract law) correct is not within my area of expertise. However, in my professional experience the LEIA Code has such significance within the industry that, in the absence of legislation or British Standards relevant to the specific issue, it is the key document guiding good practice. On that basis, my view in relation to the impact of the LEIA Code on the practical expectations for PDERS when taking on the contract remains as set out in my original report.
118. In paragraph 22 of the witness statement, Mr. Fallis-Taylor seeks to explain why the same/similar comments about recommended work appeared in multiple maintenance reports over a period of time. He states that, to proceed with the work, the client would need to specifically instruct PDERS to undertake the work. In this respect, it is correct that some recommended actions would incur a separate charge and so would need to be authorised by the client; this may include remedial works as the result of ongoing building works in the building. However, more routine maintenance tasks (such as adjustments for the lift doors) would be included in the contract price and so no separate instruction/permission would be required.

119. Unless specifically mentioned above (and now with the benefit of Mr. Fallis-Taylor's supplementary witness statement), my conclusions about PDERS' involvement remain as stated in my original report.

G. Witness Statement of Keith Wilson of the LFB

120. At paragraphs 591-593 of my original report, I referred to the testing undertaken by Andre Horne, including in relation to exhibit DER/22. Keith Wilson's witness statement {MET00077769} explains how the keys comprising exhibit DER/22 (supplied to Andre Horne by LFB) were obtained.
121. The statement confirms that DER/22 provides an example of the lift keys supplied to firefighters on their appliances. While this witness statement is helpful in this respect, it does not change my analysis of the testing undertaken by Andre Horne as set out in the original report.
122. I note in Keith Wilson's statement, at page 3, LFB policy 633 {LFB00000178} is mentioned. I have reviewed this policy which relates to firefighting lifts. In particular, Appendix 3 of the policy is of interest. I note that it states:
- 3 The term "Fire-fighting lift" describes a lift installed to BS EN 81-72: 2003, BS 5588 part 5 or BS 9999, and is a lift fitted with additional protection, functions, and controls that enable it to be used under the direct control of the fire service when fighting a fire. The fire-fighting lift is a development of the type of lift known as a "fireman's lift". Although existing "fireman's lift" installations may in some circumstances be refurbished, in new buildings and those under going significant changes, the aim should be to provide lifts that comply with the current codes of practice. Further information can be sourced from BS EN 81-72 2003 – Lifts: Fire-fighters lifts.
123. The statement that the aim in buildings undergoing significant changes is that they should be provided with lifts which comply with current codes is particularly interesting as it accords with my own views, as set out in my previous report.

H. Maintenance and British Standards

124. An issue has been brought to my attention regarding the standards relating to maintenance in British Standards. In my initial report, I considered in Section E.2.3, page 69, the recommendations in British Standard 5588-5: 1991 relating to maintenance. I noted that:

"Clause 5 - Routine inspection and maintenance | 17.2 - Recommendations says:

"The following schedule of routine inspection and maintenance should be followed, in addition to any servicing recommended by manufacturers or installers.

...

(b) Weekly, operation of the firefighting lift switch, and operation of any mechanical ventilation or pressurization systems.”

...

(d) 6-monthly, inspection of fire mains and associated valves, etc. (see clause 38 of BS 5306-1: 1976) and inspection of the firefighting lift (see BS 5655-10).

(e) Annually, operational testing of the firefighting lift controls as described in C.1, and verification of the minimum pressure differential, maximum door opening forces, and open-door airspeed criteria, in pressure differential smoke systems.”

125. As noted in my report at paragraph 85, page 76, BS 5588-5: 1991 was replaced by the 2004 edition in November 2004. BS EN 81-72: 2003 was published in 2003. BS 5588-5: 2004 states that all recommendations regarding firefighting lifts in BS 5588-5: 1991 have been removed which are now covered in BS EN 81-72: 2003.
126. BS EN 81-72: 2003 does not refer to maintenance or provide recommendations in this regard. All of these standards were considered in my original report.
127. BS EN 81-72: 2015 {BSI00000824} was published in 2015 and, in Annex J, {BSI00000824/48} states:

Annex J (Informative)

Maintenance requirements

In order to ensure the safe and reliable operation of the firefighters lift it is essential that proper planned maintenance is carried out on a regular basis; typically monthly.

Maintenance of such firefighters equipment requires a joint effort by the person responsible (RP) for the day to day operation of the building and the lift maintenance contractor.

The RP should organize regular checks of the lift to ensure it operates in accordance with the instructions provided by the installer. These would normally include:

- operation of the firefighters lift switch (typically weekly) to check the lift returns to the fire service access level, parks with its doors open, and that the lift does not respond to landing calls;
- if the lift is connected to a building management systems or fire detection system, check to ensure that the lift responds to the instruction from the BMS or detection system;
- simulation of a failure of the primary power supply (typically monthly) to check changeover to the secondary supply and operation from the secondary supply. If the secondary supply is from a generator, it should energize the lift(s) for at least 1 h;
- a full test of the firefighters lift operation (typically annually and arranged by the RP with the lift maintenance contractor) from the firefighters lift switch and BMS/ detection system, operation from the secondary power supply to check the full firefighting facilities including communication systems. This should check to ensure the lift can be driven to any required floor and that on arrival at a floor it only opens its door when instructed to do so and then stays at the floor with its doors open;

128. Crucially, this standard repeats the recommendation in BS 5588-5: 1991 that the fire control switch should be tested weekly and that there should be a full test of the firefighters lift operation each year.
129. It appears that between the removal of BS 5588-5: 1991 (in November 2004) and the introduction of BS EN 81-72: 2015, there was no standard which explicitly set out

maintenance recommendations. However, I would have expected a person with the relevant responsibilities to have considered BS 5588-5: 1991 in light of this gap in the standards. Furthermore, by 2015 the position was clear, as set out in Annex J.

130. I also note the LEIA Technical Guidance document 24 which is contained at Appendix B of the WSP Report {RHO00000004/137}. The document is not dated, however, there is a revised version of the document¹ which states that the original was published in 2011, and therefore I assume that the document at Appendix B of the WSP report is dated 2011. The second paragraph of the document makes it clear that the document contains recommendations relating to firefighting and fireman's lifts.
131. This LEIA Guidance Document echoes the recommendations I noted above, namely that fire control switches should be tested weekly, and annually there should be a full operational test of the firefighting lift system.
132. The document also states:

Lift contractor responsibilities.

To maintain the lift and its features in accordance with the contract and to correct or report any issues to the customer.

To liaise with the customer for a yearly test of the Evacuation or Fire-fighting lift to be conducted and to issue a report of the test results to the customer. An example report form follows. Please note the example is for a Fire-fighting lift and a different report would need to be compiled, along similar line, for other special service features such as Evacuation service.

133. I have seen no evidence that PDERS, the lift contractor, liaised with TMO regarding a yearly test of the firefighting lift system or issued a report, an example of which is given in the document, shown below.

¹ <https://www.leia.co.uk/wp-content/uploads/2019/12/TGN24rev2-BS-8899-and-fire-fighting-lift-testing.pdf>

Annual Fire-fighting lift condition report

Name of the company making the examination
Address
Contact name
Contact details

Building name
Address
Lift reference number
Customers lift identification number or name

Date of test

Name of the special service feature checked e.g. Fire fighting service.

- | | | |
|---|-----|----|
| a) Did the lift recall to the fireman's main landing without undue delay? | Yes | No |
| b) Did the lift on arrival at fireman's main landing stand with doors open? | Yes | No |
| c) Does the lift respond correctly to car calls entered? | Yes | No |
| d) Are landing calls disabled? | Yes | No |
| e) On arrival at a floor do doors operate as intend? | Yes | No |

Note Fire fighting lift door open in response to door open button. Fireman's lift doors open automatically.

- | | | |
|---|-----|----|
| f) Is lift connected to a building alarm or BMS system? | Yes | No |
| g) Was the reaction of the lift to an Alarm or BMS signal tested? | Yes | No |
| h) Was the reaction of the lift to loss of supply tested? | Yes | No |
| i) Do all indicators relevant to the special service operate correctly? | Yes | No |
| j) Is the special feature working correctly? | Yes | No |

If the answer to any question is No provide details of the problem and corrective action required by customer.

Name of company representative

Signed on behalf of

I. The 'missed opportunity' to consider upgrading to firefighting lift as part of Project 2

134. At paragraph 465.3 of my first report, I concluded that: "Project 2 was a missed opportunity for the TMO to consider whether it was possible to upgrade the lifts to full firefighting standard, and they should have considered the possibility at this stage."

135. I have now reviewed a letter {LFB00040080} from Steve Turek, Assistant Commissioner for Fire Safety Regulation to Heads of Housing of all London Boroughs, and ALMOs and social housing landlords dated 17 February 2014 and titled “Advice on Smoke Ventilation Systems and Maintenance of Lifts for Fire Service Use in Residential Blocks of Flats”.
136. In addition to providing helpful guidance about the distinctions between a ‘fireman’s’ lift and a firefighting lift, as well as explaining that the former may not be useable past the initial stages of a fire, the letter goes on to make the following recommendation:
- “It is also recommended that where buildings have been provided with “fireman’s” lifts that consideration is given to upgrading these to fire-fighting lifts designed and installed to BS EN 81-72, particularly where a significant finding has been made within the fire risk assessment about the suitability of the lift present.”*
137. As stated in the first report, I have not seen recorded evidence of TMO’s consideration of upgrading the lifts to firefighting lifts as part of Project 2. Similarly, I have not seen evidence that the above letter prompted consideration of such an upgrade, as the LFB recommended.
138. This reinforces my conclusion in the first report that Project 2 was a ‘missed opportunity’ by the TMO to assess the viability of such an upgrade.

J. Further review of WSP Report

139. I have further reviewed the report produced by WSP dated August 2018 {MET00019973} which is referred to in my original report and appended to my report at Appendix 3.
140. Section 7 of the report sets out the findings on Site Visit 2, dated 18 April 2018. I was not personally present at this site visit. In Section 7.2, Machine Room, the report notes:

- The incoming earth wire to the left hand isolator, Lift H091, was wrapped with insulation tape which was hidden inside the conduit. The earth wire was possibly too short and had been extended.



141. Furthermore, at Section 10.1 ‘Site Visit 2’ the report states:

“The incoming earth wire to the main isolator of lift H091 was extended and wrapped with insulation tape before being concealed inside the conduit. This is poor / bad practice. The earth wire should have been replaced during the modernisation works.”

142. The purpose of an earth wire is to ensure safety and reduce the risk of electrocution. The earth wire provides a path back to the source of the main electrical panel in the event of a fault and will trip a circuit breaker or blow a fuse. The isolator of a lift is, in simple terms, the 'on/off' switch for the lift, allowing the lift to be isolated for, for example, carrying out maintenance.
143. In my original report I did not comment on this particular finding by WSP. Whilst I acknowledge the concerns around workmanship, the earth wire does not have a bearing on the operation of the lift generally, and therefore did not affect its operation on the night of the fire, and therefore was not considered further by me.

K. Debris and the fire control switch

144. In my original report, I considered the fire control switch in some detail.
145. I concluded at 597.3 that *"The fire control switch was jammed with building debris, but with forceful manipulation with a fitting key the fire control switch would probably have worked."*
146. I concluded at paragraph 598 that I could not come to a safe conclusion as to why CM Secrett was unable to take control of the lifts on the night.
147. I stated at paragraph 598 that: *"The main possibilities, in my view, are set out below, but I do not consider that I can come to a conclusion as to which of these possibilities is more likely or not."*
- 598.1. Possibility 1: CM Secrett was unable to take control of the lifts as a lift drop key of incorrect dimensions was used which could not operate the switch.
- 598.2. Possibility 2: CM Secrett was unable to take control of the lifts as the fire control switch was faulty in some other, unidentified way.
- 598.3. Possibility 3: CM Secrett was unable to take control of the lifts as the fire had affected the lifts in some way, such that the fire control switch did not work."
148. In relation to possibility 2, in particular, I have considered the possible effect of the debris on the operation of the fire control switch.
149. First, I have reviewed the evidence available as to the debris on the fire control switch.

WSP Metropolitan Police Operation Northleigh Site Investigation Report Project No. 70042523 Date: August 2018 Appendix 3

150. During Site Visit 2, on 18 April 2018, WSP observed:
- "The fireman's switch was difficult to operate.*
- The faceplate was removed to determine the reason for failing to operate the switch.*
- We discovered that the mechanism was seized and damaged/deformed."*
- {RHO00000004/107}.

151. I have considered WSP's observations. My understanding is that they could not operate the fire control switch with their express drop key. It is difficult to know with any more detail exactly what damage/deformation or seizing they observed in the fire control switch as it is a high-level report. The report does not mention observation of debris in the switch. The report also does not specify the dimensions of the express drop key used. Overall, I was not present at this testing and I do not know details of the examination undertaken by WSP so it is difficult for me to comment further.

BRE Briefing Note, dated 1 March 2019 - Appendix 5

152. I was present at this testing which took place on 15 February 2019 along with a number of other people listed at the start of the report. The report noted:

"Corrosion

** The MPS visual examination of BJG/74 indicate a build up of builders' material on the switch casing and also the micro switch (Photo 14) was jammed. It appeared to be a wall plaster used during the works.*

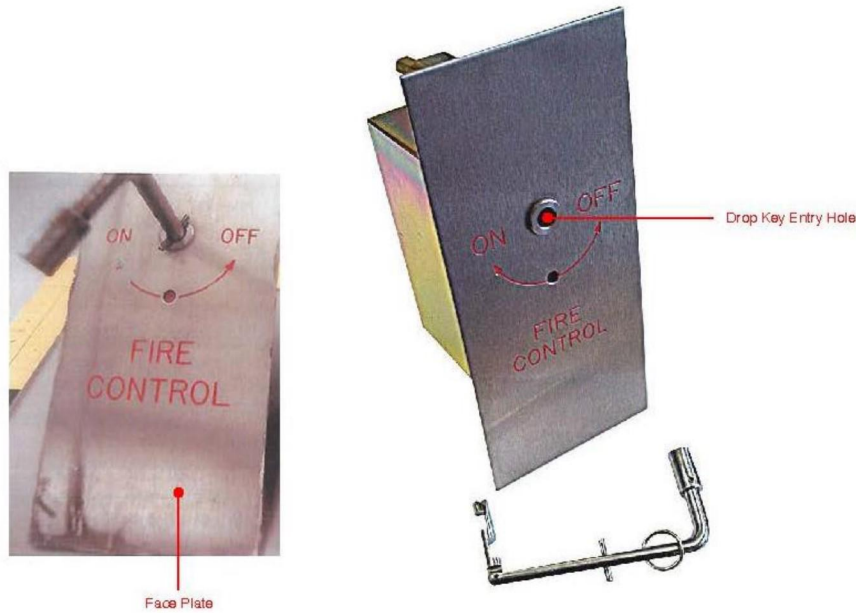
** During the examination the micro switch became free and the microswitch operated. It is not known what caused the micro switch to jam, but there were plaster grains on the work bench.*

** It is considered that the build up of builders' material on the top of the switch was from the original works and not caused by the extraction of the switch. This is also my opinion.*

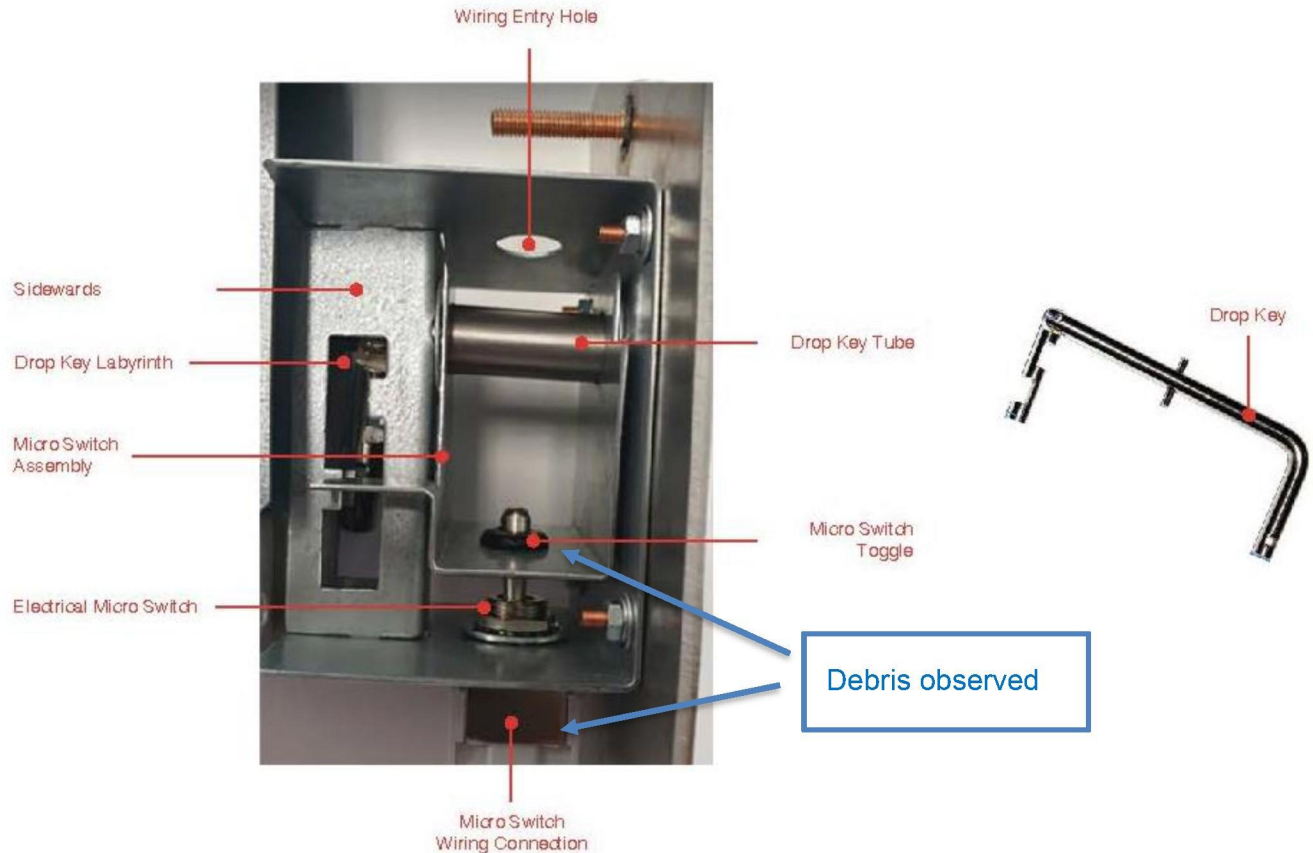
** The micro switches installed on BJG/74 and ER/2 operated correctly when the jam was cleared. This was proved by using a digital multimeter provided by BRE." {RHO00000004/232}.*

"Internal examination - The micro switch to BJG/74 initially was jammed and did not operate. During the examination this switch became free and operated correctly. It is not known what caused this micro switch to jam. It is not known if the micro switch was jammed on the night of the fire." {RHO00000004/234}.

153. I have included two diagrams which identify the elements of a fire control switch.
154. This diagram shows the front of the fire control switch, i.e. the faceplate. It also shows the drop key entry hole.



155. The next diagram shows the mechanism of a fire control switch.
156. In terms of how a fire control switch works, the express drop key is inserted into the hole at the front of the fire control switch. The express drop key travels through a tube and drops down into the labyrinth box. The labyrinth box is designed to ensure that only a key of the correct dimensions can be used to operate the mechanism. This protects against vandalism or improper use. On either side of the labyrinth box are two 'cheeks' which are sometimes called 'side wards.' When the drop key is turned (either left or right), it turns the mechanism which turns the microswitch either left or right.
157. A micro switch is a small, very sensitive switch which requires minimum force to activate. Because they are reliable and sensitive, micro switches are often used as a safety device. They require no maintenance and they rarely need replacing due to their long life. When operated, the microswitch connects the lift controller to the fire control system. It is located inside the faceplate and at the bottom of the fire control switch inside a sealed plastic casing.



158. We observed deformation of the side wards which is discussed separately in my previous report and the other reports in the Appendices. As set out above, we also observed debris on the switch casing and the micro switch. I have indicated in the diagram where this debris was observed.
159. At this testing, we inserted an express drop key into the switch. The switch did not immediately operate but with some manipulation the debris on the micro switch cleared and we were able to operate the fire control switch. By 'manipulation' I mean that we turned the drop key left to right a few times, i.e. we toggled the switch, and the debris cleared. We did not clear the debris by cleaning the micro switch itself, the debris was cleared when we operated the fire control switch with the drop key.
160. I cannot remember exactly which person operated the switch (it was not me) but they would have been an adult of ordinary strength. The force required to operate this fire control switch appeared to be slightly more than the force required to operate a new fire control switch of a similar design. From my recollection, it did not require excessive force and it did not take an excessively long amount of time to get the switch to work. However, it is difficult for me to say the level of force required more precisely because it was not me who carried out this specific testing.
161. In terms of the amount of debris, when we cleared the switch, the debris fell onto the desk. I would very roughly estimate this quantity as approximately a quarter of a teaspoon.

However this is a rough estimate based on sight and we did not formally measure the amount of debris.

162. It is difficult to know exactly what the debris was made of but its size and appearance was similar to grains of salt. It looked like dried wall plaster. I cannot say how the debris got into the fire control switch.
163. Overall, in my view, considering the amount and size of debris on the switch and the testing carried out, if an ordinary authorised adult had used a fitting express drop key in the fire control switch, and had used a reasonable amount of force, it is likely that the debris would have cleared, as it did for us in the testing.

Andre Horne's report dated 12 November 2019 – Appendix 7

164. This report sets out the findings from two sets of testing – the first testing occurred on 15 February 2019 and is the same testing which is described in the Report of testing carried out at BRE dated 1 March 2019 (Appendix 5), set out above. Pages 2-3 of Mr Horne's report describe this testing. From page 3, Mr Horne's report also sets out the findings of further testing which was carried out on 29 July 2019.
165. In relation to the testing carried out on 15 February 2019 at BRE, Mr Horne's report notes:
- "When an attempt was made to toggle the switch to the On condition, the switch frame arms were found to be jammed. They did not move freely. Inspection as to the cause revealed that there was some debris evident on the frame which appeared to be dirt/mortar/sand possibly from the construction of the building. It could not be determined if some of this debris had become dislodged during the removal, transportation and storage of the panel to cause the jam or if it had been jammed prior to removal from the building. After some gentle manipulation by hand it moved freely. In our opinion, forceful manipulation of a fitting key would have moved the switch frame arms.*
- ... My conclusion at this stage was that the side wards and switch frame arm on the Off side were bent due to the use of an ill-fitting key and the use of excessive force. The bent side wards and switch frame arm did not cause the jam experienced at the start of the examination. I was able to turn a key with the correct dimensions in either direction to turn the electronic switch On or Off."*
- {RHO00000004/255}.
166. This sets out Mr Horne's observations of the debris which was found on the micro switch. He uses the terminology 'switch frame arms' but in my opinion this is a reference to the same part of the fire control switch. As he notes in his report, with gentle manipulation the switch frame arms moved freely. Furthermore, he concludes *'in our opinion, forceful manipulation of a fitting key would have moved the switch frame arms.'*
167. In my view, I would reiterate the conclusion I set out above, that the amount of force needed to clear the debris was a reasonable amount of force from an adult person.
168. I note that in Section 6 of the WSP report, which describes Site Visit 1, on 15 March 2018, in Section 6.1 the report states:

“Visual inspection of the fireman’s control switches at both the ground and walkway levels.

Visually they had not been damaged by either the fire or water. It was recommended that both switches were removed from site and further examined off site.”

169. My understanding of this evidence is that the fire control switches remained in situ at Grenfell Tower from the date of the fire until at least 15 March 2018.
170. I cannot say when the switch became jammed, i.e. whether it was (i) before the fire (ii) during the fire (iii) after the fire but before the removal of the switch from the building or (iv) after the removal of the switch from the building.
171. In conclusion, in terms of observations which may assist the Inquiry:
 - 171.1. There was debris found on the fire control switch which caused the switch to jam but was cleared with manipulation using an express drop key of the correct dimensions to fit the switch.
 - 171.2. If an express drop key had been used which was not of the correct dimensions to operate the fire control switch, the switch would not have worked, regardless of whether this debris was present or not.
 - 171.3. If the debris had been present during the fire, and an express drop key of the correct dimensions had been used, the debris should not have prevented the operation of the fire control switch, but it would have slightly increased the time to activate the fire control switch.

L. Conclusion

172. I trust that these additional observations are of assistance to the Inquiry. None of the further evidence reviewed has led me to change or reconsider any of my key conclusions as set out in my original report.

DECLARATION

I understand that my duty in providing this written report and evidence to assist the Inquiry, and that this duty overrides any duty to any other party. I confirm that I have no conflict of interest of any kind, other than any which I have already set out in this summary of findings. I do not consider that any interest which I have disclosed affects my suitability to give expert evidence to the Inquiry on any issue on which I have given evidence and I will advise the Inquiry if, between the date of this summary and the Inquiry hearings, there is any change in circumstances which affects this statement.

STATEMENT OF TRUTH

I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Signature



Name in Full: Roger Ernest Hawkins