

The Statement of Paul Derek Hanson

1. I am employed by the Royal Borough of Kensington and Chelsea (RBKC) as a Senior Building Control Surveyor (fire regulations).
2. My CV is included as document (PDH/01).
3. I felt it would be helpful to include background information regarding:
 - a. Historical information regarding former Legislation (Section 20) controlling construction aspects such as 'cladding' in tall buildings; and
 - b. Records of fire safety information regarding special provisions in tall buildings; and
 - c. The RBKC Building control department organisation and use of fire consultants such as myself and the role of the 'Means of escape group'.

Historical Information Regarding Former Section 20 Control

4. Buildings over 30m such as Grenfell Tower were formerly controlled by Section 20 of the London Building Acts 1930-78, (hereafter referred to as 'Section 20').
5. This act was administered by the Greater London Council (GLC).
6. The control covered construction of buildings including internal and external fire spread and construction details such as 'cladding' - and more broader controls of the building envelope as described in the 'yellow code' guidance for Section 20 buildings (hereafter referred to as Section 20 'yellow code').
7. See (PDH/02) (excerpt from Section 20 'yellow code' describing 'cladding' (enclosures to buildings) and (PDH/03) An illustrated hand-out from a GLC tutorial illustrating non-combustible (BS476-4) cladding.
8. The GLC employed Fire specialists to deal with the construction details of Section 20 buildings, in the Building Regulations Division (BRD) as they regarded fire safety in such buildings needed specialist consideration beyond the District

14. The control of Section 20 was passed to the local boroughs and RBKC maintained a fire specialist group then known as the 'Fire Regulations Group' which continued to deal with Section 20 buildings directly and acted as consultants to the Area Surveyor (the Building Control Officer) for means of escape in case of fire under B1 of the Building Regulations.
15. At this time the means of escape sections of the London Building Acts were progressively repealed and the national Building Regulations were introduced in to London (the former GLC area). At this time the name of the Building Control Officer changed from 'District Surveyor' to 'Area Surveyor'.
16. The national Building regulations did not have any similar controls on tall and larger buildings having been developed for areas outside of large cities, where traditionally such buildings were rare and consequently problems with fire in such had not been recognized. Although large cities elsewhere in Britain has their own versions of 'Section 20'.
17. In 1987 the sections of the London Building Acts dealing with construction, including control of internal and external fire spread (including cladding) was repealed from Section 20.
18. Internal and external fire spread formerly dealt with under Section 20 passed to the Area Surveyor (the Building Control Officer) and were dealt with under B3 – B4 of the Building Regulations. The 'Fire Regulations Group' continued to deal with the remnants of Section 20 control and continued to act as a consultant to the Area Surveyor for means of escape in case of fire under B1 of the Building Regulations.
19. It should be noted that tall buildings formerly controlled under Section 20 were not identified in the guidance to the national Building Regulations (Approved Document B) as a 'special type of building'. Hence RBKC's Building Control Department's decision to pass external and internal fire spread on tall buildings over to the Area Surveyor.

20. *Note: The Hackett review has recently suggested tall buildings should be identified again as specialist buildings (although only Large Residential Buildings).*
21. RBKC 'Fire Regulations Group' therefore no longer dealt with internal and external fire spread in any type of building. However, if requested in the consultancy role the group could be consulted regarding any matter under B2-5. In practice this was not standard practice in the office and rarely done. Except for B5 (firefighting access and facilities) for new buildings.
22. The former standards for cladding were replaced and enabled lower standards supported in progressive variations of Approved Document B (see paragraph 7).
23. The 'Fire Regulations Group' became known as the 'Means of escape group' as the main area of work was advising the Area Surveyor (Building Control Officer) on means of escape covered by B1 of the Building Regulations.
24. The remnants of Section 20 were repealed in 2013 under the '*red tape challenge*', without consequential amendments to the Building Regulations to cover sprinkler provisions in buildings of a large cubical extent and firefighting access to the site of a tall or large building. B5 of the Building Regulations controls only access within the site – not to the site.

Records of Fire Safety Information Regarding Special Provisions in Tall Buildings

25. Question 1 and 2 from the Inquiry relate to historical records and I felt the following would assist the inquiry in this respect.
26. Following the abolition of the GLC, paper records of all Section 20 buildings were passed to the local boroughs who were adopting the responsibility of the building control function.
27. RBKC made microfiche of the Section 20 and Section 34/35 (means of escape) records.

28. In approximately 2006 a decision was made by RBKC Building control to destroy the Section 20 and Section 34/35 microfiche records.
29. The introduction of Approved Inspectors (the private market), caused the fragmentation of building control records, as RBKC were no longer the only building control body applicants could use.
30. Therefore, records have become fragmented or non-existent.

Background Information Regarding RBKC Building Control Department Organisation And Use Of Fire Consultants In The 'Means Of Escape Group' (MOE Group)

31. RBKC have a 'Means of escape group', which provide consultancy advice on larger projects for the following:-

B1 Means of warning and escape under the Building Regulations

B5 Access and facilities for the fire service for new buildings

Observations can be requested on other aspects of B – 2-5 but this is not standard practice and has been rarely done. Except for B5 on new buildings.

As a consultant I have no power to take direct action (following the repeal of Section 20 from the London Building Acts).

32. When I joined RBKC in 1988, the Means of escape group consisted of 5 persons, including a mechanical and electrical engineer.
33. Within the 'Means of escape group' I dealt with the South of the borough until approximately 1997 and a separate surveyor dealt with the North of the borough.
34. Over time the team was reduced through a combination of legislative changes, the impact of Approved inspectors (the private market), and later redundancies, which latterly included the loss of the Mechanical and electrical engineer. However,

RBKC unlike most local authorities and building control bodies, considered it was important to maintain a Means of escape group, which effectively became me alone in 2013.

35. An Area Surveyor can choose whether to follow the advice given or not as the Means of escape group act as consultants. Normally the advice is followed.
36. Internal and external fire spread formerly dealt with under Section 20 passed to the Area Surveyor, such requirements having been repealed from Section 20 in 1987.
37. A process of discussions/meetings often takes place with an applicant which can be:
 - a. Prior to an application being made.
 - b. may be on site to assist the Area Surveyor in obtaining agreement to the principles outlined in the observations from the Means of escape group.
38. Inspections and issue of completion certificates are not the reference of the means of escape group.
39. Specific construction details relevant to B1 including fire doors etc. are not the reference of the means of escape group, although observations can be requested on any specific details by the Area Surveyor.
40. In summary when observations are requested I deal with B1 Means of escape, and if specifically requested, other aspects, which is normally B5 on new buildings.
41. Requests for observations under B2-4 are extremely rare and since working at RBKC the Means of escape group has received one request other than B1 and B5 in 30 years (a football pitch on a roof).

Questions

1) Grenfell Tower's original design, construction, composition (completed 1974)

- a) *What was its design, construction and composition?*
- b) *What were the relevant contemporaneous Building Regulations, fire regulations,*

other legislation, guidance and industry practice?

c) Did Grenfell Tower, as originally constructed, comply with all such relevant regulations, legislation, British Standards, guidance and industry practice?

d) What assessments and decisions were made about such compliance and by whom?

42. I have no direct knowledge of these matters, and was not working for the Greater London Council (GLC) at the time.

43. In relation to question 1b I can however confirm that Grenfell Tower was controlled under Section 20 of the London building Acts 1930-78 as the height of the building was over 30m.

44. In relation to question 1c as mentioned in paragraph 28 above, Section 20 records were unfortunately destroyed. However, without evidence, my experience of working for the GLC would suggest the building would have conformed to the guidance of the Section 20 'yellow code' of practice or equivalent standards - noting that the smoke control system was unusual for the time, and not one described in the Section 20 'yellow code'. See later discussion regarding existing smoke control system in answer to question 'm' and 'n'.

2) Subsequent modifications prior to the most recent

a) In respect of each relevant later modification:

i) What was the "nature and extent of the modification?

ii) What was the purpose of the modification?

iii) What was the design and construction of the modification?

iv) What were the relevant contemporaneous Building Regulations, fire regulations, other legislation, guidance and industry practice?

v) Did Grenfell Tower, as modified, comply with all such relevant contemporaneous regulations, legislation, British Standards, guidance and industry practice?

vi) What assessments and decisions were made about such compliance and by whom?

45. I have no direct knowledge of these matters, either through working for the Greater London Council (GLC) or when employed by RBKC.

3) Modifications to the interior of the building 2012-2016

46. My involvement from 2013 with the project was to provide advice to the Area Surveyor upon request; regarding the submitted plans and details under B1 (Means of warning and escape) of the Building Regulations 2010 for the works proposed between 2012 and 2016.

a) What modifications were made to the inside of the building?

47. Due to my restricted role, I have no direct knowledge of these matters to give a complete answer as I was only aware of the proposals which are covered by B1.

b) Who made these modifications?

48. I have no direct knowledge of these matters.

c) What was the reason for the modifications?

49. Unknown.

d) What were the regulations, legislation, British Standards, guidance etc. that applied to the modifications throughout the period from initial design to completion and approval.

50. With respect to my reference under B1 (Means of warning and escape):-

The Building Regulations 2010: Schedule 1 B1 Means of warning and escape
Approved Document B – B1 Sections 1, 2 and 5.

For the lobby smoke control system: Smoke Control Association (SCA) Guidance on Smoke Control to Common Escape Routes in Apartment Buildings (Flats and Maisonettes) Revision 1: June 2012.

e) Were the modifications compliant with such regulations, legislation, British Standards (including testing requirements), guidance etc.

51. For the Items relevant to B1 (Means of warning and escape), the submitted details were shown to be compliant subject to my comments detailed on the Means of escape (MOE) Observations listed below.

Summary of observations from the Means of escape group

Preliminary application 1 (P1) 5/11/2012 (Ref: PDH/04)

Preliminary application 2 (P2) 6/12/2013 (Ref: PDH/05 & FORT00828230)

Submission 1 (S1) 10/11/2014 (Ref: PDH-06 & FORTHC0004256)

Submission 1a (S1a) 24/6/2014 (Ref: PDH-07 & FORT00828252)

Submission 2 (S2) 26/1/2016 (Ref: PDH-08 & FORT00828097)

52. The new smoke control system was designed in accordance with the principles of the Smoke Control Association (SCA) Guidance on Smoke Control to Common Escape Routes in Apartment Buildings (Flats and Maisonettes) Revision 1: June 2012. There is currently no British Standard for such systems, although they are the most commonly used systems in new large residential buildings. An explanation of 'smoke control systems' used in residential buildings is included below in paragraph 71 – 79.

53. The SCA Guide does not provide specific guidance regarding the installation of such systems in existing buildings. In an existing building there is a concern regarding the potential leakage of air that may exist in the existing structure and could ultimately affect the extract rate of the smoke control system. The extract rate could be reduced due to leakages in the structure of the existing building.

54. The SCA Guide suggests in the introduction to the document (Section 5.1), *'As with any alternative solution there are a number of methods which allow the investigation of its performance. These range from hand calculations through to more sophisticated computer models such as zone models and CFD. Each method offers different benefits with associated limitations, ranging from fast calculations with limited spatial and temporal resolution to extensive spatial and temporal resolution with extended calculation time.'*

It is the responsibility of the assessing engineer to determine which method of investigation should be used. It is recommended, however, that the technique to be used be agreed with the relevant approving authorities prior to an assessment being performed.'

55. In practice the computer modelling process such as CFD is more suitable for new buildings where the instance of leakages in the structure can be checked / accommodated as the building is built. The test in the guide when carried out on site, only confirms the extract rate determined by the computer model (it does not take into account any leakages in the existing building structure).
56. The system installers J. S. Wright did not use a computer model and proposed using an air leakage test upon completion of the installation to show that the system achieved the objective of stopping smoke affecting the stairway.
57. The air leakage test followed the procedure in BS EN 12101-6 where in the completed building a flow rate of 2 metres per second (2 m/s) with doors open is to be achieved flowing from the stairway. The intention is to demonstrate that the physical building achieves this objective and any leakage in the structure that may exist does not detract from the extract rate.
58. It should be noted that BS EN 12101-6 is a code of practice for a 'pressurisation' system where air is 'blown' into the stairway and lobbies, and the system J. S. Wright proposed was an 'extract' system - extracting air from the lobbies (a different system) - however the objective of both systems is to keep the stairway free of smoke for a fire on one floor and therefore the flow rate test was regarded as a practical solution.
59. Therefore, computer modelling was not used as it would have been difficult to have confidence for a modeller (the person constructing the model) to predict possible leakages in the existing structure with any degree of certainty.
60. The smoke control, system was commissioned (tested) by the installer J. S. Wright who provided commissioning certification confirming the installation met the

objectives for the smoke control system. I had no involvement in witnessing such tests. The commissioning results show a flow rate exceeding 2 m/s at all floor levels (Ref : FORT01225831)

61. I cannot confirm compliance on site, as inspections are not my reference (responsibility). Certification without any further inspection was the practice for mechanical and electrical smoke control systems, following the loss of RBKC's employment of the Mechanical and electrical engineer (see background information above, in paragraph 34).
62. Although commissioning certification had been issued, I knew from past experience (visiting sites with the Council's former Mechanical and electrical engineer) that there can be problems with 'inlet air' functioning properly. I suggested to John Hoban the Area Surveyor (building control officer), that we attend a working demonstration of the system. Alan Whyte from J. S. Wright (the smoke control system installers), also attended to demonstrate the system on 4/5/2016.
63. The demonstration on 4/5/2016 was limited to the sequence of operation of the system from activation of a small selection of the smoke detectors in the lobbies on a few floor levels. It did not involve a witnessing of the previously commission airflow rates etc. It was a demonstration of the sequence of operation. The sequence was as follows:

Cause	Effect
<ul style="list-style-type: none"> • Operate sample smoke detectors located in stairway common lobbies. 	The shaft ventilator in the lobby containing the triggered smoke detector should open.
	The fan activates.
	AOV at top of stairway should open
	<p>Only one shaft ventilator should open at any time, all ventilators on other floors should remain closed. The demonstration should confirm that this continues to be the case even if an automatic signal is received on floors other than the original floor.</p> <p>This is to prevent smoke contaminating the lobby on the floor above the fire floor.</p>
<ul style="list-style-type: none"> • Whilst system running – simulate mains power failure. 	Check the automatic changeover is operational for the secondary power supply.
	Check vent is still running in correct direction.

64. It was discovered that no inlet air vent was provided at Ground floor level (to serve as makeup air to the Ground floor powered lobby vent). I was later told by John Hoban (the Area Surveyor) that the missing inlet air vent had been added, this was achieved by an automatically opening vent (AOV), via a window at Ground floor level opening into the stairway, the AOV triggered by smoke detection in the common lobby at that level. Apart from the missing inlet air at Ground floor level, the demonstration showed the system operated in the correct sequence as the table above.

65. The additional window AOV for the inlet air was mentioned as required to be added in John Hoban's site notes/letter of 1/6/16 (Ref: FORT00352773). In my role as an adviser I did not make any separate record of the visit.

f) If so, were any of those inadequate and if so in what respects?

66. In terms of any performance on the day of the fire I have no direct knowledge of the performance or otherwise of the elements relevant to B1 controlled by the Building Regulations.

g) If not, what elements or aspects of the interior of the building at the time of the fire failed to comply with what elements or aspects of what regulations, legislation, British Standards, guidance, industry practice, and in each case to what extent?

67. See answer to f above.

h) Why did each such failure occur?

68. See answer to f above.

i) Who was responsible for such failures?

69. See answer to f above.

j) To what extent did the design and construction of the modifications to the interior of the building take account of the design and construction of the modifications to exterior of the building? If it did not, in what respects did it not and why not?

Design and construction of interior of the building to take account of the design and construction of exterior of the building

70. In terms of my reference the question is asking whether I took consideration of B4 External fire spread when reviewing my reference B1 Means of warning and escape. And *'if it did not in what respects did it not and why not'*.

71. Consideration was not given of B4 External fire spread when reviewing B1 Means of warning and escape, for the following reasons:-

- a. My reference in the Building Regulations Department and for the project was B1 (Means of warning and escape). Observations were not requested for B4 (External fire spread) as is normal practice.
 - b. The Building Regulations are written in a manner which separates B1, B2, B3 and B4 into separate Sections; there is no suggestion in the guidance to the Building Regulations to consider B4 when considering B1. There is an expectation that each will be satisfied independently.
 - c. Further there is no known guidance, (Approved Documents, British standards, ASFP Colour books, Smoke control Association Guides, etc.) which suggests for example that modifying the standards of B1 Means of warning and escape, to supplement a lessening in standard of B4 External fire spread, is a valid approach.
 - d. There is no research which supports such an approach, that I am aware of.
 - e. Comment: Whilst B1 - B4 are considered separately - the 'defend in place' strategy for the purpose of B1 requires that the standards of B3 and B4 (which are aimed at preventing fire spread both internally and externally) are complied with, as the approach is based on the fundamental principle that only one fire occurs on one floor and does not spread to other floors. The Building Regulations and their forerunners have never suggested a 'trade-off' between means of escape and external fire spread to allow for a lessening standard of the latter.
- k) What advice or information was available, and what assessments were made, about the components that comprise the interior of the building, their fire safety, fire-resistance and compliance with safety standards (including information or advice from manufacturers of relevant components)?*

Components - smoke control system

72. I am only able to comment upon the matter related to my reference and in this respect a 'component' would include the smoke control system.

73. The system extracts smoke from the fire affected lobby, drawing inlet air from the stairway via a natural inlet air vent as shown in figure 1 below.
74. It is paramount to understand that this extraction system is limited to a single fire on a single floor. It is based upon the fundamental principle that multiple fires or a fire spreading beyond the flat of fire origin - does not occur.
75. If a secondary fire were to occur on the floor above the flat of fire origin, the common area smoke control system will not activate at that level. In other words, an extraction system would not work over multiple floors, or be expected to. The expectation is that external fire spread will not occur between flats.
76. Given the above, the system would not assist the Fire Bridge in evacuating a building once a fire has spread beyond the flat of fire origin to a flat on the floor above.
77. This principle of using shaft ventilation systems was developed by the BRE (Building Research Establishment) in document B9204: 2002.

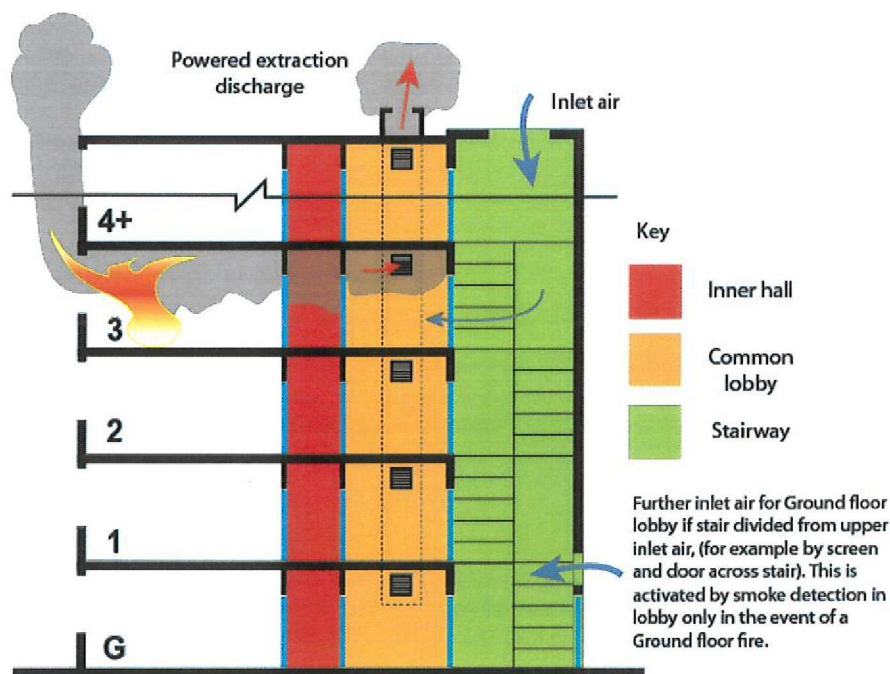


Figure 1 Section of a typical powered extract system – showing ability to prevent

smoke spread into the single stairway from a fire on one floor

I) Was specific consideration given to the combination of the interior components (e.g. fire-doors, other fire-breaks, ventilation systems, dry or wet risers or the absence of the same, stairways and access) and the fire safety, fire-retardancy and compliance with safety standards of the same?

78. Note 1: If this question relates to consideration being given to the existing building and any performance of existing provisions, this is a matter for the 'responsible person' under the Regulatory Reform (fire safety) Order 2005 and is not a matter for Building Regulations.

79. Note 2: The Building Regulations do not empower the department to make requirements on an existing situation, which is not adversely affected (Regulation 4). Matters controlled under B1 by virtue of the work being 'building work' are described below.

80. Note 3: The term 'fire-retardancy' is not currently a known industry term. It was once used in the London Building Constructional by-laws 1979, but is no longer used in the current Building Regulations.

Reconfiguration of lobbies and stairway exitway and new smoke control system.

81. In terms of the 'building work' and the installation of the new smoke control system, works in conjunction with the reconfiguration of the stairway exitway, and lobby protection needed to be maintained so that the existing building was not adversely affected, and that the new smoke control system serves the common lobbies protecting the stairway.

Fire doors

82. The overall provision of fire resisting lines including doors for the purpose of means of escape in case of fire (B1) were shown on the marked up plans I marked up and included with MOE Observations listed in item 'm' below.

83. Specific construction details of fire doors are not the reference of the Means of escape group. No request for observations on specific details was requested for this project.

Other fire breaks

84. I assume this refers to compartmentation, cavity barriers and fire stopping under B3 of the Regulations. This was not my reference.

Dry / wet riser

85. This is covered under B5 of the regulations, which was not my reference.

86. Whilst control is not my reference I was copied in to an email asking the Area Surveyor whether the Building Control Department could require changes to the existing dry riser installation. I discussed this with the Area Surveyor who confirmed we had no control, and I offered to respond to the question on his behalf. There were no powers to require changes to the existing dry riser serving the existing building unless the work adversely affected the building. See email chain (Ref: PDH/09).

87. The dry riser was originally installed when the height limit for dry risers was 60m, this later dropped to 50m. However, there are no retrospective powers under the building regulations requiring existing installations to be upgraded to modern standards, unless by virtue of the building work the installation was adversely affected (such as a new storey being added over 50m).

m) What decisions about the interior of the building were made, by whom and when?

Decisions about interior of the building

88. The consideration of a Building Regulations application is responding to proposals / decisions made by others about the interior of the building.

89. In terms of consideration of the Building Regulations application my knowledge was limited to observations I made under B1 (Means of warning and escape). See answer to 'n' below regarding chain of decision making.

Observations were made as follows:

Summary of observations from the Means of escape group

Preliminary application 1 (P1) 5/11/2012 (Ref: PDH/04)

Preliminary application 2 (P2) 6/12/2013 (Ref: PDH-05 & FORT00828230)

Submission 1 (S1) 10/11/2014 (Ref: PDH-06 & FORTHC0004256)

Submission 1a (S1a) 24/6/2014 (Ref: PDH-07 & FORT00828252)

Submission 2 (S2) 26/1/2016 (Ref: PDH-08 & FORT00828097)

90. Prior to my involvement with the project a preliminary scheme (designated by RBKC - P1 for Preliminary application 1) was submitted to the building control department, which was commented upon by my colleague in the Means of escape group Dave Gammon on 5/11/2012 (Ref: PDH/04).

A chronology of the discussions and submissions is described below

91. On 17/8/2013 the architects of the project Bruce Sounes and Neil Crawford of Studio E met John Allen (RBKC Special projects manager) and me to discuss the scheme. They were accompanied by a mechanical engineer, Duncan Campbell of Max Fordham. (Ref: PDH/10)
92. Their scheme was to change the lower levels, introducing two new levels of flats at these lower levels and some commercial development including a boxing club, nursery and office accommodation.
93. It was a single stairway building.
94. I asked about the existing lobby protection system in relation to ventilation to stairway lobbies providing protection to the single stairway.
95. My expectation was that it would be a natural ventilation system but they revealed it was a powered ventilation system. They were not sure how it worked. In 1974 when the building was constructed a powered ventilation system was rare.

96. By virtue of the Regulatory Reform (Fire Safety) Order 2005 (RRO) it was the responsibility of the 'responsible person' to ensure adequate fire safety in an existing building. This is not the responsibility of Building Control.
97. I asked if a fire risk assessment had been done under the RRO and if one had not been carried out it was suggested for the design team to recommend this to the client.
98. Whilst it is not the responsibility of the Building Control Department to consider matters or educate regarding the RRO, we always mention this as a reasonable size refurbishment can be an opportunity to address matters in the existing building under the RRO.
99. They were asking us if we could tell them if the existing smoke ventilation system was suitable. However, we have no responsibility under this legislation to decide if a system was suitable under the RRO. Our role is limited to new work, which should not make the existing situation worse.
100. It is to be noted we could not require the applicant to make the existing smoke control system any better than it was, as we have no power under the Building Regulations.
101. The Fire Brigade (the Fire Authority) enforce the above Order (RRO). As part of our building control function we have a duty to consult the Fire Authority when we consider a Building Regulations application.
102. Whilst it was not the role of Building Control to decide whether the whole building complied with the RRO, they asked us at the meeting if we could feed any questions from the architect to the Fire Authority regarding their view of the suitability of the existing smoke control system.
103. It was agreed that the applicant would provide a detailed explanation of how the smoke control system worked. As part of our consultation procedure with the Fire

Authority we could feed information to them and request their opinion on the existing system, in relation to the RRO.

104. The rest of the discussion was about reconfiguring the ground floor level stairway and how to lobby it. Their new layout was not properly lobbying the stairway. We explained how they could adjust the layout to incorporate fire resisting lobbies.
105. Subsequent action was their responsibility and they went away with the two main actions i.e. reconfigure the lobby protection to the stairway for the new layouts and the smoke control system.
106. Note: Although 'defend in place' strategy is employed in the existing building, lobby protection is necessary on the lower floors (as on all floors) to enable any occupant who wishes to escape to do so and also if the fire brigade decide to evacuate the building. The lobbies provide protection to the occupants escaping from the upper floors protecting the stairway against a fire on one level affecting the stairway.

Next Development

107. We received information on the mechanical ventilation system from Max Fordham (the mechanical engineers to the architect). Unfortunately, their description did not explain how it worked. I discussed with John Allen how to respond and there is an email chain which explains what we needed, (11/11/2013 (Ref: PDH/10)). This was intended to be a clear explanation of how the system worked so that the Fire Authority could comment under the RRO, for the existing building.
108. The job was passed to me when preliminary application P2 was submitted. But the information regarding smoke control was still vague. P2 was responded to on 6/12/2013 (Ref: PDH/05). Part of this information is included in FORT00828230 (plans omitted)).

109. At the same time there was also being considered a proposal for a new smoke control system by Max Fordham using an 'air change rate method' that I did not regard as suitable as such methods are not designed for stairway lobby protection. This was formally responded to as part of the P2 submission. (Ref: PDH/05 . Part of this information is included in FORT00828230 (plans omitted).
110. Essentially they were considering two options – retain the existing system or replace (in the latter case we would have control of the whole system as it would be new work).
111. A full Plans application was then made. However, details of the existing smoke control system were still not submitted as requested in P2; nor were details of a new system submitted.
112. I sent a description of the type of information needed to write a letter that we could pass on to the Fire Authority via the statutory consultation process. Essentially giving them a guide on how to explain the performance of the existing system for the purpose of the RRO. This was included in an Appendix to the observations I made on Submission 1 (S1) (10/11/2014 Ref: PDH/06) Part of this information is included in FORTH0004256 (plans omitted)).
113. I marked up plans electronically to show how they could configure the lobby space. We also consulted the Fire Authority on 11/11/2014 (Ref: PD/11) regarding the whole scheme and explaining the above background to the lobby powered smoke control system in an explanatory introduction.
114. We have no record of receiving a response from the Fire Authority for this consultation, (but did receive a response to a later consultation - mentioned at the end of this Section).
115. Studio E (the Architects) then advised us that they had decided to replace the existing smoke control system and would be appointing specialist smoke control installer - J. S. Wright & Co. This would then enable us to exercise control as this would be new work.

116. There was a meeting on site (24/11/2014 Ref: FORTH0004251) with the architect, Neil Crawford (Studio E) the new specialist smoke control system installer David Bradley of J. S. Wright & Co, the Area Surveyor John Hoban, a representative of Max Fordham, David Hughes (Site manager) and myself. J. S. Wright & Co have experience of installing smoke control systems in residential buildings - which was encouraging.
117. I explained we would evaluate the scheme when submitted, this became Submission 1a and was only related to the smoke control system (Ref: PDH/07) dated 24/6/2014. Part of this information is included in FORT00828252 (plans and smoke control system spec omitted).
118. There was a 2nd submission, S2 responded to on 26/1/2016 by which time they had arranged the lobby protection to the stairway correctly and included the new smoke control system, which we agreed was acceptable subject to comment made in my observations of 26/1/2016. (Ref: PDH/08) and part of this information is included in FORT00828097 (smoke control system spec omitted)).
119. We then further consulted the Fire Authority 05/2/2016 regarding the whole scheme, including the new smoke control system, and as standard practice included my observations and marked up plans. (Ref: PDH/12).
120. The Fire Authority responded on 1/4/2016 (Ref: FORT00828172) as follows.

'The Brigade has been consulted with regard to the above-mentioned premises and makes the following observations:

The Brigade is satisfied with the proposals as shown.

Other comments:

A comprehensive Risk Assessment must be carried out to cover all the changes that are being carried out.'

121. Note 1: the 'other comments' are related to the responsibilities of the client under the Regulatory Reform (Fire safety) Order, not a recommendation that Building control do a 'risk assessment' of the building. The Fire Authority letter also included a standard paragraph regarding the benefits of installing sprinklers in all buildings. Building control have no power to require sprinklers in the existing building.

122. Note 2: Building control Departments are not engaged in risk assessments which is the responsibility of the 'responsible' person' under the RRO.

123. The Fire authority consultation letter was passed to the Architect Neil Crawford of Studio E on 1/4/2016 by email. (Ref: FORT00828172 and FORT01225947)

n) What was the chain of decision-making, communication and responsibility about those matters?

Chain of decision making

124. The Building Control function is controlled by the Building Act 1984.

125. The department consists of a team of Area Surveyors, Senior Area Surveyors and the Building Control Manager (also referred to as the 'District Surveyor' in the London Building Acts), with a 'Means of escape group' who act as consultants. As explained above (paragraph 34); the group consisted at the time the Grenfell refurbishment began, of two members and during the Grenfell project reduced to one (namely me) in 2013.

126. The Area Surveyor interprets the level of control under the Building Regulations 2010 in relation to the statutory application.

127. During the process of the Full Plans application to the Building Control Department, the Means of escape group's only role is to respond to requests for observations from the Area Surveyor.

128. My involvement begins when I receive a request for observations under B1 Means of escape. An Area Surveyor can also request observations on B5 (firefighting access). This occurs on new buildings where in addition to B1, observations on B5 firefighting access is requested. In this case my consideration of B5 was limited to the smoke control system when it was decided to replace the system.
129. Observations can be requested on other aspects of B – 2-4 but this is not standard practice in the office and has been rarely done. The only example of the request for observations under B4 (External fire spread) in the last 30 years was the request for advice for a football pitch on a roof.
130. Observations could be requested by filling in a form and ticking B1, B2, B3 B4 or B5 as necessary. But where B1 only is requested (the majority of jobs) the form does not need to be filled in but simply a request made.
131. The observations are returned headed with the ‘control’ the observations refer to e.g. ‘B1 Means of escape observations’.
132. Observations are returned to the Area Surveyors by email and can include electronic marked up plans, which highlight matters for the applicant to address. The Area Surveyors and myself sit in a small open plan area, obviously allowing conversation to take place regarding applications and their progress, conversations which are generally not recorded but may be referred to in email.
133. An Area Surveyor can choose whether to follow the advice given or not; (the Means of escape group act as consultants, with no power to take direct action following the repeal of Section 20 from the London Building Acts). Normally the advice is followed. The observations are forwarded by the Area Surveyor to the applicant by email.
134. On most occasions a process of discussions/meetings take place with the applicant which may be on site to assist the Area Surveyor in obtaining agreement to the principles outlined in the observations.

135. In summary when observations are requested I deal with B1 Means of escape, and if specifically requested, other aspects, which is normally B5 on new buildings.

136. In the case of the Grenfell Tower refurbishment; B2-5 was not requested as is normal practice. In the latter stages of the project when the new smoke control system was proposed I dealt with this under B1 and B5 as it has firefighting reference, under B5 (to stop the stairway being affected by smoke from a fire on one floor).

o) What factors or motives influenced the decisions about the interior of the building?

137. Unknown as the consideration of a Building Regulations application is responding to proposals made by others about the interior of the building.

p) What if any assessments were carried out to balance such factors or motives with the safety of the residents?

138. Unknown as the consideration of a Building Regulations application is responding to proposals made by others about the interior of the building.

q) If such assessments were carried out, who carried them out, when and what did they conclude?

139. Unknown as the consideration of a Building Regulations application is responding to proposals made by others about the interior of the building.

140. My involvement from 2013 with the project was to provide advice to the Area Surveyor upon request; regarding the submitted plans and details under B1 (Means of warning and escape) of the Building Regulations 2010 for the works proposed between 2012 and 2016.

4) Modifications to the exterior of the building 2012-2016 (including: cladding and insulation)

a) What was the purpose of the cladding/insulation to the exterior of the building?

b) What was its design, manufacture, composition and method of fixing to the building?

- c) *To what extent did the design and construction of the modifications to the exterior of the building take account of the design and construction of the interior of the building? If it did not, in what respects did it not and why not?*
- d) *Was the exterior of the building (including the cladding, insulation, fixings and windows) compliant with relevant Building Regulations, fire regulations, other legislation, British Standards (including testing requirements), guidance and industry practice?*
- e) *To the extent that it was compliant with such regulations, legislation, British Standards, guidance etc. were any of those inadequate and if so in what respects, so far as relevant to the nature and immediate causes of the fire and its spread?*
- f) *If not compliant in any respect, what elements or aspects of the exterior of the building at the time of the fire failed to comply with what elements or aspects of what regulations, legislation, British Standards, guidance, industry practice, and in each case to what extent?*
- g) *Who was responsible for such failures?*
- h) *What advice or information was available, and what assessments were made, about the components that comprised the exterior of the building, their fire safety, fire-resistance and compliance with safety standards (including information or advice from manufacturers of relevant components)?*
- i) *Was specific consideration given to the combination of the exterior components (e.g. cladding, insulation, windows, and methods of fixing) and the fire safety, fire-retardancy and compliance with safety standards of the same?*
- k) *What decisions about the exterior of the building (i.e. cladding, insulation, fixings and windows) were made, and by whom and when?*
- l) *What was the chain of decision-making, communication and responsibility about the cladding, insulation, windows and fixings?*
- m) *What factors or motives influenced the decisions about the exterior of the building?*
- n) *What if any assessments were carried out to balance such factors or motives with the safety of the residents?*
- o) *If such assessments were carried out, who carried them out, when and what did they conclude?*

141. External fire spread (under B4) is not my reference.

142. My role was to act as a consultant to the Area Surveyor on the reference of B1 (Means of warning and escape). Therefore, I cannot comment on the questions above.

5) The fire and safety measures within the building at the time of the fire

To the extent that the following issues are not covered by the issues set out under Section 4 above:

- a) What were the fire resistance, prevention, mitigation, evacuation and other fire safety measures ("fire safety measures") in place at the time of the fire?*
- b) Were the fire safety measures compliant with relevant Building Regulations, fire regulations, British Standards, other legislation, guidance and industry practice?*
- c) To the extent that the fire safety measures were compliant with such regulations, legislation, British Standards, guidance etc. were any of those inadequate and if so in what respects, so far as relevant to the nature and Immediate causes of the fire and its spread?*
- d) If the fire safety measures were not compliant, what elements or aspects of the fire safety measures in place in the building at the time of the fire failed to comply with what elements or aspects of what regulations, legislation, British Standards, guidance, industry practice, and in each case to what extent?*
- e) Why did each such failure occur?*
- f) Who was responsible for such failures?*
- g) What fire risk assessments had been made in relation to Grenfell Tower in the period January 2012-June 2017, including specifically at all times during the most recent modifications?*
- h) What reports or conclusions are available concerning the same and what do they say?*
- i) In what ways was the building intended to be resistant to the spread of fire?*
- j) What was assumed (if anything) about the resistance of the building to the spread of fire?*
- k) Were any checks or assessments or inspections made as to whether the actual condition of the building matched any assumptions made?*
- l) What was the nature of such checks or assessments or inspections and who carried them out?*
- m) What decisions about fire safety measures were made, by whom and when?*

- n) What was the chain of decision-making, communication and responsibility about those matters?*
- u) To what extent did the relevant persons or organisations responsible for the fire safety of occupants of Grenfell Tower communicate with one another about their knowledge of the building and the decisions they were making?*
- p) Was any consideration given to the evacuation of disabled and other vulnerable residents, and if so, was adequate provision made for them?*
- q) What factors or motives influenced the decisions about the fire resistance, prevention, mitigation and safety measures?*
- r) What if any assessments were carried out to balance such factors or motives with the safety of the residents?*
- s) If such assessments were carried out, who carried them out, when and what did they conclude?*
- t) What advice was given to those responsible for fire safety in Grenfell Tower and how did they respond to that advice?*

143. The Building Regulations do not control the 'fire safety measures' of the existing building. Therefore, this is not my reference.

144. The purpose of the Building Regulations is to cover only 'building work' as defined by the Regulations and such work does not make the existing building worse, (Regulation 4). A Building Regulations application does not provide the department with power to require fire safety measures in the existing portions of the building, unless by consequence of an 'adverse affect' as a consequence of the building work.

145. My role was to act as a consultant to the Area Surveyor on the reference of B1 (Means of warning and escape). Therefore, I cannot comment on the questions above.

146. Comment: The Regulatory reform (Fire Safety) Order 2005 is not controlled by the Building Regulations Department.

6) Inspections

- a) What fire and other relevant inspections (including building control inspections) were carried out:
 - i) During the recent renovations; and*
 - ii) Between the completion of the recent renovations and the fire?**
- b) What were the relevant conclusions/reports from those inspections and by whom were they carried out?*
- c) Pursuant to what criteria were such inspections carried out, how frequently and by what personnel?*
- d) Were the inspections compliant with all relevant standards?*
- e) Were the fire and other safety inspections system (including any criteria applied) reasonably fit for purpose?*
- f) Who carried out the inspections, how were they trained and were they competent to do so?*
- g) What was the system for implementing conclusions/recommendations following such inspections?*
- h) Was that system operated properly or at all?*

147. Inspections are not the reference of the Means of escape group. I did no site inspections.

148. It is not normal practice in the building industry for a fire consultant/fire engineer assigned to a building construction project to carry out site inspections.

149. Therefore, I cannot comment on the questions above.

7) Governance /Management

- a) What was the legal relationship between the different persons and organisations who were responsible for fire safety at Grenfell Tower as at 14 June 2017?*
- b) As at that date how did the relationships between the different persons and organisations who were responsible for fire safety at Grenfell Tower work in practice?*
- c) As at that date had any other fires taken place at Grenfell Tower or other similar*

buildings under the authority of RBKC?

d) If so, were any investigations, reports or lesson-learning exercises carried out?

What did they conclude?

e) Were any recommendations made? If so, were they implemented? If they were not implemented, who was responsible for that decision and what reasons did they have?

150. This matter is not relevant to Building regulations.

151. Therefore, I cannot comment on the questions above.

8) Communications with residents

a) What system was there, if any, for residents to express their concerns and views about fire safety?

b) What channels of communication did it provide?

c) Was there a formal system for recording concerns and addressing them?

d) What concerns, warnings and other statements were expressed about the fire safety of Grenfell Tower by its residents or any other person before, at the time of or after the recent renovations?

e) How and to whom were any such complaints expressed?

f) What was done in response to such expressed concerns?

g) What provisions, if any, were put in place to ensure that those with language or other special needs could send and receive communications to and from the TMO and the Council about matters of fire safety or safety more generally?

152. This matter is not relevant to Building regulations.

153. Therefore, I cannot comment on the questions above.

9) Fire advice to residents 2012 to 14 June 2017

a) What advice was given to residents about fire precautions?

b) How was that advice communicated and by whom?

c) What provisions were in place to ensure that that advice had been received and understood by residents?

- d) What was the basis of the advice?*
- e) Was the advice appropriate and consistent with the then current fire safety standards and practice for high-rise residential buildings in general, and in particular where used for social housing?*
- f) Was the advice periodically reviewed and if so by whom and on what basis?*
- g) What were the conclusions resulting from any such review and were they implemented?*
- h) Were there any evacuation plans in place and, if so, what were they?*
- i) Who drew them up?*
- j) Were they independently reviewed, and if so, by whom, when and with what conclusions?*

154. This matter is not relevant to Building regulations.

155. Therefore, I cannot comment on the questions above.

I believe the content of this statement is true.

I am willing for this statement to form part of the evidence before the Inquiry and published on the Inquiry's website.

Signed:  Dated: 21/11/18.

References

PDH-01 CV Paul Hanson

PDH-02 Excerpt from Section 20 'yellow code'

PDH-03 GLC tutorials illustrating external enclosures

PDH-04 Preliminary application 1 (P1) 5/11/2012

PDH-05 Preliminary application 2 (P2) 6/12/2013. Part of this information is included in FORT00828230 (plans omitted)

PDH-06 Submission 1 (S1) 10/11/2014. Part of this information is included in FORTHC0004256 (plans omitted)

PDH-07 Submission 1a (S1a) 24/6/2014. Part of this information is included in FORT00828252 (plans and smoke control system spec omitted)

PDH-08 Submission 2 (S2) 26/1/2016. Part of this information is included in FORT00828097 (smoke control system spec omitted)

FORT01225831 Smoke control system Commissioning report

FORT00352773 (Site Notes Grenfell) Reference to retro fitted AOV (window) to Ground floor in site note and letter dated 1/6/16.

PDH-09 Existing Dry riser – email chain regarding control under Building regulations

PDH-10 (FORT00828240, FORT00828111, FORT01225896) Pre-application meeting with design team 17/8/2013 and response to information on the mechanical ventilation system from Max Fordham 11/11/2013

PDH-11 First Fire Authority consultation request 11/11/2014

FORTH0004251 'RBKC Planning and Borough Development Grenfell Tower Inspection Logs'. Includes reference to a meeting on site to discuss new smoke control system 24/11/2014

PDH-12 Second Fire Authority consultation request 05/02/2016

FORT00828172 and FORT01225947 The Fire Authority responded to Second consultation. 1/4/2016 and Fire Authority consultation letter was passed to the Architect Neil Crawford of Studio E. 1/4/2016 and confirmation of receipt

Definitions

Building Regulations Division (BRD)

Formerly the location of Fire specialists dealing with all fire safety legislation in London set up by the Greater London Council (GLC and formerly LCC), and followed the philosophy of the GLC of minimising bureaucracy for the implementation of fire safety; embracing cross borough boundaries, providing a 'one stop shop' for the range of fire safety legislation in London.

The Division were named the Building Regulations Division because the Division had power to modify the 'Building constructional by laws' (the former Building regulations in London). The 'Building constructional by-laws' were administered by the 'District Surveyor'.

The Division also consisted of:-

- the Building Regulations Engineering Group (BREG) who dealt with mechanical and electrical installations related to fire safety.*
- the Fire Brigade who advised on water services and carried out annual inspections of significant buildings such as Section 20 buildings. (The Fire Brigade were at the time part of the GLC).*
- Access to the GLC scientific branch for observations on materials.*

The Building Regulations Division were dissolved upon the abolition of the GLC in 1986.

Fire Specialist

For the purpose of this document a person employed in the Building Regulations Division (BRD) of the former Greater London Council, who had direct control of the various legislation covering fire safety in the Capital.*

** had power to take action via the courts.*

District Surveyor

The generic name given for the 'Building Control Officer' prior to the introduction of the 'Building Regulations' into London in 1986.

The name District Surveyor more properly was the person appointed as head of each boroughs District Surveyor department. The name became generic for any 'inspector' in the District Surveyors service.

Area Surveyor

Colloquial name given to the Building Control Officer following the introduction of the 'Building Regulations' into London in 1986.

Fire regulations Group / Means of escape group (MOE)

A group of Fire specialists formed by the Royal Borough of Kensington and Chelsea to continue the philosophy of the Greater London Council regarding the need for a specialist team to cover fire safety matters in tall and large buildings and means of escape in case of fire.

When repeals of legislation covering tall and large buildings took focus away from these buildings needing special consideration by Fire specialists, the group was renamed the 'Means of escape group' to cover the main area of work they then covered.

AOV

Automatic opening vent. A panel or window triggered by smoke detection to provide in the context of this document, inlet air to a powered smoke control system.

Section 20

Former control which existed for tall buildings and buildings of additional cubical extent which controlled construction (such as cladding) and was considered by a 'fire specialist' team appointed by the Greater London Council, and annually inspected the London Fire Brigade.

The GLC were abolished in 1986.

Section 20 was progressively repealed in 1987 (construction) and 2013 (remainder of provisions).

Regulatory Reform (fire safety) Order (RRO)

Regulatory Reform (fire safety) Order 2005

Legislation having retrospective control on existing buildings, controlled by the Fire Authority (who following the abolition of the GLC, became the Fire Brigade in London), with the responsibility for compliance placed upon the 'responsible person' as defined under the Act.