

# **THE GRENFELL TOWER INQUIRY**

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## **SMOKE CONTROL SYSTEM OPENING STATEMENT ON BEHALF OF THE ROYAL BOROUGH OF KENSINGTON AND CHELSEA TENANT MANAGEMENT ORGANISATION (“TMO”)**

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### **Introduction**

1. The Inquiry is currently engaged in Phase 2 Module 3, which concerns the TMO’s active and passive fire safety measures, including the Smoke Control System. In Module 3 Topic 3, the Inquiry will be focussing on the Smoke Control System (‘the System’) installed at Grenfell Tower during the refurbishment project (‘the Project’) and RBKC Building Control’s approval of the System and its performance during the fire.
2. The TMO continue to express its profound sympathies and condolences to the bereaved, survivors and residents and all those affected and continue to offer their full support to the Inquiry in fulfilling its important statutory functions.
3. These Opening Submissions address matters relating to the design, installation, commissioning, inspection, maintenance, and performance of the System installed during the Project. They will not address historic matters in relation to the former system, which will be addressed in Module 3 Closing Submissions, as appropriate.
4. While a matter for the Inquiry when considering these topics, the TMO considers the Inquiry should pay particular regard to what Beryl Menzies says: that the prevailing fire safety guidance, codes and Building Regulations were based on the assumption that a fire would occur within “*one flat only at any one time*”<sup>1</sup>; and did not contemplate the possibility of concurrent fires.<sup>2</sup> Indeed, the guidance contained within Approved Document B assumes that there is a low probability that a fire will spread beyond the

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<sup>1</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_6]

<sup>2</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_6]

flat of origin and did not envisage a situation where an external spread of fire would occur in the tragic manner it did on 14 June 2017.<sup>3</sup>

5. As the relevant Regulations and fire safety guidance did not contemplate concurrent fires, it is submitted by the TMO that any smoke control system would not have been designed to address multiple, contemporaneous fires. Professor Torero specifically adverts to this, stating: *“Given the scale of the event and the number of lobbies that were simultaneously compromised by smoke ingress, a fully functioning, compliant system would have provided negligible benefits to egressing occupants.”*<sup>4</sup>
6. Any conclusions reached by the Inquiry in connection with the design, installation, commissioning, inspection, maintenance, and performance of the System should take account of these facts when reaching any conclusions.

### **Design and Installation of the Smoke Control System**

7. Several Mechanical & Electrical works (“**M&E**”), including the Smoke Control System, were included within the Design and Build Contract with Rydon. Rydon subcontracted works on the System to J S Wright & Co Limited (“**JS Wright**”), who installed the System; it appointed PSB UK Limited to provide specialist advice in relation to the System’s design and commissioning.<sup>5</sup>
8. Max Fordham LLP was appointed by the TMO to provide consultancy services, including advice in relation to M&E design, which incorporated the System.<sup>6</sup> Max Fordham provided specifications of the System to PSB.
9. The System installed during the Project had an automatic ventilation mode which, upon detection of smoke, was supposed to open dampers in the lobby of fire origin, with dampers on all other floors remaining closed.<sup>7</sup> In this way, there would have been a barrier to fire spread except on the floor of fire origin and it thereby should have

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<sup>3</sup> Approved Document B 2013 paragraph 2.3; The TMO note that this list is not exhaustive

<sup>4</sup> Professor Torero, Report 23 May 2018 [JTOR00000001\_105]

<sup>5</sup> PSB00000590; PSB00000141

<sup>6</sup> PSB00000236

<sup>7</sup> RBK00027392\_3

provided persons with protection in the event of a fire, including during firefighting operations.<sup>8</sup>

10. The System also had a Human Mechanical Interface Panel (“HMI”), allowing firefighters to retain operation of the System, thereby allowing for a central override facility.<sup>9</sup>
11. The System as designed was approved by RBKC Building Control, with a Completion Certificate for the Project being issued. A Completion Certificate for the System was also issued by PSB in May 2016, with the Certificate confirming that the System was “*fully operational, in line with the agreed specification(s).*”<sup>10</sup> The TMO comment further on the issuing of these Certificates below.
12. The Inquiry will carefully examine the conclusions Dr Lane reaches, namely: that the System did not comply with the Building Regulations;<sup>11</sup> was not designed with reference to the SCA Guide;<sup>12</sup> and did not meet the performance design criteria of BS EN 12101-6.<sup>13</sup>
13. Also, that there is ‘limited evidence’ that the performance requirements of the protected shafts at Grenfell Tower were properly considered during the design phase; and no attempt was made to assess the foreseeable circumstances which might arise regarding these shafts and to ensure that the design was sufficiently robust to address them. Dr Lane says that such considerations, including both fire resistance and the multiple performance requirements of dampers, are clearly explained in ADB 2013<sup>14</sup>.
14. The TMO notes Ms Menzies states: “*the SCA guidance was generally recognised as authoritative and relevant...*”<sup>15</sup> and further that “*the principles set out in the SCA guidance were appropriate in the circumstances.*”<sup>16</sup>

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<sup>8</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_6]

<sup>9</sup> RBK00027392\_4

<sup>10</sup> PSB00001258

<sup>11</sup> Dr Lane, Smoke Control Report Dated 26 May 2021 [BLARP20000036\_25]; being the functional requirements of Schedule 1

<sup>12</sup> Dr Lane, Smoke Control Report Dated 26 May 2021 [BLARP20000036\_25];

<sup>14</sup> Dr Lane, Smoke Control Report Dated 9 June 2021 [BLARP20000038\_38]

<sup>15</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER00000007\_122]

<sup>16</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER00000007\_124]

15. The TMO was not involved in any technical aspects of the design of the System. Having engaged a professional team to design, commission and install the System, the TMO proceeded on the basis that it was fit for purpose and compliant with all applicable regulatory standards. The fact that it was approved by Building Control served to confirm the TMO's understanding. In this context, the TMO notes the opinion of Ms Menzies, that the design for the System "*as conditionally accepted by the Building Control Body (BCB), was acceptable in principle.*"<sup>17</sup> It is noted also that the Fire Service was satisfied with the System's design proposal.<sup>18</sup>

16. Ms Menzies says there was no relevant guidance to address the design of the System, which was the modification of a retained System.<sup>19</sup> She also notes that the Building Regulation requirements B1 through to B5 are "*substantive and not prescriptive*" and further that one has autonomy to choose the route to compliance with Building Regulations.<sup>20</sup> This, it is submitted, is likely to be significant in the Inquiry's considerations.

### **Commissioning and Inspection of the System**

17. After the installation of the System, PSB was contracted by J S Wright to test and commission the System in early 2016, with PSB completing all relevant tests by 28 April 2016. Details are to be found within the Above Group Commissioning Report ('the Report'), where it is noted that "*All Systems are operating according to design.*"<sup>21</sup> PSB also issued a Completion Certificate dated 3 May 2016 noting that the System was "*fully operational in line with the agreed specification.*"<sup>22</sup>

18. It has since been suggested that the Commissioning process (and the Report) may have been deficient as the System's different operating modes were not considered; nor does

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<sup>17</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_7]

<sup>18</sup> LFB00000292

<sup>19</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_19]

<sup>20</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_19]

<sup>21</sup> P5600000224\_5

<sup>22</sup> PSB00001258

commissioning seem to have occurred with all relevant doors open, as would be the situation during firefighting procedures.<sup>23</sup>

19. RBKC Building Control accepted the Commissioning Report as indicating that the System was commissioned as per design; and thereafter a Buildings Regulations Completion Certificate dated July 2016 was issued for the Project, including the System.

20. Despite a Completion Certificate being issued, Ms Menzies notes there is no evidence to show that RBKC Building Control attended the commissioning of the System. She also criticises the commissioning, observing that no cold smoke test of the System was undertaken to demonstrate its likely performance in a fire;<sup>24</sup> nor did Building Control inspect the temperature rating of the fans;<sup>25</sup> nor the extract shaft fire dampers to ensure that compartmentation was maintained.<sup>26</sup>

21. Considering the above<sup>27</sup>, both Ms Menzies and Dr Lane opine that the Completion Certificate for the refurbishment works should not have been issued and Dr Menzies further notes that a re-commissioning of the System should have been undertaken following RBKC Building Control's request for further works to be undertaken to the System,<sup>28</sup> after the Commissioning Report was produced.<sup>29</sup>

22. To the extent the Inquiry considers the TMO's role in relation to the commissioning and inspection of the System, the Inquiry should keep in mind that it was installed and commissioned by specialists and issued with a Compliance Certificate by RBKC Building Control.

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<sup>23</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_65]

<sup>24</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_7]

<sup>25</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_62]

<sup>26</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_54/62]

<sup>27</sup> Please note that these points are not exhaustive and indicate only a few issues noted by various Experts in relation to the System

<sup>28</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_54/69]

<sup>29</sup> Beryl Menzies, Supplementary Report Dated 20 April 2021 [BMER0000007\_67]

## Maintenance of the System

23. By the night of the fire, the System was still within the relevant 12-month defect liability period, with JS Wright responsible for dealing with any maintenance issues that arose.
24. Within the defect period, JS Wright attended site on 16 May 2017, after being alerted to a fire. Mr Canaj, Lead Aftercare Engineer for JS Wright, attended Grenfell Tower that day and upon his attendance, the System appeared to be operating normally.<sup>30</sup>
25. Dave Hughes of Rydon reported two defects to JS Wright on 1 June 2017.<sup>31</sup> Mr Canaj, attended Grenfell Tower that day and noted no faults and/or defects during his site visit.<sup>32</sup>
26. A further fault was notified by Rydon, although it is understood that this fault related to the environmental mode of the AOV. It is unclear if this issue was ever resolved prior to the fire, although Dr Lane notes that it does indicate a fault with the System's operations.<sup>33</sup>
27. Along with inspections undertaken during the defect period by JS Wright, Allied Protection was appointed by the TMO to inspect and service the System as per the manufacturer's instructions on a bi-annual basis. It conducted checks on 17<sup>th</sup> January 2017<sup>34</sup> and 15<sup>th</sup> May 2017<sup>35</sup>, providing Inspecting and Servicing Certificates indicating the System was in working order. The last check on 15 May 2017 confirmed the following were in working order: the Actuators; the Control and Indicating Equipment; the Interfacing; the Power Supply; and the Wiring.<sup>36</sup> It was also confirmed that the Smoke Detectors and the Cause and Effects were tested.

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<sup>30</sup> JSW00002025

<sup>31</sup> One relating to a fire alarm alert, the other a leak in the basement at the Tower.

<sup>32</sup> JSW00002022; JSW00002025\_5

<sup>33</sup> Dr Lane, Smoke Control Report Dated 21 May 2021 [BLARP20000035\_502]

<sup>34</sup> LAK00000009

<sup>35</sup> LAK00000011

<sup>36</sup> Please note that this list is not exhaustive. Further details can be found at: LAK00000011

28. Alongside the servicing and checks undertaken by Allied Protection, TMO staff also undertook routine inspections of the System. These were not intended to be a substitute for the checks and servicing done by Allied Protection; rather they were functionality checks.
29. Specifically, Paul Steadman carried out weekly tests in which he emitted smoke from a spray canister on the ground floor of Grenfell Tower; he let this run through the System and checked the panel to establish whether the smoke had been detected across the whole System.<sup>37</sup>
30. The Inquiry also heard from Mr Steadman that he carried out monthly checks on the System, including a visual inspection of the BMS panel on the ground floor; and on primary and secondary supply lights for the communal ventilation dampers in the main tank room.<sup>38</sup> Mr Steadman signed off the Systems as '*in good working order*' as per 30 May 2017.<sup>39</sup>
31. The TMO accept that when assessing the nature and quality of the checks done by Mr Steadman, the Inquiry will consider the oral evidence he gave to the Inquiry on 17 June 2021; including what he said about his training and his understanding of the operation of the new System.
32. It is ultimately a matter for the Inquiry, but the TMO submits it had a reasonable basis for thinking that its maintenance procedures for the System were adequate<sup>40</sup>; and certainly, it was unaware of any issues relating to the smoke Systems functionality and/or performance. Allied Protection's Inspection and Servicing Certificate dated 15 May 2017, in particular, gave it confidence that the System was functioning properly.

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<sup>37</sup> TM010049875

<sup>38</sup> Dr Lane, Smoke Control Report Dated 21 May 2021 [BLARP20000035\_502]

<sup>39</sup> Dr Lane, Smoke Control Report Dated 21 May 2021 [BLARP20000035\_501]

<sup>40</sup> The TMO notes what is said in BLARP20000035\_483 regarding the content of the Building Manual.



## Performance on the Night of the Fire

33. The Inquiry will consider whether and to what extent the System functioned as expected on the night of the fire; and, if it did not function as expected, why this was; and what effect any lack of functionality had on the spread of smoke and fire through the communal lobbies.
34. Dr Lane comments on the performance of the System<sup>41</sup>, with Dr Lane concluding:
- a. in the early stages of the fire - up to 01:30 - two sets of dampers in the North shaft were probably open simultaneously (Level 4 and Level 11). This potentially changed later in the mid and later stages of the fire, when only one set of dampers at Level 11 seems to have remained opened, after the Level 4 dampers closed.
  - b. in the early stages of the fire up to 01:30, the South shaft did maintain the required performance as a protected shaft by means of one set of dampers being open only (at Level 4). This potentially remained the case in the mid stages of the fire but failed then in the later stages of the fire, when two sets of dampers opened, and remained open, at Level 11 and Level 18.
  - c. The failure of the North shaft constitutes a non-compliance with the functional requirement B3(3) because, as a result, the compartmentation to each lobby at Grenfell Tower, from the floor of fire origin (Level 4) to the top of the building, was not provided
35. Dr Lane says that this posed a significant risk to the relevant persons within the building. The TMO recognises that this is a matter of legitimate concern for the Inquiry and the TMO invites the Inquiry to consider the question of whether the System was operated correctly by LFB on the night of the fire, particularly in light of its familiarisation visits.

## Conclusions

36. The TMO recognises that the investigations in relation to the System's performance on the night of the fire is of considerable importance to the Inquiry. When doing this, the

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<sup>41</sup> Dr Lane, Smoke Control Report Dated 21 May 2021 [BLARP20000037\_80]



Inquiry is invited to specifically consider the following matters: that even a fully functioning system would have had a negligible effect on the fire; the TMO engaged a professional design team; and the System was issued with two different completion certificates, one specifically for the System and one by RBKC Building Control.