

Grenfell Tower Inquiry

GRENFELL TOWER INQUIRY: PHASE 2 REPORT

REPORT of the PUBLIC INQUIRY into the
FIRE at GRENFELL TOWER
on 14 JUNE 2017

The Panel:

Chairman: The Rt Hon Sir Martin Moore-Bick
Ali Akbor OBE
Thouria Istephan

September 2024

Volume 1

Part 1 – Introduction

Part 2 – The path to disaster

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Part 2 – The path to disaster

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Part 1

Introduction

Chapter 1

Introduction

- 1.1** In his introduction to his Phase 1 Report published on 30 October 2019 the chairman described the circumstances which led to the setting up of the public inquiry into the fire at Grenfell Tower on 14 June 2017. He also described the way in which the Inquiry had been organised and how it had gone about carrying out its task. Anyone who is not already familiar with those matters should refer to paragraphs 1.1 – 1.25 of that report. This second phase of the Inquiry builds on the findings made by the chairman in Phase 1 and is a direct continuation of that work. In those circumstances we do not think that it is necessary to repeat what is said in the introduction to the Phase 1 Report, but there have been some developments since it was published to which we should draw attention before turning to the substance of our report.
- 1.2** In Phase 1 the chairman set out to examine in detail the course of events on the night of 14 June 2017 with a view to identifying with as much confidence as possible what had taken place during the period between the outbreak of fire in the kitchen of Flat 16 at 00.54 and the escape of the last survivor at 08.07 that morning. The purpose of doing so was twofold: to enable those who had been directly involved in the fire, both residents and fire fighters, to give their accounts of the events of that night at the earliest opportunity and to find out as far as possible exactly what had happened during the early hours of 14 June 2017 before seeking to establish exactly what had gone wrong and why.
- 1.3** In Phase 2 we have set out to answer the question that has been at the forefront of many people’s minds: how was it possible in 21st century London for a reinforced concrete building, itself structurally impervious to fire, to be turned into a death trap that would enable fire to sweep through it in an uncontrollable way in a matter of a few hours despite what were thought to be effective regulations designed to prevent just such an event? There is no simple answer to that question, but in this report we identify the many failings of a wide range of institutions, entities and individuals over many years that together brought about that situation.
- 1.4** Following the publication of the Phase 1 report, the Prime Minister appointed Ms Thouria Istephan and Ms Benita Mehra as additional members of the Inquiry panel. In October 2019 Ms Redfearn resigned as an assessor and in February 2021 Mr John Mothersole, a former chief executive of Sheffield City Council, was appointed an assessor in her place, joining Mr Joe Montgomery and Professor David Nethercot, both of whom have continued to assist us generously with their time and advice. Needless to say, however, we remain entirely responsible for the conclusions in this report.
- 1.5** In January 2020 Ms Mehra resigned from the Panel. Mr Ali Akbor OBE was appointed in her place in October 2020.
- 1.6** In June 2022 Mr Mark Fisher resigned as Secretary to the Inquiry on his appointment as Chief Executive of the NHS Greater Manchester Integrated Care Board and was replaced by Ms Nicole Kett later that month. Her death in August 2022 after a short illness caused profound shock and sadness. In October 2022 Mr Matt Lewsey was appointed as Secretary in her place.

- 1.7** The procedure adopted in this Phase of the Inquiry has been the same as that in Phase 1. In particular, we have continued to ensure that our investigations have been as detailed and thorough as the extensive material that we have been able to gather has allowed. The chairman decided at an early stage that this phase could conveniently be divided into a number of separate modules, each reflecting an aspect of the background to the fire. That enabled the evidence to be adduced in an orderly way and minimised the need to call witnesses more than once. In most cases it also allowed expert evidence to be heard immediately after the factual evidence to which it related.
- 1.8** The Inquiry sat to hear evidence and opening and closing statements for Phase 2 for a total of 312 days. The hearings for Phase 2 began on 27 January 2020 but were interrupted almost immediately for a period of about five weeks at the instigation of certain core participants while an undertaking was obtained from the Attorney General to protect witnesses from the risk of having their evidence used against them in criminal proceedings.¹ Hearings began again in earnest on 2 March 2020 but had to be suspended on 16 March 2020 as a result of the restrictions imposed in response to the Covid 19 pandemic. Hearings resumed on 6 July 2020 and continued until 9 December 2020. During that period access to the hearing room was limited to those whose presence was essential, but the proceedings continued to be streamed and could be viewed by anyone interested in doing so.
- 1.9** Between 9 December 2020 and 8 February 2021 the proceedings were interrupted again by restrictions imposed in response to the pandemic, but between 8 February 2021 and 25 March 2021 our increasing familiarity with remote conferencing facilities and the outstanding assistance of our technical support teams at RTS Communications and Opus 2 International made it possible for us to continue hearings while observing the requirements of lockdown. On 19 April 2021 we were able to resume hearings at 13 Bishop’s Bridge Road, albeit still with restricted access. Unrestricted public access to the hearing room resumed in September 2021 and continued until November 2022.
- 1.10** As before, all witness statements and documents put in evidence during the course of the hearings have been published on the Inquiry’s website and the proceedings have been streamed live on the internet. In addition, arrangements were made for the proceedings to be video-recorded and transcribed and for access to both the video-recording and the transcript to be available through the Inquiry’s website.
- 1.11** In his introduction to the Phase 1 report the chairman explained the effect of rule 13 of the Inquiry Rules and the approach that he had decided to take to sending warning letters to those who might be subject to criticism.² In this phase we decided that we should take the same approach, but that inevitably presented us with a considerable challenge, given the number of people who were likely to face criticism of one kind or another. Between June 2023 and April 2024 the Inquiry’s solicitors wrote to 247 individuals and organisations informing them of the criticisms that we were minded to make of them and providing them with the relevant chapters of the draft report identifying the evidence on which those potential criticisms were based.
- 1.12** Between July 2023 and May 2024 the Inquiry received responses from the vast majority of those to whom warning letters had been sent, but the process as a whole took much longer than had been expected because in some cases the amount of material that a

¹ The Attorney-General’s Undertaking is at <https://www.gov.uk/government/news/attorney-general-provides-undertaking-for-grenfell-tower-inquiry>.

² Phase 1 Report Volume I paragraph 1.24.

recipient had to consider was substantial. All the responses were carefully considered and in some cases we modified our provisional conclusions in the light of them. As in Phase 1, however, for the reasons explained by the chairman in the Phase 1 Report we did not take into account fresh evidence or new arguments that could have been, but had not been, put forward during the hearings.³

- 1.13** In pursuing our investigations we have had the benefit of receiving the expert advice and assistance of a number of leading practitioners in a wide range of disciplines, all of whom provided us with written reports and subsequently gave evidence to the Inquiry at public hearings. We are most grateful to all of them for the enormous amount of time they devoted to our work and the enthusiasm which they brought to it. In most cases their opinions were not seriously challenged, but to the extent that they were, we have set out the points made in opposition to their evidence in the body of our report and have given reasons for our conclusions. Except in those cases, however, we consider that the weight of their expertise and the absence of any real challenge to their evidence justifies us in accepting their opinions unless we have some good reason not to do so. Where we have relied on their evidence we have identified in footnotes the relevant passages in their reports or oral evidence without referring to them in the body of the text.
- 1.14** Section 2(1) of the Inquiries Act 2005 expressly prohibits us from ruling on questions of legal liability, civil or criminal. That is a matter for the courts. However, section 2(2) expressly provides that we are not to be inhibited in the discharge of our functions by any likelihood of liability being inferred from any facts we find or recommendations we make.
- 1.15** When dealing with an area of activity, such as the refurbishment of Grenfell Tower, which involved a large number of organisations bound together by a web of contracts and subject to legislation in the form of the Building Regulations, it is impossible to describe the relationships between them and their individual responsibilities without referring to those contracts and the relevant regulations. We have taken the view, therefore, that to refer to them merely for what they state does not amount to determining liability and we have not expressed a view about any disputes that may exist between the parties to the refurbishment or others about their respective obligations. The contracts and the regulations say what they say and establish certain relationships; we have simply treated them as part of the context in which our findings are to be read.
- 1.16** It is not possible to identify any single cause of the tragedy; many different acts and omissions combined to bring about the Grenfell Tower fire, although some were more significant than others. With some exceptions we have not attempted to apportion blame. We have in general asked ourselves whether a particular act or omission contributed in some way to the fire and, if so, to what extent.
- 1.17** In response to the evidence that emerged during the Inquiry, all of which was published contemporaneously in one form or another, the government has already taken steps to overhaul the regulation of various aspects of the construction industry. In particular, it has prohibited the use of metal composite materials with unmodified polyethylene cores on external walls of buildings of any height, it has prohibited the use of materials that are not classed A2 (s1, d0) or better in the external walls of buildings over 18 metres in height, it has introduced new requirements for obtaining building control approval in relation to the construction and refurbishment of higher-risk buildings and has reformed the arrangements for the exercise of building control functions generally. The creation of an Office for Product Safety and Standards and the appointment of a National Regulator for

³ Phase 1 Report Volume I paragraph 1.25.

Construction Products has also been put in hand and measures have been taken to improve the competence of those engaged in the design and construction of buildings generally. To that extent, it has already taken steps to cure many of the more glaring defects in the system we have identified and the scope for making recommendations is correspondingly reduced. Nonetheless, we think there are some important areas in which improvements need to be made and others in which the action taken by the government does not go far enough. In those cases we have made recommendations for change that in our view would make a significant difference to ensuring that fires of the kind that destroyed Grenfell Tower and took the lives of many of its occupants never occur again.

- 1.18** From the earliest days of the Inquiry there have been those who have asserted that discrimination on the grounds of race or social background played a significant part in the tragedy that befell Grenfell Tower on 14 June 2017. Originally that was reflected in calls for the Inquiry to examine social housing policy generally as well as the way in which flats in Grenfell Tower had been allocated. Those calls reflected a widely held belief that people of minority ethnic and socially disadvantaged backgrounds were routinely the subject of active discrimination that took the form of making available to them low quality or unsafe housing. A large proportion of the residents of Grenfell Tower at the time of the fire were from ethnic minorities and many were socially disadvantaged. The implication was that they had been allocated flats in what was known to be an unsafe building as a result of racial and social discrimination.
- 1.19** It may well be that the Grenfell Tower fire has raised questions about social housing policy, whether in RBKC or more generally, that deserve examination, though whether a public inquiry conducted under the Inquiries Act 2005 is the most suitable method of doing so may be open to debate. To have acceded to the calls for us to undertake that task, however, would have extended the scope of the Inquiry (and the time taken to produce a report) very significantly, since, even if limited to the allocation of social housing by RBKC, it would have required an examination of the council's housing records over a period of some years. Any examination of social housing policy more widely would have extended that task enormously. As a result, the Prime Minister decided not to include those matters in the Inquiry's Terms of Reference.
- 1.20** Nonetheless, at various stages during the Inquiry we have been urged to investigate what is alleged to have been a culture of racial and social discrimination in the institutions involved in one way or another in the refurbishment, particularly RBKC and the TMO. The desire to investigate and expose discrimination of that kind flowed from the undeniable fact that a significantly disproportionate number of those who died in the fire and of those who survived the fire but whose homes were destroyed were from ethnic minorities or socially disadvantaged.
- 1.21** For the reasons we have explained, the existence of racial or social discrimination in the allocation of social housing falls outside our terms of reference, but any factors that affected the decisions that led to the creation of an unsafe building are within our scope and we have done our best to investigate them thoroughly. Our response to those who wanted us to investigate racial and social discrimination has always been that we would look out for it and that if we came across any evidence that racial or social prejudice might have affected any of the decisions that led, directly or indirectly, to the disaster, we would examine it thoroughly and publish our findings, as befits an inquiry seeking to uncover the truth.

- 1.22** We should say at once that we have seen some evidence of racial discrimination in the way in which some of those who survived the fire were treated in the days immediately following it at a time when they were at their most vulnerable and we have described what happened in Part 10 of this report. We have also seen evidence that the TMO failed over the course of years to treat residents of the tower and the Lancaster West Estate more generally with the courtesy and respect due to them. That is described in Parts 4 and 5. However, we have seen no evidence that any of the decisions that resulted in the creation of a dangerous building or the calamitous spread of fire were affected by racial or social prejudice and none of those representing the bereaved, survivors or residents has drawn any such evidence to our attention, although they have had access to all the material before us.
- 1.23** How Grenfell Tower came to be home to a disproportionately large number of socially disadvantaged people, many from ethnic minority backgrounds, is a question that lies outside our terms of reference. It must be remembered, however, that almost without exception they had been living there, in some cases for many years, before the refurbishment was ever contemplated. Many residents told us how much they liked living there. The tower was a concrete structure and before the refurbishment was largely impervious to fire. At the time most residents were allocated their flats it was perfectly safe and we have seen nothing to suggest that following the refurbishment anyone in the RBKC housing department thought it had ceased to be so. There was no question, therefore, of allocating homes to those of non-white ethnicity in a building known to be dangerous.
- 1.24** In the course of the Inquiry we have examined a very large number of documents relating to the refurbishment and many hours of testimony from those involved in designing, planning, executing and approving the work. In this report we have described in some detail the course of events that led to the disaster. We have identified many errors, due in the most part to incompetence, carelessness and a failure to take responsibility for important aspects of the work that affected fire safety. In a few cases, principally involving the manufacturers of building products, we have identified dishonesty. However, we have seen no evidence that any decisions directly affecting the design or execution of the refurbishment were affected by racial or social prejudice. Although the TMO was anxious to keep the cost of the refurbishment down, and although some of the decisions taken to achieve that end were ultimately responsible for the tragedy, we saw no evidence that any of those responsible for them was aware of their potential consequences.
- 1.25** Given the repeated urging by some of those representing the bereaved, survivors and residents to consider whether the race or social background of those who lived in the tower played a part in bringing about the disaster and the implicit assertion that it did, we think it right to make it clear that our investigations have not brought to light any evidence to support that conclusion.
- 1.26** We are only too well aware that our investigations into the fire and the production of our report have taken longer than many would have wished. However, as our work has gone on it has become increasingly apparent that the disaster was the result of shortcomings in the construction industry that were far more extensive than had previously been envisaged. As the scale of the problems became ever clearer it seemed to us that those most directly affected by the fire deserved to be given a detailed and thorough description of the circumstances that led to the fire so that they could understand how it had come about and where responsibility for it lay. We hope that they and others who read our report will be satisfied that our investigations have been as detailed and thorough as they would have wished.

1.27 An inquiry of this magnitude involves an enormous amount of work and could not be conducted without a large and well-organised team of lawyers, administrators and technical professionals. We are fortunate to have had the support throughout the duration of the Inquiry of some of the most skilled, loyal and dedicated people one could hope to find, many of whom have been working for the Inquiry since it was set up in June 2017. Some have played a very public role, while others have remained entirely in the background, but they have all played an essential part in enabling us to discharge our terms of reference. A list of those who have worked with us on our investigations can be found in Appendix C. We cannot speak too highly of their professionalism and dedication.

Chapter 2

Executive summary

- 2.1** This chapter contains an overview of the contents of our report. Our terms of reference were broad and we have followed many lines of inquiry, sometimes with unexpected results. The report is therefore inevitably lengthy and detailed. It is not possible to summarise the whole of its contents in a few pages and we have not tried to do so. The purpose of this chapter is to describe in broad terms the contents of the report and the main conclusions we have reached about the events that culminated in the tragedy at Grenfell Tower. We hope that it will assist readers in understanding the scope of the report and directing their attention to the parts of greatest interest to them. However, there is no substitute for reading the report itself.
- 2.2** For ease of reference we have referred to the contents of the report under headings that correspond to those of its various Parts.

Part 2

The path to disaster (Chapters 3 – 14)

- 2.3** In this Part of the report we describe the course of events leading up to the fire, beginning with the regulatory regime and its development in relation to the external walls of high-rise buildings. We describe the part played by the government in the form of the then Department for Communities and Local Government in the development of the statutory guidance and the investigation into the fire at Lakanal House, Southwark in 2009. We also describe the parts played by other influential bodies in creating the circumstances in which refurbishment of Grenfell Tower took place.
- 2.4** We conclude that the fire at Grenfell Tower was the culmination of decades of failure by central government and other bodies in positions of responsibility in the construction industry to look carefully into the danger of incorporating combustible materials into the external walls of high-rise residential buildings and to act on the information available to them.

The government

- 2.5** In the years between the fire at Knowsley Heights in 1991 and the fire at Grenfell Tower in 2017 there were many opportunities for the government to identify the risks posed by the use of combustible cladding panels and insulation, particularly to high-rise buildings, and to take action in relation to them. Indeed, by 2016 the department was well aware of those risks, but failed to act on what it knew. In particular, it failed to heed the warning of the Environment and Transport Select Committee in December 1999 that it should not take a serious fire in which people were killed before steps were taken to minimise the risks posed by some external cladding systems. It also failed to implement or keep under review the committee's recommendation that the large-scale test that had recently been developed should be substituted in Approved Document B for previous requirements relating to the fire safety of external cladding systems (thereby abandoning Class 0).

- 2.6** The department also failed to pay due regard to the striking results of a large-scale test in 2001 involving aluminium composite panels with unmodified polyethylene cores, which burned violently, or to take any steps either to ascertain the extent to which panels of that kind were in use or to warn the construction industry about the risks they posed. It failed even to publish the results of the test.
- 2.7** On many subsequent occasions the department was made aware that national Class 0 was an inappropriate standard by which to determine the suitability of external wall panels but allowed it to remain as part of the statutory guidance until after the Grenfell Tower fire. It could and should have been removed years earlier.
- 2.8** The review of Approved Document B carried out by the department between 2005 and 2006 provided an opportunity to clarify the guidance on compliance with functional requirement B4(1), but the language used was vague and ill-considered words were added at a late stage in the process without proper consultation.
- 2.9** Between 2012 and 2017 the department received numerous warnings about the risks involved in using polymeric insulation and aluminium composite panels with unmodified polyethylene cores. It also became aware of several major cladding fires abroad involving products of those kinds. By 2013 at the latest, it knew that Approved Document B was unclear and not properly understood by a significant proportion of those working in the construction industry and by February 2016 it had become aware that some in the industry were worried that combustible insulation and aluminium composite material (ACM) panels with unmodified polyethylene cores were routinely being used on high-rise buildings in breach of functional requirement B4. However, despite what it knew, and the warnings it received from some quarters, the department failed to amend or clarify the guidance in Approved Document B on the construction of external walls.
- 2.10** The department itself was poorly run, in as much as the official with day-to-day responsibility for the Building Regulations and Approved Document B was allowed too much freedom of action without adequate oversight. He failed to bring to the attention of more senior officials the serious risks of which he had become aware, and they in turn failed to supervise him properly or to satisfy themselves that his response to matters affecting the safety of people's lives was appropriate. It was a serious failure to allow such an important area of activity to remain in the hands of one relatively junior official.
- 2.11** The Building Research Establishment (originally known as the Fire Research Station) had been established in 1921 as a government body to carry out research into and testing of construction methods and products. After it was privatised in 1997 the department limited the scope of the advice it was asked to provide on fire safety matters. As a result, the department deprived itself of the full benefit of BRE's advice and experience. On occasions it deliberately curtailed investigations before any proper conclusion had been reached.
- 2.12** The department displayed a complacent and at times defensive attitude to matters affecting fire safety. Following the fire at Lakanal House the coroner recommended that Approved Document B be reviewed, but her recommendations were not treated with any sense of urgency and officials did not explain clearly to the Secretary of State what steps were required to comply with them. Similarly, legitimate concerns about the fire risks of cladding raised by the All-Party Parliamentary Group on Fire Safety were repeatedly met with a defensive and dismissive attitude by officials and some ministers.

- 2.13** In the years that followed the Lakanal House fire the government's deregulatory agenda, enthusiastically supported by some junior ministers and the Secretary of State, dominated the department's thinking to such an extent that even matters affecting the safety of life were ignored, delayed or disregarded.
- 2.14** During that period the government determinedly resisted calls from across the fire sector to regulate fire risk assessors and to amend the Fire Safety Order to make it clear that it applied to the exterior walls of buildings containing more than one set of domestic premises. Although it commissioned a review of the advice in the Local Government Association Guide *Fire safety in purpose-built blocks of flats* relating to the evacuation of vulnerable people, it failed to consult those who represented their interests.

The Building Research Establishment

- 2.15** BRE held a trusted position within the construction industry and was recognised both nationally and internationally as a leader in fire safety. However, from 1991 much of the work it carried out in relation to testing the fire safety of external walls was marred by unprofessional conduct, inadequate practices, a lack of effective oversight, poor reporting and a lack of scientific rigour.
- 2.16** Although BRE recognised from as early as 1991, following the fire at Knowsley Heights, that small-scale testing of the kind that provided the basis for national Class 0 did not enable a proper assessment to be made of the way in which an external wall system would react to fire, it did not draw that to the government's attention, formally or informally. Similarly, following its large-scale test of a system incorporating aluminium composite panels with unmodified polyethylene cores in 2001, BRE failed to draw the department's attention in clear terms to the way in which the material had behaved and the dangers it presented.
- 2.17** BRE's reports into the major fires at Knowsley Heights (1991), Garnock Court (1999) and The Edge (2005) were far from comprehensive and in each case failed to identify or assess important contributory factors. The reports of fires it provided to the department were characterised by superficiality and a lack of analysis, with the result that they gave the department the false impression that the regulations and guidance were working effectively.
- 2.18** There were weaknesses in the way BRE carried out tests in accordance with BS 8414 and in its record-keeping, which exposed it to the risk of manipulation by unscrupulous product manufacturers, as happened in the case of the second test carried out for Celotex, the manufacturer of the insulation specified for use on Grenfell Tower. Senior BRE staff gave advice to customers such as Kingspan and Celotex on the best way to satisfy the criteria for a system to be considered safe, thereby compromising its integrity and independence. In some cases we saw evidence of a desire to accommodate existing customers and to retain its status within the industry at the expense of maintaining the rigour of its processes and considerations of public safety. The unprofessional behaviour of some of BRE's staff was in part the result of a failure to provide them with adequate training in their responsibilities.

Part 3

The testing and marketing of products (Chapters 15 – 29)

- 2.19** One very significant reason why Grenfell Tower came to be clad in combustible materials was systematic dishonesty on the part of those who made and sold the rainscreen cladding panels and insulation products. They engaged in deliberate and sustained strategies to manipulate the testing processes, misrepresent test data and mislead the market. In the case of the principal insulation product used on Grenfell Tower, Celotex RS5000, the Building Research Establishment (BRE) was complicit in that strategy.
- 2.20** Those strategies succeeded partly because the certification bodies that provided assurance to the market of the quality and characteristics of the products, the British Board of Agrément (BBA) and Local Authority Building Control (LABC), failed to ensure that the statements in their product certificates were accurate and based on test evidence. UKAS, the body charged with oversight of the certification bodies, failed to apply proper standards of monitoring and supervision.

Arconic Architectural Products

- 2.21** Arconic Architectural Products manufactured and sold the Reynobond 55 PE rainscreen panels used in the external wall of Grenfell Tower. They were an ACM product made of two thin sheets of aluminium with a polyethylene core to provide stiffening. The material was manufactured and sold in flat sheets designed to be cut to size and attached to a metal sub-frame, either as flat panels by rivets or as three-dimensional structures, known as cassettes, by slots, making use of the force of gravity. Polyethylene burns fiercely and when used in cassette form Reynobond 55 PE was extremely dangerous.⁴ From 2005 until after the Grenfell Tower fire Arconic deliberately concealed from the market the true extent of the danger of using Reynobond 55 PE in cassette form, particularly on high-rise buildings.⁵
- 2.22** The product in its riveted form had been classed under the European classification system B-s2, d0, but from early 2005 Arconic had been in possession of test data showing that in its cassette form the product reacted to fire in a very dangerous way and could not be classified in accordance with European standards. Nonetheless, Arconic persisted in telling the market that the panels had been classed B-s2, d0 without drawing any distinction between the cassette and riveted forms.
- 2.23** By late 2007 Arconic had become aware that there was serious concern in the construction industry about the safety of ACM panels and had itself recognised the danger they posed. By the summer of 2011 it was well aware that Reynobond 55 PE in cassette form performed much worse in a fire and was considerably more dangerous than in riveted form. Nonetheless, it was determined to exploit what it saw as weak regulatory regimes in certain countries (including the UK) to sell Reynobond 55 PE in cassette form, including for use on residential buildings.
- 2.24** Despite the knowledge gained from cladding fires in Dubai in 2012 and 2013, Arconic did not consider withdrawing Reynobond 55 PE in favour of the fire-resistant version then available. Instead, it allowed customers in the UK to continue buying the unmodified product, giving them to understand that it would tell them if it was unsuitable for the use to which they intended to put it, although without any intention of doing so.

⁴ See in particular Part 11 chapter 109.

⁵ See Part 3 Chapters 16 to 21.

- 2.25** Following further testing in 2013, Arconic decided that Reynobond 55 PE would be certified as Class E only, whether used in riveted or cassette form. However, it did not pass that information to its customers in the UK or to the BBA. That was not an oversight. It reflected a deliberate strategy to continue selling Reynobond 55 PE in the UK based on a statement about its fire performance that it knew to be false.
- 2.26** In December 2014 the French testing house Centre Scientifique et Technique du Bâtiment (CSTB) classified the panels in riveted form as Class C and the panels in cassette form as Class E. However, Arconic failed to inform the BBA of those revised classifications.
- 2.27** Although Reynobond 55 PE required some degree of fabrication and could not be used in the form in which it left the factory, Arconic persuaded the BBA to issue a certificate that drew no distinction between the different forms of fixing. It concealed important information from the BBA, in particular the test data relating to the product in cassette form, that showed that it performed much worse than in riveted form. It caused the BBA to make statements in the certificate that Arconic knew to be false and misleading.

Celotex

- 2.28** Celotex manufactured RS5000, a combustible polyisocyanurate foam insulation. In an attempt to break into the market for insulation suitable for use on high-rise buildings, created and then dominated by Kingspan K15, Celotex embarked on a dishonest scheme to mislead its customers and the wider market.⁶
- 2.29** With the complicity of BRE, in May 2014 Celotex tested in accordance with BS 8414 a system incorporating RS5000 that contained two sets of fire-resistant magnesium oxide boards placed in critical positions to ensure that it passed. It then obtained from BRE a test report that omitted any reference to the magnesium oxide boards, thereby rendering it materially incomplete and misleading.
- 2.30** Celotex then marketed RS5000 as “the first PIR board to successfully test to BS 8414”, and as “acceptable for use in buildings above 18 metres in height”. However, the test on which Celotex relied in support of that claim had been manipulated as we have described above, a fact that Celotex did not disclose in its marketing literature. Moreover, BS 8414 is a system test and does not involve the testing or classification of individual products. Celotex deliberately tucked that information away in the small print of its marketing literature.
- 2.31** RS5000 had previously been marketed as FR5000. From 2011 it had been sold as having Class 0 fire performance “throughout”, a claim which was false and misleading. Celotex presented RS5000 to Harley as suitable and safe for use on Grenfell Tower, although it knew that was not the case.

Kingspan

- 2.32** From 2005 until after this Inquiry had begun, Kingspan knowingly created a false market in insulation for use on buildings over 18 metres in height by claiming that K15 had been part of a system successfully tested under BS 8414 and could therefore be used in the external wall of any building over 18 metres in height regardless of its design or other components. That was a false claim, as it well knew, because BS 8414 is a method for testing complete wall systems and its results apply only to the particular system tested. As Kingspan knew, K15 could not honestly be sold as suitable for use in the external walls of buildings over 18 metres in height generally, but that is what it had succeeded in doing for many years.⁷

⁶ See Part 3 Chapters 24 and 25.

⁷ See Part 3 Chapters 22 and 23.

- 2.33** In marketing K15 Kingspan relied on the results of a single BS 8414-1 test performed in 2005 on a system whose components were not representative of a typical external wall and it continued to rely on that test without disclosing that it had changed the composition of the product in 2006. Tests performed in 2007 and 2008 on systems incorporating the then current form of K15 were disastrous, but Kingspan did not withdraw the product from the market, despite its own concerns about its fire performance.
- 2.34** Kingspan concealed from the BBA the fact that the product it was selling, to which the certificate issued in 2008 referred, differed from the product that had been incorporated into the system tested in 2005. Moreover, the BBA certificate contained three important statements about the fire performance of K15 that were untrue. It used a form of words suggested by Kingspan and drawn from its own marketing literature.
- 2.35** In 2009 Kingspan succeeded in obtaining from the LABC a certificate that contained false statements about K15 and supported its use generally on buildings over 18 metres in height. Kingspan relied on that certificate for many years to sell the product. It made a calculated decision to use the LABC certificate to mask, or distract from, the absence of supporting test evidence.
- 2.36** When the BBA certificate was re-issued in 2013, Kingspan persuaded the BBA to include a statement that K15 complied with paragraph 12.7 of Approved Document B, which wrongly implied that it was a product of limited combustibility.
- 2.37** When it did return to carrying out tests on systems incorporating K15, Kingspan did not use the product currently on the market but used modified or trial versions. It dishonestly relied on the results of those tests to support the sale of K15 for use on buildings over 18 metres in height and continued to do so until October 2020.
- 2.38** Kingspan's claim that K15 met the requirements for Class 0 was based on a test of the foil facer alone and was disingenuous.
- 2.39** Kingspan cynically exploited the industry's lack of detailed knowledge about BS 8414 and BR 135 and relied on the fact that an unsuspecting market was very likely to rely on its own claims about the product, not least because the BBA certificate directed the buyer to consult Kingspan in relation to its use on buildings over 18 metres in height.

Siderise

- 2.40** Siderise manufactured the Lamatherm cavity barriers used in the refurbishment. Although there is no evidence of any dishonesty on its part, some aspects of its marketing materials gave cause for concern. It also supplied cavity barriers for use in voids larger than those for which they had been tested.

The British Board of Agrément

- 2.41** The British Board of Agrément (BBA) is a commercial organisation that certifies the compliance of products with the requirements of legislation. It issued certificates of compliance in respect of one of the insulation products used on Grenfell Tower, Kingspan K15, and the Reynobond 55 PE panels used as the rainscreen. Its certificates were accepted in the industry largely without question but its procedures were neither wholly independent nor rigorous and were not always rigorously applied.

- 2.42** The dishonest strategies of Arconic and Kingspan succeeded in a large measure due to the incompetence of the BBA, its failure to adhere robustly to the system of checks it had put in place, and an ingrained willingness to accommodate customers instead of insisting on high standards and adherence to a contract that was intended to maintain them. As a result of systemic shortcomings and inadequate levels of competence and technical expertise among its staff, its scrutiny of the fire performance of K15 and Reynobond 55 PE was seriously deficient and the certificates it produced for those products were misleading.
- 2.43** The underlying problem was that the BBA failed to manage the conflict between the need to act as a commercial organisation in order to attract and retain customers and the need to exercise a high degree of rigour and independence in its investigations in order to satisfy those who might consider relying on its certificates. It accepted for inclusion in certificates forms of wording proposed by manufacturers that were wrong and misleading. Its lack of robust processes and reluctance to enforce the terms of its contracts enabled it to become the victim of dishonest behaviour on the part of unscrupulous manufacturers.
- 2.44** So far as Reynobond 55 PE was concerned, the certificate issued by the BBA in 2008 contained false statements, including that the product “may be regarded as having a Class 0 surface”. The BBA accepted the results of tests carried out on a different product. It failed to take advice from BRE when drafting the certificate. It completed and approved periodic reviews and re-issued the certificate without having received any new information, despite having asked Arconic repeatedly to provide it. It failed to suspend or withdraw the certificate in response to Arconic’s failure to co-operate.
- 2.45** Until December 2013 the BBA effectively allowed the contents of the certificates relating to Kingspan K15 to be dictated by Kingspan itself, including the requirement to seek advice from Kingspan in relation to the use of the product on buildings over 18 metres in height. The BBA did not assess any aspect of the product’s manufacture, testing or fire performance before it issued the certificate. It did not obtain any test data relating to K15 before it issued a certificate containing a statement that the product had been classified as national Class 0, since none existed. It ought to have known that the statement in the revised certificate issued in July 2013 implying that K15 was a material of limited combustibility was false because K15 was a phenolic foam product.

Local Authority Building Control

- 2.46** Local Authority Building Control (LABC) is a body formed by local authority building control departments in 2005 to provide support with training and technical matters and to provide centralised marketing and business development services for members. Following an initial assessment by a local authority building control surveyor and a second stage review by a group of experts, it issued certificates verifying the compliance of construction products and systems with the Building Regulations and Approved Documents.
- 2.47** The LABC must take its share of the blame for the acceptance by the market of Celotex RS5000 and Kingspan K15 for use on buildings over 18 metres in height. There was a complete failure on the part of the LABC over a number of years to take basic steps to ensure that the certificates it issued in respect of them were technically accurate.
- 2.48** The LABC was vulnerable to manipulation because its processes were not implemented rigorously enough. The task of producing an initial assessment should not have been given to building control officers, who did not have the degree of knowledge and experience necessary to make an informed assessment of the product in question, and those who carried out the second stage review were not always competent to do so and in some cases did not take the necessary degree of care.

- 2.49** Over a period of some years the LABC's certificates relating to Kingspan K15 and Celotex RS5000 contained misleading statements about their fire performance and about the suitability of both products for use in the external walls of buildings over 18 metres in height. Despite warnings from various quarters, the LABC failed to scrutinise properly the claims made for the products by the manufacturers and instead adopted uncritically the language they suggested. In short, it was willing to accommodate the customer at the expense of those who relied on the certificates. As a result, the LABC was also the victim of dishonest behaviour on the part of unscrupulous manufacturers.

The National House Building Council

- 2.50** The National House Building Council (NHBC) employed a large number of Approved Inspectors through whom it provided building control services to a large part of the housing construction industry. It also wielded considerable influence on the industry through its membership of the Building Control Alliance, a body established in 2008 to promote the role of building control bodies, and its publication of guidance notes. However, it failed to ensure that its building control function remained essentially regulatory and free of commercial pressures. It was unwilling to upset its own customers and the wider construction industry by revealing the scale of the use of combustible insulation in the external walls of high-rise buildings, contrary to the statutory guidance. We have concluded that the conflict between the regulatory function of building control and the pressures of commercial interests prevents a system of that kind from effectively serving the public interest.

The Building Research Establishment

- 2.51** BRE played an important part in enabling Celotex and Kingspan to market their products for use in the external walls of buildings over 18 metres in height. BRE's systems were not robust enough to ensure complete independence and the necessary degree of technical rigour at all times. As a result, it sacrificed rigorous application of principle to its commercial interests. From 2004 it had engaged in discussions with Kingspan about the steps it might take to ensure that a system incorporating K15 met the performance requirements, and during the test of a system incorporating K15 in March 2014 it gave advice on its performance, including how the results of the test might be interpreted. It accepted the inclusion of magnesium oxide boards in the system incorporating RS5000 tested for Celotex in May 2014.

United Kingdom Accreditation Service

- 2.52** UKAS did not always follow its own policies and its assessment processes were lacking in rigour and comprehensiveness. Even when failings were identified they were not properly explored and opportunities to improve were not always taken. The process relied too much on the candour and co-operation of the organisations being assessed and too much was left to trust. UKAS should have taken a more searching, even sceptical, attitude to the organisations it accredited. Its powers to take action were surprisingly limited, with no powers of enforcement. The most it could do in response to unsatisfactory conduct was to suspend or withdraw accreditation.

Part 4

The Tenant Management Organisation (Chapters 30 – 33)

- 2.53** The relationship between the TMO and its residents had been a troubled one for many years before the refurbishment of Grenfell Tower. Two independent reports in 2009 had drawn attention to numerous serious flaws in that relationship. The second of those reports identified governance, customer service, staff attitudes and a poor repairs service as constant themes of the investigation. It also found that the residents' lack of trust in the TMO lay at the heart of the problems. The reports made some 34 recommendations for change.
- 2.54** Despite those penetrating reports and the recommendations they contained, eight years later the TMO had shown little sign of any change and appeared to have learnt nothing about how to treat, or relate to, its residents.
- 2.55** We have concluded from all the evidence that from 2011 to 2017 relations between the TMO and many of the residents of Grenfell Tower were increasingly characterised by distrust, dislike, personal antagonism and anger. Some, perhaps many, occupants of the tower regarded the TMO as an uncaring and bullying overlord that belittled and marginalised them, regarded them as a nuisance, or worse, and failed to take their concerns seriously. For its part, the TMO regarded some of the residents as militant troublemakers led on by a handful of vocal activists, principally Edward Daffarn, whose style they found offensive. The result was a toxic atmosphere fuelled by mistrust on both sides.
- 2.56** In the end, however, responsibility for the maintenance of the relationship between the TMO and the Grenfell community fell not on the members of that community, who had a right to be treated with respect, but on the TMO as a public body exercising control over the building which contained their homes. The TMO lost sight of the fact that the residents were people who depended on it for a safe and decent home and the privacy and dignity that a home should provide. That dependence created an unequal relationship and a corresponding need for the TMO to ensure that, whatever the difficulties, the residents were treated with understanding and respect. We have concluded that the TMO failed to recognise that need and therefore failed to take the steps necessary to ensure that it was met.
- 2.57** However irritating and inconvenient it may at times have found the complaints and demands of some of the residents of Grenfell Tower, for the TMO to have allowed the relationship to deteriorate to such an extent reflects a serious failure on its part to observe its basic responsibilities.

Part 5

The management of fire safety at Grenfell Tower (Chapters 34 – 46)

- 2.58** RBKC and the TMO were jointly responsible for the management of fire safety at Grenfell Tower. The years between 2009 and 2017 were marked by a persistent indifference to fire safety, particularly the safety of vulnerable people. We have examined in detail a wide variety of matters that have led us to that conclusion, the most prominent of which we set out here.
- 2.59** RBKC was responsible for overseeing the TMO's activities, not monitoring its operations on a day-to-day basis, but its oversight of the TMO's performance was weak and fire safety was not subject to any key performance indicator. The absence of any independent or rigorous scrutiny by RBKC of the TMO's performance of its health and safety obligations, and in particular its management of fire safety, was a particular weakness. RBKC took little or no account of an independent and highly critical review of fire safety carried out for the TMO in 2009. It did not even know about a further independent and highly critical report produced in 2013 because the TMO had failed to disclose it to RBKC.⁸
- 2.60** The TMO's performance of its own functions and the effectiveness of RBKC's oversight depended on full and candid reporting by the TMO's senior management to its board. Although there was a satisfactory system for senior management to report to the board and to RBKC, it did not operate effectively because of an entrenched reluctance on the part of the TMO's chief executive, Robert Black, to inform the board and RBKC's scrutiny committees of matters that affected fire safety. That failure was all the more serious because there were chronic and systemic failings in the TMO's management of fire safety of which the board should have been made aware. Robert Black consistently failed to tell either the board or RBKC of the LFB's concerns about the TMO's compliance with the Fire Safety Order or the steps taken to enforce it.
- 2.61** First, although in 2009 an independent fire safety consultant had recommended that a fire safety strategy be prepared, nothing was done until November 2013 and a strategy had still not been finally approved by the time of the Grenfell Tower fire.
- 2.62** Secondly, the TMO's only fire assessor for its entire estate, Carl Stokes, was allowed to drift into that role without any formal selection or procurement process. He had misrepresented his experience and qualifications (some of which he had invented) and was ill-qualified to carry out fire risk assessments on buildings of the size and complexity of Grenfell Tower, let alone to hold the entire TMO portfolio. As a result there was a danger that fire risk assessments would not meet the required standard.
- 2.63** Thirdly, although Mr Stokes' methods for carrying out fire risk assessments generally reflected the Health and Safety Executive's five steps for managing risks, the LGA Guide and PAS 79, they suffered from serious shortcomings. He often failed to check whether the TMO had taken action in response to risks he had identified in previous assessments. Despite the concerns expressed by the LFB about his competence, the TMO continued to rely uncritically on him, a situation which made the danger more acute in the absence of any arrangements for assessing the quality of his work.

⁸ See Part 5 Chapter 37.

- 2.64** Fourthly, there was no adequate system for ensuring that defects identified in fire risk assessments were remedied effectively and in good time. The TMO developed a huge backlog of remedial work that it never managed to clear, a situation that was aggravated by the failure of its senior management to treat defects with the seriousness they deserved. Indeed, on one occasion senior management intervened to reduce the importance attached to the implementation of remedial measures. The demands of managing fire safety were viewed by the TMO as an inconvenience rather than an essential aspect of its duty to manage its property carefully.
- 2.65** Certain important features of the fire prevention measures at Grenfell Tower were not of an appropriate standard. For example, the new front doors installed by the TMO in 2011 and 2012 did not meet the fire resistance standards suggested by Approved Document B because the TMO had failed to specify the correct fire safety standard when ordering them.
- 2.66** Inspection and maintenance regimes affecting fire prevention systems did not reflect best practice and were inconsistently followed. Many self-closing devices on the front doors of flats in Grenfell Tower failed to work effectively and some were missing entirely. The TMO did not institute an effective inspection and maintenance programme for self-closing devices on entrance doors despite an Enforcement Notice issued by the LFB in late 2015 relating to ineffective door closers in another high-rise residential building it managed, Adair Tower, and a Deficiency Notice issued in 2016 in relation to Grenfell Tower itself on the same grounds.
- 2.67** Although the TMO had no obligation to produce a general evacuation plan, its Emergency Plan for Grenfell Tower was out of date and incomplete and did not reflect the changes brought about by the refurbishment. The TMO was well aware of that fact following a fire at Adair Tower in October 2015, but failed to address it. The absence of fire action notices in the tower was a prominent subject of complaints by residents and led to the issue of a Deficiency Notice in November 2016.
- 2.68** The Grenfell Tower fire revealed the importance of ensuring that the responsible person under the Fire Safety Order collects sufficient information about any vulnerable occupants to enable PEEPs to be prepared, when appropriate, and, in the event of a fire, appropriate measures to be taken to assist their escape. The TMO did take some steps to gather information of that kind, both before and during the refurbishment, but its data systems were not properly co-ordinated. Such information as was collected was not always used to revise its records, with the result that the spreadsheet available on the night of the fire was incomplete. The TMO's failure to collect such information amounted to a basic neglect of its obligations in relation to fire safety.

Part 6

The refurbishment of Grenfell Tower (Chapters 47– 67)

- 2.69** In this Part we trace the origins of the refurbishment project and its relationship to the Kensington Aldridge Academy and Leisure Centre (KALC) projects. We describe the persons and organisations principally involved in the project and the legislative background against which the refurbishment was carried out. We also identify two significant problems relating to Approved Document B that in our view call for urgent attention. The first is the assumption that compliance with functional requirements B3 and B4 will provide a high degree of compartmentation, thus rendering evacuation of the building unnecessary. The second is the tension between functional requirements of the Building Regulations and the prescriptive language of the guidance and the propensity of many in the industry to treat the guidance as definitive.
- 2.70** We explain how the KALC project influenced the appointment of Studio E as architect and describe the way in which the TMO manipulated the procurement process to avoid having to put the contract for architectural services out to public tender. Artelia was appointed by the TMO as a consultant, having acted as employer's agent and quantity surveyor for the KALC project.
- 2.71** The initial plans for the refurbishment ran into difficulties because the estimated cost of the project produced by the principal contractor on the KALC project exceeded the budget by a significant margin. However, in about May 2013 the TMO's former emphasis on maintaining the momentum of the project changed to one of saving cost. That led in turn to a recommendation, reluctantly supported by Artelia, that a principal contractor should be appointed through a formal procurement process. Such a process was then implemented.
- 2.72** Although Rydon's tender was judged to be the most competitive, it still exceeded the TMO's budget. As a result, although the TMO had received advice from its lawyers that it would be improper to do so, it entered into discussions with Rydon before the procurement process had been completed leading to an agreement that, if Rydon were awarded the contract, it would reduce its price to an acceptable level.
- 2.73** Although Studio E had wanted to use zinc rainscreen panels, cost became an increasingly important consideration for the TMO and eventually an aluminium composite material (ACM), Reynobond 55 PE, was chosen, largely on the grounds of cost. Rydon was able to offer a substantial saving through the use of ACM panels as a result of its relationship with its intended cladding sub-contractor, Harley.
- 2.74** The choice of combustible materials for the cladding of Grenfell Tower resulted from a series of errors caused by the incompetence of the organisations and individuals involved in the refurbishment. Studio E, Rydon and Harley all took a casual approach to contractual relations. They did not properly understand the nature and scope of the obligations they had undertaken, or, if they did, paid scant attention to them. They failed to identify their own responsibilities for important aspects of the design and in each case assumed that someone else was responsible for matters affecting fire safety. Everyone involved in the choice of the materials to be used in the external wall thought that responsibility for their suitability and safety lay with someone else.

- 2.75** None of those involved in the design of the external wall or the choice of materials acted in accordance with the standards of a reasonably competent person in their position. They were not familiar with or did not understand the relevant provisions of the Building Regulations, Approved Document B or industry guidance. Studio E demonstrated a cavalier attitude to the regulations affecting fire safety and Rydon and Harley relied on their previous experience rather than on any technical analysis or expertise. The risks of using combustible materials in the external walls of high-rise buildings were well known and they should have been aware of them.
- 2.76** RBKC building control did not properly scrutinise the design or choice of materials and failed to satisfy itself that on completion of the work the building would comply with the requirements of the Building Regulations.
- 2.77** Exova was instructed by Studio E on behalf of the TMO to prepare a fire safety strategy for the building in its refurbished form. A draft was prepared but never completed. In particular, it did not include an analysis of the external wall or its compliance with functional requirement B4(1) of the Building Regulations.
- 2.78** Although our criticisms are directed principally towards Studio E, Exova, Rydon, Harley and RBKC building control, the TMO must also bear a share of the blame for the disaster because it failed to ensure that the position of Exova was clarified after Rydon had been appointed and that the fire safety strategy was completed.
- 2.79** As architect Studio E was responsible for the design of the external wall and for the choice of the materials used in its construction.⁹ Although the TMO as the client wanted to reduce the cost by using ACM rainscreen panels, it was the responsibility of Studio E to determine whether the use of such material would enable the building to comply with functional requirement B4(1) of the Building Regulations and advise the TMO accordingly. Its failure to recognise that ACM was dangerous and to warn the TMO against its use represented a failure to act in accordance with the standard of a reasonably competent architect. It also failed to recognise that Celotex insulation was combustible and not suitable for use on a building over 18 metres in height in accordance with the statutory guidance. Studio E therefore bears a very significant degree of responsibility for the disaster.
- 2.80** We have identified many other respects in which Studio E failed to meet the standards of a reasonably competent architect, of which the following are the most significant. It failed to ensure that Exova completed the fire safety strategy for the refurbished building or advise Rydon and the TMO that it should be required to do so. It failed to understand that it was responsible for design work carried out by sub-contractors and so did not check Harley's designs to ensure that on completion the building would comply with the Building Regulations. It did not devise a proper cavity barrier strategy or check Harley's designs for the cavity barriers and it failed to produce detailed drawings of the window reveals or to notice that the materials specified for the window infill panels were unsuitable.
- 2.81** Exova also bears considerable responsibility for the fact that Grenfell Tower was in a dangerous condition on completion of the refurbishment.¹⁰ Our most serious criticism is that it failed to produce a final version of the fire safety strategy for the refurbished building and that it failed either to draw that fact to the attention of the design team or to warn it about the potential consequences. None of those responsible for drafting the fire safety strategy visited Grenfell Tower; the only site visit by a member of Exova's staff

⁹ See generally Part 6 Chapter 63.

¹⁰ See generally Part 6 Chapter 54.

took place at a preliminary stage. Exova's attitude was wholly inconsistent with the careful approach to matters affecting the safety of life to be expected of a reasonably competent fire engineer.

- 2.82** We consider that the principal contractor, Rydon, also bears considerable responsibility for the fire.¹¹ It gave inadequate thought to fire safety, to which it displayed a casual attitude throughout the project and its systems for managing the design work did not ensure that its sub-contractors and consultants properly understood their different responsibilities. Rydon itself did not understand where responsibility for individual decisions lay and as a result it failed to co-ordinate the design work properly.
- 2.83** Rydon had an inexperienced team on the refurbishment that did not have sufficient knowledge of the Building Regulations or Approved Document B. It relied entirely on its cladding sub-contractor, Harley, to draw its attention to any errors in the design, but it did not specifically ask Harley to assess Studio E's work. It failed to take proper steps to investigate Harley's competence and ensure that it was competent to undertake the work and capable of providing the services required of it. It was complacent about the need for fire engineering advice and took the decision not to retain Exova without consulting the TMO, Studio E or Artelia. Its understanding of the work already carried out by Exova was superficial; as a result, it failed to realise that the fire safety strategy had not been completed.
- 2.84** Harley itself failed in many respects to meet the standards to be expected of a reasonably competent cladding contractor and it too bears a significant degree of responsibility for the fire.¹² It did not concern itself sufficiently with fire safety at any stage of the refurbishment and appears to have thought that there was no need for it to do so, because others involved in the project, and ultimately building control, would ensure that the design was safe. It failed to ask the kind of questions about the materials being considered that a reasonably competent cladding contractor would have asked. It was induced to buy Reynobond 55 PE panels partly by its existing relationship with Arconic and the cladding fabricator, CEP Architectural Facades, with which it was able to negotiate a favourable price. Its staff were unaware of the requirements of the Building Regulations relating to fire safety, the guidance in Approved Document B or industry guidance and did not understand the underlying testing regime.
- 2.85** Although Celotex RS5000 (as opposed to Celotex FR5000) had not been specified, Harley accepted it for use on the tower without enquiring in any detail whether it could be safely used and did not ask any of the other members of the design team that question before doing so. Its design for the cavity barriers was incomplete and did not comply with the guidance in Approved Document B.
- 2.86** RBKC's building control department failed to perform its statutory function of ensuring that the design of the refurbishment complied with the Building Regulations.¹³ It therefore bears considerable responsibility for the dangerous condition of the building immediately on completion of the work. The surveyor responsible for the refurbishment was overworked, inadequately trained and had a very limited understanding of the risks associated with the use of ACM panels. He failed to obtain full information about the construction of the external wall at the stage of the full plans application and did not ask whether Exova had provided a completed fire safety strategy. He knew that ACM

¹¹ See generally Part 6 Chapter 64.

¹² See generally Part 6 Chapter 65.

¹³ See generally Part 6 Chapter 62.

was to be used as the rainscreen but paid little or no attention to the BBA certificate for Reynobond 55 PE. He failed to recognise that Celotex RS5000 insulation was not a material of limited combustibility and, if he looked at any information about it, he simply accepted the assertion that it was suitable for use on tall buildings. He failed to consider whether the external wall system proposed for Grenfell Tower was the same as that tested by Celotex and said to support the use of RS5000.

- 2.87** The TMO must also take a share of the blame for the disaster.¹⁴ As the client it failed to take sufficient care in its choice of architect and paid insufficient attention to matters affecting fire safety, including the work of the fire engineer.

¹⁴ See generally Part 6 Chapter 66.

Part 7

Replacement of the gas riser (Chapter 68)

- 2.88** This short chapter describes the work carried out in 2016 and 2017 to replace one of the six gas risers in Grenfell Tower that was suffering from corrosion. There were defects in the design and execution of the work, to which we draw attention. The work had not been completed by the time of the fire, but neither the defects we have identified nor the failure to have completed the work contributed to the fire.
- 2.89** On the night of the fire it was not possible to find the two pipeline isolation valves designed to enable the supply of gas to the tower to be shut off quickly, almost certainly because they had been covered over in the course of landscaping work. However, that did not affect the course of events surrounding the fire because burning debris falling on the east side of the tower would have prevented access to them.

Part 8

The London Fire Brigade (Chapters 69 – 83)

- 2.90** The Lakanal House fire in July 2009 should have alerted the LFB to the shortcomings in its ability to fight fires in high-rise buildings that revealed themselves once more at Grenfell Tower on the night of 14 June 2017. Those shortcomings could have been made good if the LFB had been more effectively managed and led. In particular, it should have responded more effectively to its experience at Lakanal House and made better use of the knowledge it had gained of the dangers posed by modern materials and methods of construction. Importantly, it failed to ensure that in the years immediately preceding the Grenfell Tower fire regular training of a suitable kind was provided to its control room operators on handling many fire survival guidance calls concurrently and on their duties more generally. Senior managers at the LFB failed to take steps to ensure that its arrangements for handling fire survival calls reflected national guidance.
- 2.91** Those failures were attributable to a chronic lack of effective management and leadership, combined with an undue emphasis on process. Senior officers were complacent about the operational efficiency of the brigade and lacked the management skills to recognise the problems or the will to correct them. Those managerial weaknesses were partly the result of an historic failure to integrate the operational departments and the departments responsible for support functions, in particular the control room. There was a tendency to treat problems of which managers became aware as undeserving of change or too difficult to resolve, even when they concerned operational or public safety.
- 2.92** Those failures were compounded by an entrenched but unfounded assumption that the Building Regulations were sufficient to ensure that external wall fires of the kind that were known to have occurred in other countries would not occur in this country. After the Lakanal House fire senior officers recognised that compliance with the regulations could not be guaranteed, but no one appears to have thought that firefighters needed to be trained to recognise and deal with the consequences.
- 2.93** The main failings on the part of the LFB that led to the shortcomings identified in the Phase 1 report included a failure to identify training needs combined with a system for commissioning new training packages that was cumbersome and slow. Incident command training was poorly devised and was not effectively delivered; inadequate provision was made for refresher training and regular assessment.
- 2.94** The LFB failed to ensure that the knowledge of the dangers presented by the increasing use of combustible materials, in particular the risk of external fire spread and the resulting loss of compartmentation, held by some specialist officers was shared with the wider organisation and reflected in training, operational policies and procedures. Firefighters were not given proper training or guidance on how to carry out inspections of complex buildings and there were no effective arrangements for sharing information about risks posed by particular buildings. Internal recommendations for improving the inspection of high-rise residential buildings were not implemented.
- 2.95** The policy on high-rise firefighting did not reflect national guidance and senior management failed to recognise that producing contingency plans for a full evacuation and training firefighters to implement them was an essential aspect of fighting fires in high-rise buildings.

- 2.96** One significant shortcoming was a failure to recognise the possibility that in the event of a fire in a high-rise residential building a large number of calls seeking help, both from within and outside the building, might be generated. The LFB failed to take any steps to enable it to respond effectively to that kind of demand. As a result, when faced with a large number of calls about people needing to be rescued from Grenfell Tower, both those in the control room and those responsible for handling that information at the fireground were forced to resort to various improvised methods of varying reliability to handle the large amount of information they received.
- 2.97** The senior officers responsible for the control room understood the need to give priority to training staff in handling fire survival guidance calls, but in the years between 2010 and 2017 no structured or regular refresher training in handling fire survival guidance calls was designed or delivered to control room staff. Such training as was provided did not reflect national guidance in some respects; nor did it respond to the experience of those control room officers who had been on duty at the time of the Lakanal House fire. The failures in the effective functioning of the control room were due in a large measure to weak management over the preceding years combined with sporadic and ineffectual oversight by senior officers.
- 2.98** The communication equipment in use at the time of the Grenfell Tower fire proved to function inadequately in a high-rise building constructed largely of reinforced concrete. That was a well known problem but nothing had been done to alleviate it and firefighters were not trained to recognise and respond to it. The LFB's approach was to do its best with what it had available. As a result, it failed to make sufficient efforts to modernise its equipment, thereby significantly impairing its operational efficiency. The LFB's policies did not contemplate a widespread loss of communications or provide guidance on how it could effectively be restored.

Part 9

The deceased (Chapters 84 – 97)

- 2.99** The detailed description of the events of 14 June 2017 contained in the Phase 1 report places us in a good position to make comprehensive findings about the circumstances in which the deceased met their deaths. Although it is for the coroner to decide whether she should adopt our findings as sufficient to enable her to discharge her responsibilities, we hope that she will be able to do so and thus spare the bereaved the distress of a further investigation.
- 2.100** We begin this Part with a general introduction followed by a description of the painstaking methods adopted to recover and identify the remains of the individual deceased. In that context we refer to the work of the teams of forensic archaeologists, forensic anthropologists and forensic pathologists, as well as other experts and police disaster victim identification officers and licensed search officers. We also describe in general terms the evidence given by Professor David Purser CBE BSc PhD DipRCPath, an expert on toxicology.
- 2.101** We devote a separate chapter of this Part to each floor on which people died. After a general description of the circumstances affecting that floor, our findings deal in turn with each of those who died on, or fell from, that floor. In the case of those who died on the stairs we have described the circumstances relating to the floor on which their flat was located. In each case we give a brief description of the deceased before describing the immediate circumstances in which he or she died.
- 2.102** Although the evidence was sometimes rather confused, we have been able to make findings about emergency calls made by those who were trapped, the transmission of information from the LFB control room to the incident ground and thence to the bridgehead and the deployment of firefighters in response. To the extent possible we have made what we consider to be reliable findings about the time of death in each case, although in many cases there is inevitably a large measure of uncertainty. In the light of the expert evidence we are able to make findings about the cause of death, including findings that all those whose bodies were destroyed by the fire were dead or unconscious when the fire reached them.

Part 10

Response and recovery (Chapters 98 – 107)

- 2.103** In the first week after the fire at Grenfell Tower the response of the government and RBKC was muddled, slow, indecisive and piecemeal. RBKC's systems and leadership were wholly inadequate to the task of handling an incident of such magnitude and gravity, involving, as it did, mass homelessness and mass fatalities. The resilience machinery in London and within central government was not flexible enough and took too long to move into action.
- 2.104** Certain aspects of the response demonstrated a marked lack of respect for human decency and dignity and left many of those immediately affected feeling abandoned by authority and utterly helpless. RBKC should have done more to cater for those from diverse backgrounds, in particular those many residents of the Muslim faith who were observing Ramadan at the time. They were left feeling that the council had no regard for their cultural and religious needs. For many, their only source of support was local voluntary organisations, which moved in to help and provide for basic needs where those in authority had failed. Many who had particular religious, cultural or social needs suffered a significant degree of discrimination in ways that could and would have been prevented if the guidance had been properly followed.
- 2.105** The response to the disaster was inadequate principally because RBKC did not have an effective plan to deal with the displacement of a large number of people from their homes and such plan as it did have did not make effective use of the TMO. It had made no contingency arrangements for obtaining a large amount of emergency accommodation at short notice and had no arrangements for identifying those who had been forced to leave their homes or for communicating with them. Arrangements for obtaining and disseminating reliable information were also lacking.
- 2.106** One reason for the lack of effective plans was that RBKC had failed to train its staff adequately. They did not have a sufficient understanding of the importance of resilience or sufficient commitment to it. Exercises had not been held regularly and staff had not been required to attend the training sessions run by the London Resilience Group. Deficiencies that were well known to senior management had not been corrected.
- 2.107** Over a number of years, RBKC had allowed the capacity of its staff to respond to major emergencies to decline. There had been clear warnings to senior management that it did not have enough trained staff to enable it to carry out its responsibilities as a Category 1 responder and that contingency plans had not been practised enough. As a consequence, RBKC lacked the people it needed to respond to the fire effectively, both for the purposes of staffing the borough emergency communication centre and to deal with those who needed help. It was therefore ill-equipped to deal with a serious emergency. None of that was due to any lack of financial resources.
- 2.108** RBKC's chief executive, Nicholas Holgate, was not capable of taking effective control of the situation and mobilising support of the right kind without delay. He had no clear plan and did not receive all the information he needed. He was not well suited to dealing with the crisis that was unfolding in front of him and lacked a strong group of officers to whom he could delegate responsibility for some aspects of the response. He was reluctant to take advice from those with greater experience and was unduly concerned for RBKC's reputation.

- 2.109** RBKC had failed to integrate the TMO into its emergency planning. It should have realised that the TMO's knowledge of its buildings and their occupants could play an important part in the response to any disaster affecting any part of its housing stock.
- 2.110** The arrangements designed to promote the resilience of London as a whole did not provide for an experienced leader to take over the direction of the response to a disaster that had occurred within the confines of a single borough except by agreement with the chief executive of that borough. In the event, Nicholas Holgate was persuaded under pressure from a senior government official to hand over control to John Barradell, but not until two days after the fire.
- 2.111** The training of resilience personnel in London was piecemeal and not co-ordinated; it was also voluntary and not subject to any external assessment or validation. That contributed to a situation in which the capacity of individual local authorities to respond to emergencies varied between boroughs.
- 2.112** The government began monitoring the response to the fire at an early stage, but its ability to take effective steps to provide practical assistance was undermined by a shortage of reliable information and by the restricted nature of its powers to intervene. The Civil Contingencies Act 2004 did not give it the power to take control of the response without invoking the powers under sections 5 or 7. Those powers are far-reaching but cumbersome in operation and not well suited to taking control of the response when a local authority is failing.
- 2.113** The TMO attracted criticism from many quarters, but in relation to its response to the fire much of it was unfair. Although its staff should have received more training in how to respond to an emergency, they threw themselves into the response and helped to provide support, insofar as they were equipped to do so. Some of those within government who criticised the TMO did not properly understand its position or the scope of its powers, and it was unfairly tainted by association with RBKC. Many of the difficulties encountered in returning residents to flats in the Walkways were not of its making. The TMO teams that went to some of the rest centres on 14 June 2017 to give what help they could are to be commended for their willingness to become directly involved and for the efforts they made at what was a very difficult time.
- 2.114** Those who emerge from the events with the greatest credit, and whose contribution only emphasised the inadequacies of the official response, are the members of the local community. With the support of local voluntary organisations, they provided support in the hours immediately following the fire when the authorities were conspicuous by their absence. Indeed, one of RBKC's failings was to make too little use of the local voluntary organisations and to fail to have adequate standing arrangements to enable them to be called on in the event of a major emergency.

Part 11

Matters outstanding from Phase 1 (Chapters 108 – 110)

- 2.115** Two matters remained outstanding from Phase 1. The first concerned the respective contributions to the fire made by the ACM rainscreen panels and the polyisocyanurate and phenolic insulation boards. The second concerned the mechanism by which the fire had escaped from the kitchen of Flat 16 into the external wall of the building.
- 2.116** In a series of experiments designed by Professor Bisby and Professor Torero and carried out at Edinburgh University by Professor Bisby and his colleagues the ACM panels were shown to have been by far the largest potential contributor to energy release in the external wall system at Grenfell Tower. Celotex RS5000 (a polyisocyanurate foam) and Kingspan K15 (a phenolic foam) both had a much lower heat release rate per unit area.
- 2.117** The experiments showed that the presence of a cavity is not by itself sufficient to cause a fire in the rainscreen panels to develop to full involvement. Insulation also needs to be present, either to retain energy in the system or to burn and contribute additional energy. Even non-combustible insulation in the form of mineral wool resulted in the growth of the fire to full involvement of the ACM panel. The method of fixing the panels has a significant effect on the way in which they perform in a fire. Panels in cassette form behave far worse than panels in riveted form.
- 2.118** The experimental work confirms that the principal factor which led to the rapid growth of the fire was the presence of unmodified polyethylene in the cores of the ACM panels rather than the insulation, although the presence of the insulation and its ability to retain heat was a decisive factor in promoting the growth of the fire.
- 2.119** The second matter outstanding concerned the mechanism by which the fire had escaped from the kitchen of Flat 16 into the external wall of the building. A reconstruction carried out by BRE in May 2019 had led it to conclude that the mechanism was different from that identified by Professor Bisby and Professor Torero. The chairman therefore indicated that the findings expressed in the Phase 1 report would remain provisional until they had had a better opportunity to study the report of the reconstruction. Having done so, Professor Bisby and Professor Torero both concluded that the reconstruction had not been truly representative of the fire that occurred on 14 June 2017 and adhered to their original opinions. We therefore confirm the findings made in the Phase 1 report.

Part 12

The fire testing regime (Chapter 111)

- 2.120** In the years leading up to the Grenfell Tower fire test methods available for determining the reaction to fire of materials, products and even external wall systems did not provide designers with the information needed to assess the risk of fire spreading across the external wall of a building. Moreover, the statutory guidance on complying with functional requirement B4(1) of the Building Regulations was fundamentally defective.
- 2.121** The use of Class 0 as a standard of fire performance for products to be used on the external wall of tall buildings was wholly inappropriate. Neither of the main British Standard tests relevant to that classification reflected the development of a fire on the outside of a building or provided the information needed to assess how an external wall incorporating the product would perform in a fire. The European classifications based on the single burning item test were of similarly limited assistance in assessing the fire performance of external wall systems.
- 2.122** The performance criteria for large-scale system tests in BR 135 were inadequate, in particular because they could not be clearly linked to the functional requirements in the Building Regulations or the guidance in Approved Document B. They were also directed too much to the spread of flame through cavities and contained no criteria for mechanical performance. The BS 8414 test itself provided limited information relevant to assessing the rate at which fire was likely to spread over an external wall. Critically, an external wall system that met the criteria in BR 135 could still allow fire to spread through it and beyond the compartment of origin at a rate that was incompatible with a stay put strategy. Accordingly, although failure to meet the performance criteria in BR 135 would demonstrate that a system was unlikely to comply with functional requirement B4(1) of the Building Regulations, the converse was not necessarily true. A system might meet the performance criteria of BR 135 and yet fail to comply with the functional requirement.
- 2.123** There was a widespread but erroneous assumption that, if an external wall system tested in accordance with BS 8414 met the performance criteria in BR 135, the building would comply with functional requirement B4(1) without any need to analyse the information obtained from the test or the conditions likely to be encountered in use. Approved Document B helped to perpetuate that assumption, not least by failing to make it clear that the results of the test always had to be analysed in conjunction with all other available information in order to understand the way in which the wall was likely to behave when exposed to the flames and heat of a fully developed compartment fire. The method adopted in BR 135 for assessing compliance was too simplistic. It provided a simple pass or fail result, when the results of the test required a degree of interpretation beyond the competence of most in the industry.

Part 13

The response of other countries (Chapter 112)

- 2.124** We have referred in the course of our report to fires that have occurred in other tall buildings around the world, principally as a result of the use of ACM rainscreen products. With the help of Professor Torero, who has extensive knowledge of the regulatory regimes in many other jurisdictions, we have examined the response of other countries to the danger posed by combustible cladding in order to see what we can learn from their experience.
- 2.125** In this chapter we describe the approaches to the problem that have been adopted in countries from the United States through Europe and the Middle East to Australia. Some countries have adopted a prescriptive approach to regulating construction, which is fundamentally different from a regime based on functional requirements of the kind that applies in this country and is therefore less useful as a model. Others, however, in particular Australia, have adopted functional requirements similar to our own and provide an example from which we can learn.

Part 14

Recommendations (Chapter 113)

- 2.126** We are invited by our Terms of Reference to make recommendations that we have reason to think will help prevent another disaster of the kind that overwhelmed Grenfell Tower and improve the ability of the authorities to respond to emergencies when they occur, as inevitably they will.
- 2.127** We do not think it would be appropriate or helpful to attempt to summarise those recommendations here because to do so would inevitably fail to do them justice. We should make it clear, however, that they are all firmly grounded in the evidence we have received and the findings we have made.

Part 2

The path to disaster

Chapter 3

Introduction to Part 2

- 3.1** One of the primary purposes of our Inquiry has been to find out how a relatively modern building like Grenfell Tower could have fallen prey to a fire of such magnitude and ferocity as to destroy it almost completely, taking the lives of so many of its occupants. Although a disaster of that kind may appear to some to have come out of the blue, there is inevitably an important history of events that provide not only the context in which it occurred but also part of the explanation for it. In this Part of our report we describe the background to the fire and identify the main events that set the scene for what later occurred.
- 3.2** In a modern society one of the functions of the government is to introduce and enforce effective measures to ensure that the built environment is reasonably safe for those who live and work in it. For many years building work in England and Wales has been subject to regulation and in his Phase 1 report the chairman provided a summary of the primary and secondary legislation affecting the construction and the later refurbishment of Grenfell Tower and the statutory guidance relating to it. If it is to be effective, however, legislation and guidance of that kind must be kept under review and revised from time to time to ensure that it responds to developments in materials and methods of construction. In this Part of our report we examine the part played by the government and certain other organisations in responding to developments in the construction industry and the growing body of knowledge about the behaviour of certain materials, particularly when exposed to fire. We also examine the broader approach of the government to intervening in aspects of commercial activity in order to protect its citizens from the harmful effects of fire.
- 3.3** This Part of our report complements Part 3, in which we examine the way in which some of the products used in the refurbishment of Grenfell Tower were tested and marketed. The conclusion we have drawn from the facts described in Parts 2 and 3 is that in this case there were serious failures in the system designed to keep people safe. We describe those failures in Chapter 29.

Chapter 4

The development of the regulatory regime

Introduction

- 4.1** In Chapter 5 of the Phase 1 report the chairman briefly described the regulatory context in which the original construction of Grenfell Tower in the early 1970s and the refurbishment carried out between 2012 and 2016 each took place.¹⁵ In this chapter we set out in more detail the key changes which occurred in the regulatory regime in the 20th century and which help to explain the nature of that regime at the time Grenfell Tower was refurbished. In Chapter 5 we have described the reaction to fire tests which supported the regulatory framework relating to the fire safety of external walls in the years leading up to the Grenfell Tower fire and in Chapter 6 we have set out how the requirements relating to the construction of external walls changed over time. Given the central role played by the external wall in the fire at Grenfell Tower, our summary of the legislative context concentrates on the regulations relating to the construction of the external walls of tall buildings, although we have also touched on other important aspects, where relevant.
- 4.2** In producing our summary we have had the benefit of reports from two of the experts instructed to assist the Inquiry. In his report entitled *Legislation, Guidance and Enforcing Authorities Relevant to the Fire Safety Measures at Grenfell Tower*, dated March 2018, Colin Todd described the development of the two main branches of legislation dealing with fire safety in England and Wales, one directed to ensuring proper standards of construction, the other directed to ensuring fire safety in occupied buildings. In this chapter we concentrate on the first of those areas. The second is addressed in Chapter 13, in which we consider the Regulatory Reform (Fire Safety) Order 2005 (the Fire Safety Order) made under the Regulatory Reform Act 2001. In his report entitled *Regulatory Testing and the Path to Grenfell*, dated 10 November 2021, Professor Luke Bisby described the background to the fire testing regime which underpinned the Building Regulations 2010 in force at the time of the refurbishment.
- 4.3** In their reports Mr Todd and Professor Bisby have described the history of the legislation and the development of the tests by which it is supported. The relevant material is all available in its original form, whether that be primary or secondary legislation, approved documents or other publicly available standards, but in producing this summary we have been particularly assisted by the passages in their reports referred to in the footnotes.

Terminology

- 4.4** Before we begin discussing the development of the regulatory and testing regimes, it may be helpful to clarify two expressions, the meaning of which has sometimes not been clearly understood but which ought now to be firmly established. “Fire resistance” (which is always expressed as a period of time) describes the ability of an element of construction, such as a door, floor or wall, to withstand exposure to heat in a standard test without the occurrence of specific failure criteria set out in the test specification. The failure criteria relate to the ability of the element to resist the passage of flame or provide thermal insulation or, in the

¹⁵ Phase 1 Report Volume I paragraphs 5.1 - 5.7.

case of a loadbearing element, to maintain its ability to support a test load. “Reaction to fire” describes the behaviour of a material or product when exposed to heat in a standard test, such as the fire propagation test (BS 476-6), the surface spread of flame test (BS 476-7) or the European single burning item test (BS EN 13823).

Local Acts and Byelaws: prescriptive building regulation

- 4.5** For many years building work in England and Wales was regulated at a local level under a patchwork of local acts and byelaws.¹⁶ Local byelaws were often based on model byelaws produced by central government, adapted as appropriate to accommodate local customs. Consequently, local authorities and municipal fire services created and enforced their own fire safety provisions and construction professionals had to adapt their work to meet local demands.¹⁷
- 4.6** In London, building legislation took the form of a series of London Building Acts.¹⁸ The London Building Acts 1930–1939 and associated byelaws were in force at the time Grenfell Tower was built.¹⁹ The London Building Acts themselves gave local authorities powers to require fire safety measures to be put in place, without specifying any measures in detail,²⁰ but the byelaws made under them contained detailed requirements for the fire performance of roofs, external walls and other elements of construction.²¹ The design of buildings tended to follow local guidance, such as that published by the Greater London Council, or codes of practice, such as the British Standards Institution (BSI) Code of Practice CP3 1971, which was probably the guidance which most influenced the designer of Grenfell Tower.²² In London guidance was issued by the Greater London Council, including guidance under section 20 of the London Building Act 1939, known as “section 20 guidance”. Section 20 enabled the Council to require additional fire precautions in buildings with a storey or part of a storey more than 100 feet above ground.²³

Creation of the first testing standard for building construction

- 4.7** In the early 20th century the Royal Institution of British Architects (RIBA) pressed for a standardised method of testing the reaction of construction products to fire. Practitioners were frustrated by the use of ill-defined terminology, with no universal agreement on what was meant by expressions such as “fire-resisting” or “incombustible”, despite those terms appearing in legislation, including the London Building Acts.²⁴ In 1929 RIBA urged the British Engineering Standards Association (which soon after became the British Standards Institution (BSI)) to produce standard definitions of reactions to fire and methods of assessing them. The outcome was the publication in 1932 of the first version of BS 476, entitled *British standard definitions for fire-resistance, incombustibility and non-inflammability of building materials and structures (including methods of test)*.²⁵ That original version of BS 476 contained four distinct testing methods, including a test for “incombustibility”. The test involved heating a small sample of material to 750°C at the rate

¹⁶ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/50} paragraph 228.

¹⁷ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/50} paragraph 228.

¹⁸ Todd {CTAR00000001/26} paragraphs 4.1.1 - 4.1.2.

¹⁹ Phase 1 Report Volume I paragraph 5.1.

²⁰ Todd {CTAR00000001/29} paragraph 4.2.1.

²¹ Todd {CTAR00000001/28} paragraph 4.1.14.

²² Phase 1 Report Volume I paragraph 5.1; Todd {CTAR00000001/29} paragraphs 4.2.1 - 4.2.3.

²³ Todd {CTAR00000001/26} paragraph 4.1.6.

²⁴ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/52} paragraphs 237 - 239.

²⁵ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/53} paragraphs 240 - 241.

of 500°C per hour. If the specimen did not flame or exhibit what was described as “glowing combustion”, it was regarded as non-combustible. The assessment of its performance was therefore purely visual.²⁶

- 4.8** Although it was published in 1932, it was several years before BS 476 began to make its mark on regulations and guidance. Moreover, a new research facility was required to carry out the larger “fire resistance” tests then included in BS 476. It was constructed at Borehamwood, Watford, by the Fire Offices Committee.²⁷ A revised version of the London County Council Constructional Byelaws in 1938 made explicit reference to the recently published BS 476,²⁸ which was an important step for the construction industry. Previously a manufacturer would have had to lobby for its product to be included in an approved list of “fire-resisting” materials and then wait for the next revision of the legislation. However, the introduction of BS 476 enabled a product that had been tested and met the defined criteria to be used without further inquiry.²⁹

State-sponsored fire research organisation

- 4.9** In 1944 the government decided to create an organisation to conduct research into aspects of the behaviour of fire and the response of materials to it, and so in January 1947 the Joint Fire Research Organisation was created, which brought together in a single organisation various disparate branches of fire safety research.³⁰

The move towards functional requirements

- 4.10** From as early as the 1920s there had been a demand from the architectural profession for greater flexibility in the application of building legislation.³¹ In response, in 1936 the Building Research Board³² set out its vision for the replacement of the existing byelaws with legislation which described the result to be achieved without prescribing the means by which it was to be achieved.³³
- 4.11** In the early 1950s the Department of Housing and Local Government in England (and the equivalent body in Scotland) created a new form of building regulation. It involved a new set of model byelaws for use by local authorities as precedents when drafting their own byelaws.³⁴ The model byelaws described in general terms certain requirements to be met by all buildings, together with certain “performance standards” that were deemed to achieve those requirements. In addition, a series of “deemed to satisfy” clauses were included under which materials meeting certain requirements were “deemed to satisfy” the requirements of the byelaws and were assumed to provide an acceptable standard of performance. The intention was that basic standards of safety would be maintained but

²⁶ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/54} paragraph 248. The Fire Offices’ Committee was established in 1868 by the major fire insurance companies.

²⁷ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/57} paragraph 252.

²⁸ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/57} paragraph 253.

²⁹ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/57} paragraph 254.

³⁰ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/60} paragraph 270.

³¹ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/51} paragraphs 236 - 238.

³² In 1917, the then Department of Scientific and Industrial Research proposed the creation of an organisation to investigate various building materials and methods of construction suitable for use in new housing following the First World War. In June 1920, the Building Research Board met for the first time – see <https://bregroup.com/about-us/our-history>.

³³ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/61} paragraph 275; Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/65} paragraph 304.

³⁴ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/61} paragraph 276.

that the legislation would be flexible enough to take account of developments in building materials, products and techniques.³⁵ Although the model byelaws did not apply in London, they marked an important shift in the way that fire safety in buildings was regulated.

- 4.12** One effect of that change was that testing standards and codes of practice became relevant to compliance with legislative requirements. Once functional standards had been adopted, it became necessary to have a means of assessing whether the relevant standard had been reached and testing standards and codes therefore became increasingly important.³⁶ Furthermore, whereas previously a committee had decided which products could or could not be used in specific applications, the model byelaws allowed manufacturers and designers to demonstrate by reference to individual tests that products were suitable for use.³⁷
- 4.13** In the late 1950s the Guest Committee³⁸ recommended that the patchwork of local building laws be replaced with a new national Building Act.³⁹ At the time there was a range of views about the extent to which functional standards ought to be underpinned by codes of practice or “deemed to satisfy” clauses that would demonstrate how compliance with the functional requirements could be achieved.⁴⁰ Some, including RIBA and the British Research Station,⁴¹ envisaged a flexible approach, under which the link between functional requirements and technical standards was severed so that only the functional requirements were mandatory. There was a concern that performance standards could be overtaken by new ideas and technology and become as restrictive as the former byelaws. However, RIBA did recognise that complete flexibility could lead to inconsistency in the application of the legislation.⁴²
- 4.14** During the Second World War a method was developed for testing the effectiveness of “incombustible” products at resisting incendiary bombs. It was recognised that some materials which failed the incombustibility test could still afford a degree of protection against such bombs. That led to a series of full-scale tests in corridors lined with different types of wallboard, which in time evolved to become the BS 476-7 test for surface spread of flame.⁴³ In 1953 BS 476 was revised to incorporate the test, which had been added as an appendix in 1945.⁴⁴ We describe the test in detail in Chapter 5.

The Building Regulations 1965

- 4.15** The Building Regulations 1965⁴⁵ contained a mixture of functional requirements, performance standards and “deemed to satisfy” provisions. The provisions relating to fire performance were mostly statements of performance standards, with few statements of function.⁴⁶ Codes and standards became an important means by which innovation and flexibility were embedded in the new functionality-based system of building

³⁵ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/61-62} paragraph 277.

³⁶ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/62} paragraph 281.

³⁷ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/65} paragraph 303.

³⁸ This committee was established by the Secretary of State for Scotland in 1954 and was chaired by Mr C. W. G. Guest QC. It was tasked with examining the regulation of building in Scotland – see Hansard at [https://hansard.parliament.uk/Commons/1954-01-27/debates/3119ce49-a62d-4264-8f21-12b3623be4d1/BuildingControl\(InquiryCommittee\)](https://hansard.parliament.uk/Commons/1954-01-27/debates/3119ce49-a62d-4264-8f21-12b3623be4d1/BuildingControl(InquiryCommittee)).

³⁹ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/65-66} paragraph 306.

⁴⁰ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/66} paragraphs 307 – 314.

⁴¹ In 1921 a central government-funded laboratory – the Building Research Station – was formed to carry out research work for the Building Research Board.

⁴² Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/66} paragraphs 308-309.

⁴³ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/58} paragraphs 259-261.

⁴⁴ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/62} paragraph 282.

⁴⁵ {INQ00015096}.

⁴⁶ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/68} paragraph 318.

regulation, although many of the testing standards did not change at that time.⁴⁷ Unlike the London Building Acts of the 1930s, the 1965 Regulations contained no requirements for means of escape in case of fire until they were amended in 1974, following a recommendation from the Holroyd committee (discussed below) that they should do so.⁴⁸ As noted further below, the Building Regulations did not apply to Inner London until January 1986.⁴⁹

- 4.16** The 1960s also saw the Building Regulations Advisory Committee (BRAC) expressing dissatisfaction with the binary nature of the existing BS 476 (1953) test for the combustibility of materials, since it was felt that relaxing the requirement for external walls and cladding to be non-combustible could sometimes be appropriate.⁵⁰ Innovations in building materials and techniques meant that a broader range of construction materials were becoming available, including plastics. The kinds of buildings that were being proposed were also changing and high-rise flats were becoming increasingly popular among architects and housing developers.⁵¹ As we discuss further in Part 6, in the 1960s national Class 0 was introduced into the Building Regulations, which permitted non-combustible external wall products to be covered with a combustible surface and combustible products to be covered with non-combustible linings.⁵²

The Agrément Board (later the British Board of Agrément (BBA))

- 4.17** In 1964 BRAC suggested that a third-party organisation might provide approval for new building materials, products and methods.⁵³ It was recognised that a significant number of new materials and products were entering the building industry and it was difficult for building professionals to assess their performance in use.⁵⁴ Consequently, it was suggested that an independent third party might be created to approve materials and products, and in 1966 the Agrément Board was established for that purpose. The existing Building Research Station and Fire Research Station became the laboratories of the Agrément Board.⁵⁵ The Agrément Board issued its first certificate in January 1967.⁵⁶ In 1982, it was renamed the British Board of Agrément.⁵⁷

Dissatisfaction

- 4.18** The new system of building regulation soon encountered a number of problems. In particular, the checks that had to be performed by local authorities were taking longer than under the old byelaws. As a result, in 1967 the Ministry of Housing and Local Government's own Building Legislation Committee recommended the establishment of a body to administer the regulations centrally. In particular, it advised that compliance with the regulations should be checked by an organisation large enough to have competent staff with the required range of skills, supported by a network of local enforcing officers.⁵⁸ RIBA also complained that the 1965 Building Regulations were complex and the language obscure; there were demands for regulations written in plain English with the use of

⁴⁷ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/68} paragraphs 321 - 323.

⁴⁸ Todd {CTAR00000001/39} paragraph 5.1.1.

⁴⁹ Todd {CTAR00000001/39} paragraph 5.1.2.

⁵⁰ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/69} paragraph 325.

⁵¹ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/61} paragraph 274.

⁵² Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/70} paragraphs 328-333.

⁵³ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/72} paragraph 339.

⁵⁴ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/72} paragraph 339.

⁵⁵ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/72-73} paragraph 343.

⁵⁶ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/73} paragraph 347.

⁵⁷ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/92} paragraph 449.

⁵⁸ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/73} paragraph 348.

diagrams to convey information more quickly.⁵⁹ There were also criticisms of the first BBA certificates and concerns were expressed by ministers that it was taking too long for the BBA to issue certificates.⁶⁰

- 4.19** During the 1970s revision of the Building Regulations brought more dissatisfaction, due to the number of documents to which reference had to be made to understand them. By 1971 there had been seven amendments to the regulations and they were reissued in full in 1972 and 1976.⁶¹ By the late 1970s there were numerous proposals for reform and a degree of dissatisfaction with the BBA.⁶²

The Holroyd report

- 4.20** In May 1970 Sir Ronald Holroyd, chairman of the Parliamentary Fire Service Departmental Committee, delivered a report which had been commissioned by the Home Secretary.⁶³ The primary focus of the report was the organisation of the UK's fire services, but he also addressed fire safety legislation and fire research.⁶⁴ The Holroyd report⁶⁵ recommended that fire safety regulation be divided into two main branches, one applying to new buildings and alterations to existing buildings and another applying to occupied buildings after construction or alteration. The committee recommended that enforcement of the second branch should be the responsibility of fire authorities, who should use the services of their fire brigades for that purpose.⁶⁶ The concept of two branches of legislation, which for some time thereafter was known as the "Holroyd Divide", has largely been adopted in England and Wales from the time of its proposal.⁶⁷
- 4.21** As a result of the Holroyd report, changes were made to the government's research capability. Accordingly, in 1972 the Building Research Station, the Fire Research Station and the Forest Products Research Laboratory were combined to create the Building Research Establishment (BRE).⁶⁸ In 1976 the Joint Fire Research Organisation was dissolved.⁶⁹
- 4.22** The 1970s also saw the introduction of new fire tests and the relaxation of requirements relating to the construction of external walls.⁷⁰ In particular, research by the Joint Fire Research Organisation had shown that materials and products that achieved the same classification in the surface spread of flame test sometimes behaved very differently in 1/5th scale compartment tests.⁷¹ A new test method was therefore developed which eventually became BS 476-6. It was introduced as a British Standard in 1968. We have described it in detail in Chapter 5.⁷²

⁵⁹ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/73} paragraph 349.

⁶⁰ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/73-74} paragraph 349.

⁶¹ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/74} paragraph 350.

⁶² Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/74} paragraphs 351 – 352.

⁶³ See Hansard <https://hansard.parliament.uk/commons/1970-07-14/debates/f5a42851-fe75-4485-ad22-f3afb15db306/FireService> (Departmental Committee).

⁶⁴ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/74} paragraphs 353 – 354.

⁶⁵ Holroyd, Report of the Departmental Committee on the Fire Service {CTAR00000002}.

⁶⁶ Todd {CTAR00000001/23} paragraphs 3.3-3.4.

⁶⁷ Todd {CTAR00000001/20} paragraph 3.6.

⁶⁸ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/74-75} paragraph 355.

⁶⁹ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/74-75} paragraph 355.

⁷⁰ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/75-80} sections 10.2 and 10.3.

⁷¹ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/75} paragraph 356.

⁷² Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/75} paragraph 359.

Move to functionality-based building regulations

- 4.23** In December 1979, the Secretary of State at the Department of the Environment, Michael Heseltine, gave a speech to the National House Building Council (NHBC) in which he set out his vision for the reform of the system for regulating building work. He identified four criteria for his new system: (1) maximum self-regulation, (2) minimum government interference, (3) self-financing, (4) simplicity in operation. In February 1981 a White Paper on the future of building control in England and Wales was published.⁷³ At the time there was general agreement that the Building Regulations needed to be revised.⁷⁴
- 4.24** The White Paper proposed that the functional requirements should be supported by a wide range of approved guidance, including British Standards Institution (BSI) standards and codes and Agrément certificates.⁷⁵ Part of the motivation for changing the system was the Secretary of State's conviction that local authority building control was attracting too much liability for defective buildings. He suggested that architects might themselves be allowed to certify that their plans met the functional requirements and that certification could be carried out by private bodies. He also suggested that the NHBC might become a private building control authority.⁷⁶

The Building Act 1984, the Building Regulations 1985 and the Approved Documents

- 4.25** After much debate about the nature of the legislation required,⁷⁷ the Building Act 1984⁷⁸ and the Building Regulations 1985⁷⁹ were enacted. The new legislation resulted in a radical change to the system of building regulation in England and Wales.⁸⁰ The new regulations extended to only 25 pages (in contrast to the 306 pages of the Building Regulations 1976).⁸¹ All technical requirements were eliminated from the regulations, which were now cast purely in functional form.⁸²
- 4.26** The Building Regulations 1985 contained only four functional requirements in relation to fire safety, namely, means of escape, internal fire spread (surfaces), internal fire spread (structures) and external fire spread.⁸³ Requirement B4(1) relating to external fire spread provided that "The external walls of the building shall offer adequate resistance to the spread of fire over the walls ... having regard to the height, use and position of the building".⁸⁴
- 4.27** The Building Act 1984 gave legal status⁸⁵ to Approved Documents, which were produced by the relevant government department responsible for the Building Regulations and contained guidance on the means by which, in the opinion of the Secretary of State, the functional requirements could be achieved.⁸⁶ In 1985 the first version of

⁷³ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/81} paragraph 385.

⁷⁴ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/81} paragraph 386.

⁷⁵ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/81} paragraph 387.

⁷⁶ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/82} paragraph 390.

⁷⁷ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/82} paragraph 393. {HOM00035068}.

⁷⁸ {INQ00015097}.

⁷⁹ Todd {CTAR00000001/40} paragraph 5.1.8; Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/90} paragraphs 441 – 442.

⁸⁰ Todd {CTAR00000001/39-40} paragraphs 5.1.5 and 5.1.9.

⁸¹ Todd {CTAR00000001/40} paragraph 5.1.9.

⁸² Schedule 1 {INQ00015097/11-13}; Todd {CTAR00000001/40-41} paragraph 5.1.12.

⁸³ {INQ00015097/13}.

⁸⁴ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/84} paragraphs 402 – 405.

⁸⁵ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/83} paragraph 400.

Approved Document B on fire safety was published.⁸⁷ In fact, the content of the new Approved Documents was remarkably similar to that of the previous regulations and in their first editions it was intended that the requirements should change more in form than content.⁸⁸ The performance standards defined in the new Approved Documents also remained largely unchanged from the pre-existing regulations.⁸⁹ There was a belief that, by moving them out of legislation and into statutory guidance, the Approved Documents could be revised more frequently to take account of innovation.⁹⁰ However, some mandatory measures remained, such as the requirement to follow the parts of CP3 Chapter IV dealing with means of escape.⁹¹

- 4.28** Unfortunately, many in the construction industry treated the Approved Documents as if they were prescriptive and many were confused about the difference between the regulations and the Approved Documents. It is still not uncommon for professionals in the construction industry to refer to the Approved Documents as if they were regulations. Indeed, we saw many examples of that during this Inquiry.⁹²
- 4.29** The Building Act 1984 also allowed private persons and commercial bodies to carry out building control functions, subject to the Building (Approved Inspector etc.) Regulations 1985. Unlike local authorities they were not required to be non-profitmaking.⁹³
- 4.30** Apart from the shift away from linking functional requirements to mandatory standards of performance, the Building Act 1984 and the Building Regulations 1985 did not introduce any fundamental changes to the testing standards which underpinned the approved documents, the majority of which were retained.⁹⁴ Since the standards of performance and tests previously applicable were no longer seen as constraints, the need to review and revise the tests regularly became less urgent. If a new product failed to meet the standard set out in the relevant approved document, the manufacturer or designer could simply look for other ways of demonstrating that its use would not prevent compliance with the functional requirements. Devising ways to comply with the Regulations without following the guidance in the Approved Documents was therefore not an exercise in finding loopholes; it was in accordance with the spirit of the new regulatory system.⁹⁵
- 4.31** Where the new, more flexible, regime might lead was not lost on some at the time. We were struck by the prescient opinion of H. L. Malhotra, a veteran of the Fire Research Station, who in 1986 wrote:

“Historically over the last three centuries we have moved from strict constructional specifications to functional or semi-functional requirements with performance-oriented objectives as and when feasible. Rigid controls are being replaced progressively by a more flexible system which permits alternative solutions to be considered. The burden of responsibility is being shifted from the

⁸⁷ Todd {CTAR00000001/52} paragraph 5.2.4.

⁸⁸ Todd {CTAR00000001/42} paragraph 5.1.19; Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/83} paragraph 396.

⁸⁹ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/90} paragraph 441.

⁹⁰ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/83} paragraph 396.

⁹¹ Todd {CTAR00000001/11} paragraph 2.26; Todd {CTAR00000001/42} paragraph 5.1.20; Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/83} paragraph 397.

⁹² Todd {CTAR00000001/42} paragraph 5.1.16.

⁹³ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/83} paragraph 394.

⁹⁴ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/90} paragraph 442.

⁹⁵ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/90} paragraphs 443 - 444.

central or the local authorities to the individual or corporate designer/contractor for the adequacy of his system ... It will be perhaps another 2 or 3 decades before the consequence of this approach can be seen.”⁹⁶

The Building Regulations applied to London

- 4.32** In January 1986 the Building (Inner London) Regulations 1985 came into force. Thereafter the Building Regulations 1985 (with certain limited exceptions) applied to Inner London.⁹⁷ Building control remained the responsibility of the Greater London Council until its abolition by the Local Government Act 1985 on 1 April 1986, when the responsibility was transferred to the London Boroughs and the Corporation of the City of London.⁹⁸
- 4.33** The Building (Inner London) Regulations 1985 also introduced in London the Building (Approved Inspectors etc.) Regulations 1985, under which approval of plans under the Building Regulations could be granted by an approved inspector, rather than the building control department of a local authority. However, approval of work under section 20 of the 1939 Act (relating to fire safety in tall buildings) continued to rest solely with the local authority until repeal of section 20 by the Building (Repeal of Provisions of Local Acts) Regulations 2012 in January 2013.⁹⁹

The Building Regulations 1991

- 4.34** The Building Regulations 1991 came into force in June 1992. They revoked and replaced, with amendments, the Building Regulations 1985.¹⁰⁰ The main changes brought about by the 1991 Regulations were that functional requirement B1 relating to means of escape was no longer mandatory and a new functional requirement B5 relating to access and facilities for the fire service was introduced.¹⁰¹
- 4.35** Although functional requirements B1 to B4 remained largely unchanged, some small changes were made to their wording and in some places the word “adequate” was either added or removed.¹⁰² In the case of functional requirement B4, the word “adequately” was removed, so that it read “The external walls of the building shall resist the spread of fire ...”.
- 4.36** The 1991 Regulations were amended on a number of occasions before being revoked by the Building Regulations 2000.¹⁰³ During that time the only changes affecting fire safety were those made by the Building Regulations (Amendment) (No. 2) Regulations 1999, which introduced into functional requirement B1 a requirement for the early warning of fire (a change which brought the provision of fire detection and fire alarm systems within the scope of the Building Regulations for the first time),¹⁰⁴ and reintroduced into functional requirements B2, B3 and B4 the word “adequate”. Functional requirement B4 therefore restored the qualifier, eliminated in 1992, that external walls “shall *adequately* resist the spread of fire over the walls...”.¹⁰⁵ Functional requirement B5 was also amended so that facilities to assist the fire service and the provision for access to fire appliances should be

⁹⁶ Malhotra, Fire Safety in Buildings {HOM00035070/15} paragraph 1.20.

⁹⁷ Todd {CTAR00000001/38} paragraph 4.3.2.

⁹⁸ Todd {CTAR00000001/38} paragraph 4.3.2.

⁹⁹ Todd {CTAR00000001/38} paragraph 4.3.3.

¹⁰⁰ Todd {CTAR00000001/43} paragraph 5.1.26.

¹⁰¹ Todd {CTAR00000001/43} paragraph 5.1.27.

¹⁰² Todd {CTAR00000001/43-44} paragraph 5.1.28.

¹⁰³ Todd {CTAR00000001/45} paragraph 5.1.29.

¹⁰⁴ Todd {CTAR00000001/45} paragraph 5.1.30.

¹⁰⁵ Todd {CTAR00000001/45-46} paragraph 5.1.35(iii).

“reasonable”.¹⁰⁶ *“Adequately”* and *“reasonable”* are both words whose effect depends on the context in which they are used. It was therefore left to the person carrying out the work and the building control officer or approved inspector to decide as best they could whether the particular work did or did not meet the functional requirement.

The Building Regulations 2000

- 4.37** The Building Regulations 2000 came into force on 1 January 2000, revoking the Building Regulations 1991.¹⁰⁷ The functional requirements were identical to those set out in the 1991 Regulations (as amended). They were subject to various amendments between 2001 and 2010,¹⁰⁸ an important one being the amendment of functional requirement B3(3) on internal fire spread to require a suitable automatic fire suppression system to be installed where reasonably necessary to inhibit the spread of fire within a building, either as an alternative to, or in addition to, the sub-division of the building with fire-resisting construction.¹⁰⁹ As a result, it became necessary to install sprinklers in newly built blocks of flats over 30 metres in height.¹¹⁰ A further amendment introduced in 2006 required a person carrying out work on a building to give fire safety information to the responsible person under the Fire Safety Order on completion of the work or occupation of the building or extension to assist that person to operate the building or extension with reasonable safety.¹¹¹ This requirement became Regulation 38 in the Building Regulations 2010.

The Building Regulations 2010

- 4.38** The Building Regulations 2010¹¹² came into force on 1 October 2010 and revoked the Building Regulations 2000 (as amended).¹¹³ Apart from largely editorial amendments to functional requirement B3 on internal fire spread, the functional requirements were unchanged.
- 4.39** We consider the Building Act 1984 and the Building Regulations 2010 in greater detail in Chapter 48, in which we discuss the legislative regime as it applied to the refurbishment of Grenfell Tower between 2012 and 2016.

¹⁰⁶ Todd {CTAR00000001/46} paragraph 5.1.36.

¹⁰⁷ Todd {CTAR00000001/46} paragraph 5.1.38.

¹⁰⁸ Todd {CTAR00000001/47} paragraph 5.1.40.

¹⁰⁹ 2006 Amendment (No. 2) Regulations; Todd {CTAR00000001/48} paragraph 5.1.43.

¹¹⁰ Todd {CTAR00000001/48} paragraph 5.1.44.

¹¹¹ Todd {CTAR00000001/48} paragraph 5.1.45.

¹¹² {INQ00015098}.

¹¹³ Todd {CTAR00000001/49} paragraph 5.1.51. The Building Regulations 2010 were amended on a number of occasions between 2011 and 2015, however, none of those amendments are relevant to this report – see Todd {CTAR00000001/51} paragraph 5.1.65.

Chapter 5

Fire testing

Introduction

- 5.1** In this chapter we describe the reaction to fire tests which supported the regulatory framework governing the fire safety of external walls of buildings in England & Wales in the years leading up to the Grenfell Tower fire. They include the national and European reaction to fire tests¹¹⁴ and classification regimes, as well as the national large-scale testing and classification regime.
- 5.2** There are eight reaction to fire tests referred to in Approved Document B; four national test standards (BS 476 Parts 4, 6, 7 and 11) and four European test standards (BS EN 13823, BS EN ISO 1716 and 11925-2 and BS EN 1182). National test method BS 8414 and the criteria contained in a document published by BRE entitled *Fire performance of external thermal insulation for walls of multi storey buildings*, generally known as BR 135, relate to the large-scale testing of external wall cladding systems. A number of experts instructed by the Inquiry, including Dr Lane, Professor Bisby and Professor Torero, gave evidence about the background to those tests, their purpose, the methods by which they are conducted, and the information that can be derived from them. Here we summarise the key points arising from their evidence and the documents on which it was based.

National reaction to fire tests

- 5.3** Before considering each of the key national reaction to fire tests, it is useful to understand the basic stages of a fire in a compartment or room, since it is that “reference scenario” (i.e. the test conditions and related assumptions) which underpins many of the national and European tests. In broad terms, the development of a fire in a room can be divided into three key stages: ignition and growth, fully developed and decay.¹¹⁵
- 5.4** The phenomenon commonly known as “flashover” occurs at the transition between the second and third stages and is characterised by an exponential growth in the size of the fire caused by the rapid ignition of all fuel sources within the compartment.¹¹⁶ It is an important indicator of the onset of a fully developed fire.¹¹⁷ Reaction to fire tests are used to characterise the capacity of products and materials used in construction to contribute to the initiation and growth stages of a fire, leading up to flashover,¹¹⁸ and therefore each of the tests in the BS 476 series is relevant when considering these stages of a fire in a

¹¹⁴ Reaction to fire must be distinguished from resistance to fire. They are different concepts and subject to different tests.

¹¹⁵ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 6.

¹¹⁶ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/136} at 12.4.18.

¹¹⁷ Lane {Day68/9:12-13}.

¹¹⁸ BSI 476-10:2009 “Fire tests on building materials and structures” {BSI00001757/16} at 5.1.

room.¹¹⁹ More specifically, the small and intermediate scale tests that are referred to in the guidance in Approved Document B on constructing external walls are associated with the early stage of fire growth before flashover has occurred.¹²⁰

BS 476-4: non-combustibility

- 5.5** BS 476-4¹²¹ is a test to determine non-combustibility. In paragraphs 91 to 101 of his report entitled *Regulatory Testing and the Path to Grenfell*¹²² Professor Bisby summarised the evolution of testing for combustibility and non-combustibility, both in the UK and internationally, including the publication in 1970 of BS 476-4.¹²³ The test involves a small cuboid sample¹²⁴ of the material being placed in an electric furnace which has been heated to 750°C for a minimum of 10 minutes before the test.¹²⁵ Three specimens are tested separately and a record is made of the measurements made by two thermocouples placed at the centre of each specimen. Heat is provided in the furnace by metal coils and no direct flame impingement occurs. The sample is inserted into the furnace and a record is made of the temperature at the thermocouples for 20 minutes. The occurrence of any flaming in the furnace is noted. Air is allowed to flow through the furnace to enable the combustion of any fuel vapours released by the specimen to the extent that they are capable of forming a combustible mixture and are ignited.¹²⁶
- 5.6** A material is deemed to be non-combustible if, during a test conducted in accordance with BS 476-4, none of the three specimens either (1) causes the temperature reading at either of the thermocouples to rise by 50°C or more above the initial furnace temperature or (2) is observed to flame continuously for 10 seconds or more inside the furnace. Otherwise, the material is deemed to be combustible.¹²⁷ As explained by Professors Torero and Bisby, it is important for the user of this test data to understand that a designation of “non-combustible” does not mean that the material is completely inert,¹²⁸ since the criteria are somewhat arbitrary, including the criterion of no continuous flaming for 10 seconds.¹²⁹

BS 476-11: method for assessing heat emission

- 5.7** BS 476-11¹³⁰ is the method used for assessing the heat emitted by materials. It is the national test for assessing whether a material is of “limited combustibility”, as defined in Approved Document B. The standard makes it clear at the outset that it is not intended to

¹¹⁹ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 9.

¹²⁰ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 9.

¹²¹ {CTAR00000014}.

¹²² Bisby, Phase 2 Report - Regulatory Testing and the Path to Grenfell {LBYP20000001/20}.

¹²³ With further amendments made in 1978 and 1983 and further information added to the foreword in 2014 - Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 21.

¹²⁴ Measuring 40mm x 40mm x 50mm - Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 24

¹²⁵ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, pages 21-29 and see Lane {Day68/15:9}-{Day68/17:25} including video played of the test procedure.

¹²⁶ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/120} at 12.3.11.

¹²⁷ {CTAR00000014/10}.

¹²⁸ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/120} at 12.3.19.

¹²⁹ Bisby Phase 2 Report - Regulatory Testing and the Path to Grenfell {LBYP20000001/23-24} at 109-110 and 116.

¹³⁰ {CTAR00000015}.

assess the effect of materials on fire growth.¹³¹ It was first published in 1982 and has not been amended since.¹³² The test apparatus is similar to that used in the BS 476-4 test.¹³³ A small¹³⁴ cylindrical specimen, whose mass has been measured before the test, is inserted into a furnace which has been heated to 750°C. A thermocouple is inserted at the centre of the specimen and thermocouples are also provided for measuring the temperature of the furnace and the wall of the furnace. The temperatures measured by the thermocouples during the test are recorded and in addition visual observations are made. The procedure is repeated five times. The duration of each test is longer than under BS 476-4 and can be up to 120 minutes. Following each test, both the rise in the temperature of the furnace and the rise in the temperature of the specimen are calculated in relation to each of the five specimens and an average value is obtained. The average duration of sustained flaming is also recorded. Additional measurements are also made, including of the loss of mass of the sample. Other than the reporting of measurements and temperature differences, there is no classification or designation in the test standard itself. Such classifications and designations are to be found in other documents, including Approved Document B.¹³⁵ It is a requirement of BS 476-11 that any report make it expressly clear that the results relate only to the behaviour of the specimens under the particular conditions of the test and that the results are not intended to be the sole criterion for assessing the potential fire hazard of the material in use.¹³⁶

BS 476-6: method of test for the fire propagation of products

- 5.8** BS 476-6, which was first published in 1968,¹³⁷ is the test method for assessing the fire propagation properties of products. Professor Bisby explained that it was developed in order to distinguish better between the fire hazards presented by different products when used within a compartment.¹³⁸ The standard makes clear that the result of the test is expressed as a fire propagation index which provides a comparative measure of the contribution to the growth of fire made by an essentially flat material, composite or assembly.¹³⁹ The test is primarily intended for the assessment of the performance in a fire of internal wall and ceiling linings.¹⁴⁰ This test, together with BS 476-7, is used to determine national Class 0 as defined in Approved Document B.
- 5.9** The test apparatus comprises a combustion chamber with a specimen holder fixed onto the front face. The combustion chamber contains a gas burner and two electrical heating elements and is surmounted by a removable steel chimney. The specimen holder is recessed and takes a specimen measuring 225mm x 225mm. Because the opening to the combustion chamber measures only 190mm x 190mm, the edges of the sample are

¹³¹ {CTAR00000015/4} and see discussion by Torero at, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/123}.

¹³² Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 30. Some information was added to the foreword in 2014.

¹³³ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, pages 31-36 and Lane {Day68/18:1}-{Day68/21:18} including video played of the test procedure.

¹³⁴ Specimens are 45mm in diameter and 50mm in height.

¹³⁵ Torero, Phase 2 Report: Adequacy of the Current Testing Regime {JTOR00000006/124} at 12.3.40.

¹³⁶ {CTAR00000015/9} at 8(g).

¹³⁷ Three further versions were published with the most recent in 2009 {CTAR00000016} and in 2014 a change was made to its foreword – see Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 37.

¹³⁸ Bisby, Regulatory Testing and the Path to Grenfell {LBYP20000001/32-35} at 156-162.

¹³⁹ {CTAR00000016/5} at 1 Scope.

¹⁴⁰ {CTAR00000016/5} at 1 Scope.

not directly exposed to heat from the gas burner or electric heaters.¹⁴¹ Only the front face of the specimen is heated and the fire propagation index subsequently calculated reflects that surface heating.¹⁴² The test runs for 20 minutes. During the test, the output from the thermocouples measuring the temperature of the flue gases in the chimney is recorded and specific temperature measurements are taken at prescribed intervals. For a composite material the outer surface is heated first and any rise in temperature recorded in the chimney reflects the combustion of that surface together with any combustion of the material behind it.¹⁴³ Visual observations are also made during the test, including of deformation or spalling of the specimen, which can result in the test being regarded as invalid in certain circumstances. Data obtained from the test is compared with data obtained when a calcium silicate board is tested. At least three, and no more than five, specimens must be tested. If more than three specimens are tested, three can be selected to provide the test result.¹⁴⁴ This is a depiction of the test apparatus, taken from Dr Lane's presentation:

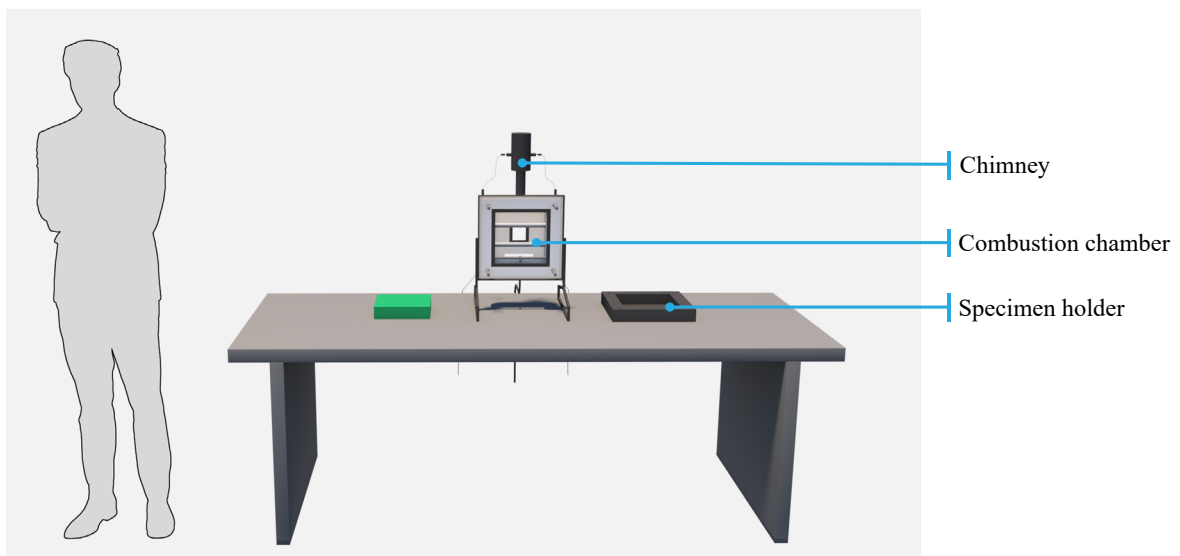


Figure 5.1: Depiction of apparatus for BS 476-6 test.

5.10 The results of the test are expressed as a Fire Propagation Index, which is based on the difference in the rise in temperature of the effluent gases between the tested samples and the calcium silicate board. In respect of each sample, an average is calculated of the differences in temperature recorded during each period of time in which the rate of heating of the furnace varies. An average of the results is then calculated to obtain a single value for each sample (known as sub-indices i_1 , i_2 , i_3), which are added together to give an overall Fire Propagation Index, referred to as I .¹⁴⁵ That overall value, together with the

¹⁴¹ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, pages 39-50 and see Lane {Day68/21:19}-{Day68/33:8} including video played of the test procedure.

¹⁴² See also Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/127} at 12.3.54 and {JTOR00000006/129} at 12.3.64.

¹⁴³ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 54.

¹⁴⁴ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/127} at 12.3.53.

¹⁴⁵ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/127} at 12.3.56; Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 52.

subindices, are the critical results of the test and are referred to in Approved Document B. The key information which the test provides is an indication of how much heat the product is capable of releasing.¹⁴⁶

- 5.11** The contents of the test report are laid down in the standard, which provides that it shall include details of the form in which the specimens were tested (i.e. material, composite or assembly), together with the thickness of the specimen and, where appropriate, its orientation and backing material.¹⁴⁷ The test report must also contain a statement that the test results relate only to the behaviour of the test specimens of the product under the particular conditions of the test and are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.¹⁴⁸ Annex B to the standard makes it clear that the influence of underlying layers on the assembly should be understood and that care should be taken to ensure that the results obtained on any assembly are relevant to its use in practice.¹⁴⁹ The standard also provides that where the product is to be used in conjunction with a particular substrate, it should be tested in conjunction with that substrate.¹⁵⁰
- 5.12** When ACM PE panels are tested using this method, the aluminium can shield the polyethylene, protecting it from exposure to a direct flame and allowing it to melt and flow away, rather than ignite within the panel during the test. If it does not ignite, the temperatures measured in the chimney are lower.¹⁵¹ It follows that if a product containing a core that is completely enclosed does not suffer a failure of the external material, the results of the test will not reveal the presence of any combustible material within.¹⁵²

BS 476-7: surface spread of flame test

- 5.13** BS 476-7¹⁵³ was first published in 1971 and was revised in 1987 and 1997.¹⁵⁴ It is a test method designed to determine the ease with which flame will spread across the surface of a product. It is the second main test used to support a national Class 0 classification. The test was developed as one of a new breed of small-scale fire tests which were intended to assess the fire hazard presented by a product when used in practical applications.¹⁵⁵ It measures the horizontal spread of flame across the surface of a product and provides data which is suitable for comparing the performance in use of flat materials, composites or assemblies used primarily as the exposed surfaces of internal walls or ceilings.¹⁵⁶

¹⁴⁶ Torero {Day292/28:7-16}.

¹⁴⁷ {CTAR00000016/11} at 11(f).

¹⁴⁸ {CTAR00000016/11} at 11(i).

¹⁴⁹ {CTAR00000016/18} left column; Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 43.

¹⁵⁰ {CTAR00000016/18} top right column; Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 44.

¹⁵¹ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, pages 58-59; Lane {Day 68/32:2-10}.

¹⁵² Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/129} at 12.3.64.

¹⁵³ {CTAR00000017}.

¹⁵⁴ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 61. There was also a change to the foreword in 2014.

¹⁵⁵ Bisby, Regulatory Testing and the Path to Grenfell {LBYP20000001/29-31} at 144-151.

¹⁵⁶ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, page 63.

- 5.14** The scale of apparatus used is very different from that used for the national fire tests described above; generally, this is a much larger test.¹⁵⁷ The apparatus consists of a radiation panel measuring 850mm by 850mm, with a specimen holder protruding at a right angle to the radiating surface. The specimen holder comprises a water-cooled steel frame with water-cooled face-plates which overlap the specimen at the edges, thereby ensuring that the edges are not exposed during the test. The specimen is marked with reference lines at set distances before it is mounted into the test rig. Four vertical lines are marked at the distances corresponding to the classification limits for Classes 1–4. A minimum of six and a maximum of nine specimens are tested, which should be representative of the exposed surface of the product. If the product is normally used in conjunction with a substrate, it should be tested with that substrate.
- 5.15** During the test the radiant burner swings into place at a right angle to the specimen and a pilot flame is ignited in the lower corner of the specimen nearest the radiant panel. The pilot flame is extinguished one minute after the start of the test. The test involves recording the extent of flame spread along the face of the specimen after one and a half minutes and ten minutes, the latter being the duration of the test. Any flaming which occurs from material that has fallen or melted below the test rig is disregarded, although observations of such phenomena should be made. The test is terminated if the flame front reaches the 825mm line towards the end of the sample away from the radiant burner.¹⁵⁸ During the test the radiant panel provides an external heat flux of 32.5 kW/m² at the face of its vertical edge closest to the panel, which drops to 5k W/m² at the distant end of the sample.¹⁵⁹ This is a picture of the test during operation taken from Dr Lane’s presentation:



Figure 5.2: Image of BS 476-7 test in operation

¹⁵⁷ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, pages 64-72; Lane {Day68/33:9}-{Day68/40:24} including video of test procedure.

¹⁵⁸ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 1, pages 71-72.

¹⁵⁹ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR0000006/130} at 12.3.70.

- 5.16 Depending on how far the flame has spread after one and a half and ten minutes, the product will receive a classification ranging from Class 1 to Class 4, Class 1 being the best and Class 4 the worst.

National testing classification regime

- 5.17 Unlike Europe, the UK has no overarching system for classifying the reaction to fire of products and materials. Instead, the national classes rely on definitions contained in Approved Document B. We set out below a diagram from Dr Lane’s presentation which sets out the relevant definitions in Approved Document B. We have concentrated on the three definitions central to our work: non-combustible, limited combustibility and national Class 0.

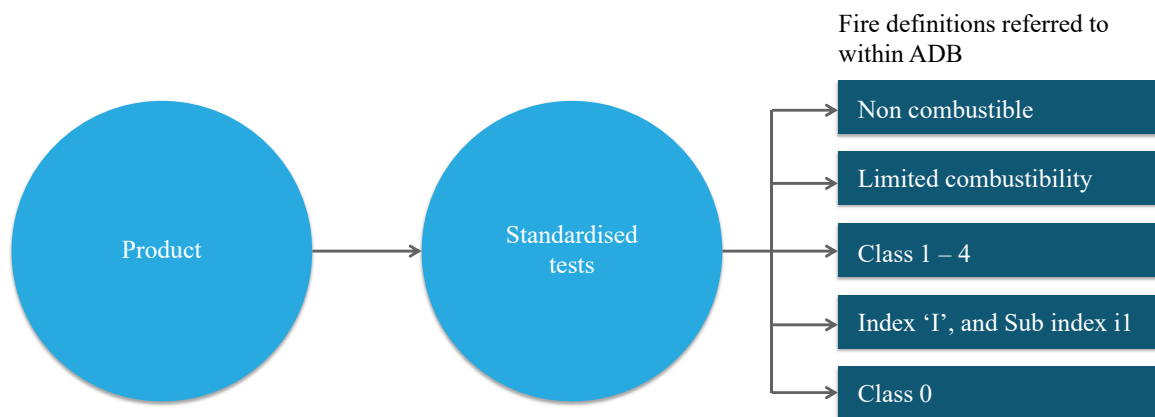


Figure 5.3: National framework - reaction to fire definitions

Non-combustible

- 5.18 Table A6 of Approved Document B sets out the “Use and definitions of non-combustible materials”.¹⁶⁰ The national class definitions of non-combustible materials are based principally on testing in accordance with BS 476-4 and BS 476-11. Any products classified as non-combustible in accordance with BS 476-4 are non-combustible pursuant to the definition.¹⁶¹ BS 476-11 itself does not provide any limits on temperature rise or duration of flaming, but Table A6 states that a material will be classified as non-combustible when tested to BS 476-11 if it does not flame or cause any rise in temperature on either the specimen or furnace thermocouples.¹⁶² In addition Table A6 makes it clear that any totally inorganic materials such as concrete are also to be regarded as non-combustible.¹⁶³

Limited combustibility

- 5.19 Table A7 of Appendix A sets out the “Use and definitions of materials of limited combustibility”.¹⁶⁴ The table is divided into different rows by reference to particular parts of the guidance in Approved Document B which refer to a requirement for materials of limited combustibility. Any material classed as non-combustible meets that definition¹⁶⁵ and in some cases testing to BS 476-11 is relevant. For insulation materials in external wall

¹⁶⁰ {CLG00000224/131}.

¹⁶¹ {CLG00000224/131} sub-paragraph (d) in Table A6 national class.

¹⁶² {CLG00000224/131} sub-paragraph (a) in Table A6 national class.

¹⁶³ {CLG00000224/131} sub-paragraph (b) in Table A6 national class – see (b) in Table A7 national class.

¹⁶⁴ {CLG00000224/132}.

¹⁶⁵ {CLG00000224/132} sub-paragraph (a) in Table A7 national class.

constructions referred to in paragraph 12.7 of Approved Document B, Table A7 provides that any material with a density less than 300kg/m³ will satisfy the definition of limited combustibility if, when tested to BS 476-11, it does not flame for more than ten seconds and the rise in temperature on the specimen thermocouple is not more than 35°C and on the furnace thermocouple is not more than 25°C.¹⁶⁶

National Class 0

5.20 In the 2013 version of Approved Document B,¹⁶⁷ in a section headed “Internal linings”, paragraph 13 of Appendix A provided the following definition of national Class 0:¹⁶⁸

“The highest National product performance classification for lining materials is Class 0. This is achieved if a material or the surface of a composite product is either:

- a. composed throughout of materials of limited combustibility; or
- b. a Class 1 material which has a fire propagation index (I) of not more than 12 and sub-index (i1) of not more than 6.

Note: Class 0 is not a classification identified in any British Standard test.”¹⁶⁹

5.21 Two different ways of meeting the requirements for Class 0 are apparent from that definition. First, they are met if a material or the surface of a composite product is composed throughout of materials of limited combustibility. That takes the reader back to Table A7 of Approved Document B, which contains the definitions of limited combustibility. Item 6 in Table A7 refers to “Class 0 materials meeting the provisions in Appendix A, paragraph 13(a)”. The definitions of materials of limited combustibility for that category are based on testing to BS 476-11 (or BS 476-4 if the material is non-combustible).¹⁷⁰

5.22 There is some ambiguity in the reference in Approved Document B to the “surface” of a composite product being composed “throughout” of materials of limited combustibility. This appears to contemplate that, provided the surface of a composite material is of limited combustibility, national Class 0 can be achieved regardless of the nature of the material behind that surface, or whether the surface is capable of encapsulating what lies behind. In addition, the reference to “surface” is uncertain. No definition of “surface” is provided in Approved Document B and it is not clear whether it is intended to refer to a paint surface or other coating only, or whether it includes a more substantial surface of the external wall, such as an outer skin or sheet which is itself bonded to another material.

5.23 In our view, therefore, there are difficulties with the interpretation of paragraph 13. On one reading of it, the author appears to have contemplated that the “surface” of a composite product might be composed “throughout” of materials of limited combustibility, but in this context the word “throughout” more naturally refers to the interior of a material or product than to its surface; and if the intention had been simply to refer to the whole of the surface area, that could have been achieved much more simply and clearly by referring to the “entire” surface of a composite product. We therefore think it unlikely that that is what paragraph 13 was intended to mean. It is more likely, in our view, that the wording is the product of a clumsy attempt to condense into one compendious expression the following distinct ideas: (i) an homogeneous material of limited combustibility,

¹⁶⁶ A more onerous requirement is set for materials of a density of 300/kg/m³ or more.

¹⁶⁷ {CLG00000224} 2006 edition with 2007, 2010 and 2013 amendments.

¹⁶⁸ {CLG00000224/122}.

¹⁶⁹ {CLG00000224/122} at 13.

¹⁷⁰ {CLG00000224/132}.

(ii) a composite product composed throughout of different materials, all of limited combustibility and (iii) a composite product whose surface is composed of one or more materials of limited combustibility. It can, and in our view should, be read as referring to those three distinct situations.

- 5.24** The second way of meeting the requirements for Class 0 refers to test results from BS 476-6 on fire propagation and BS 476-7 on surface spread of flame. The reference to a “Class 1” material comes from the BS 476-7 test¹⁷¹ and the reference to the “index (I) of not more than 12 and sub-index (i1) of not more than 6” refers to results from the BS 476-6 test. It is only by combining the results from both tests that a Class 0 classification can be obtained.
- 5.25** The history of how national Class 0 has evolved over time is set out in Chapter 6. As we explain in that chapter, the language used in the Approved Documents from 1985 onwards introduced ambiguities and a lack of clarity in relation to the definition of Class 0 which had not existed in the Building Regulations of the 1960s and 70s.

European reaction to fire tests

- 5.26** Some of the European reaction to fire tests are similar to the national tests and others are very different. Unlike the national classification system, the European classification system has been designed specifically for the purpose and contains carefully chosen classification standards. Each European reaction to fire test has its own number and is issued by the European Committee for Standardisation, an association which brings together the national standardisation bodies of 34 countries.¹⁷²

BS EN ISO 1182: non-combustibility

- 5.27** BS EN ISO 1182 is a test method for determining the non-combustibility of materials. At the time of the Grenfell Tower refurbishment the fifth edition (2010) was current.¹⁷³ The test apparatus is very similar to that used in BS 476-11,¹⁷⁴ including an electric furnace capable of maintaining a steady temperature of 750°C. Five cylindrical specimens are prepared¹⁷⁵ and are tested individually, although data from all five is used to produce the final test result. The mass of each specimen is measured before and after the test. The specimen is inserted into the furnace, after which various temperature measurements are taken. The occurrence of any sustained flaming and its duration are also noted. The following information is recorded: (i) the percentage loss of mass of the specimen, (ii) the temperature difference between the maximum gas phase temperature and the temperature in the final minute before the test concludes and (iii) the total duration of any sustained flaming.¹⁷⁶ Despite the title of the test standard, it contains no criteria for determining whether a material can be classified as non-combustible. The purpose of the test is simply to provide data that can be used for the purposes of the reaction to fire classification system set out in EN 13501-1.¹⁷⁷ The standard makes it clear that a statement

¹⁷¹ Class 1 means that the flame must not spread more than 165mm from the heated end after 1.5 minutes of the test and it should also not exceed this limit for the full duration of the test (10 minutes).

¹⁷² Lane {Day68/61:1-5}.

¹⁷³ {BSI00001742}.

¹⁷⁴ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, pages 133-137; Lane {Day68/62:25}-{Day68/64:22} including video of the test procedure.

¹⁷⁵ Each with a diameter of 45mm and a height of 50mm.

¹⁷⁶ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/142} at 12.4.41 and see {BSI00001742/25-26} at 8.1-8.3.

¹⁷⁷ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/142} at 12.4.42.

should be included in the report of the test explaining that the results relate to the behaviour of the product under the particular conditions of the test and are not intended to be the sole criterion for identifying the potential fire hazard of the product in use.¹⁷⁸

BS EN ISO 1716: gross heat of combustion

- 5.28** BS EN ISO 1716 is a test method for measuring the gross heat of combustion (calorific value) of a product or material. The 4th edition (2010) version of this standard was current at the time of the Grenfell Tower refurbishment.¹⁷⁹ It is used to determine the gross heat of combustion of materials or products at constant volume in a piece of apparatus called a bomb calorimeter.¹⁸⁰ Essentially, a sample of material of a known mass is ground to a powder and burned in an atmosphere of oxygen. A flaming wire is used to ignite the material and the rise in temperature of the surrounding vessel of water is measured. Three specimens are tested, the result being an average of the values obtained expressed in joules or megajoules. The rise in the temperature of the water can be used to establish the amount of energy in the form of heat produced by the combustion of the test sample.¹⁸¹ Metal powders are not suitable for testing in this way because they present a risk of explosion.¹⁸² Again, the test report must make it clear that the results relate only to the particular conditions of the test and should not be the sole criterion for assessing the fire hazard in use.¹⁸³

BS EN 13823: single burning item test

- 5.29** BS EN 13823 is commonly referred to as the “single burning item test”.¹⁸⁴ The 2002 version of this standard was relevant to some of the tests on ACM commissioned by Arconic.¹⁸⁵ The 2014 version was current at the time of the Grenfell Tower refurbishment,¹⁸⁶ although there are no material differences for present purposes. The single burning item test is known as a “scenario” test¹⁸⁷ because it is intended to establish the performance of materials under conditions representative of a fire within a compartment. It is intended to act as a scaled-down version of the full-scale room corner test – ISO 9705 – and was developed in such a way that the results would be indicative of those that would be obtained in a full-scale test.¹⁸⁸

¹⁷⁸ {BSI00001742/26} at 9(p).

¹⁷⁹ {BSI00001737/19} at 10(q).

¹⁸⁰ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, pages 139-146; Lane {Day68/64:23}-{Day68/67:10} including video of the test procedure.

¹⁸¹ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/143} at 12.4.48.

¹⁸² Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 143.

¹⁸³ {BSI00001737}.

¹⁸⁴ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 147; Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/148} at 12.4.65. The full title of the standard is “Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item” - see {BSI00000119}.

¹⁸⁵ {BSI00000119}.

¹⁸⁶ {BSI00000119}.

¹⁸⁷ Professor Torero categorises any tests which represent a scenario which is deemed to be realistic as a scenario test - Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/86} at 10.2.16.

¹⁸⁸ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/148} at 12.4.66; Bisby, Phase 2 Report - Regulatory Testing and the Path to Grenfell {LBYP20000001/35} at 166.

- 5.30** The method involves testing a specimen forming a corner.¹⁸⁹ The specimen holder is a metal frame with a calcium silicate backing board. The intention of the test is to represent the end-use application of the product, so the specimen is fixed to the backing board in a manner consistent with the fixing conditions adopted in the end-use application.¹⁹⁰ The specimen holder contains two wings, one long one (1m in length) and one short one (495mm in length), each 1.5m in height. Apart from the BS 8414 test, it is the largest specimen used in any of the reaction to fire tests, either in Europe or this country.
- 5.31** The test sponsor may choose to mount the specimen in an “end-use application” mounting, reflecting how the product will be used in a building, or a standard mounting as defined in BS EN 13823.¹⁹¹ For instance, in the case of a rainscreen panel, the sponsor may choose the type of fixing to be used and can also attach insulation behind the panel to reflect end-use conditions, provided the dimensions of the specimen satisfy certain requirements, including a maximum thickness of 200mm.¹⁹² If the sponsor chooses an end-use application mounting, the test results are valid only for that application.¹⁹³
- 5.32** The test rig contains two burners, a primary burner and an auxiliary burner. The primary burner is located in the corner between the two wings and although it is offset by 40mm, flames given off by the burner can make direct contact with the outside face of the test specimen. It is a gas and sand burner which is calibrated to give a heat output of 30kW and intended to represent a waste paper bin on fire in the corner of a room. The auxiliary burner is located at a distance from the test apparatus; its only purpose is to run for a short period before the primary burner is ignited to provide a baseline average burner heat and smoke output at the start of the test. The contribution of both burners is subtracted at the end of the test to calculate the contribution of the specimen. The specimen is mounted on a trolley which is moved under the test rig. Above the rig is a hood which contains an exhaust system. During the test several measurements are taken in the duct through which the smoke is extracted, including the temperature and density of the smoke. This is a depiction of the test apparatus taken from Dr Lane’s presentation:¹⁹⁴

¹⁸⁹ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, pages 147-162; {Day68/67:11-74:6}

¹⁹⁰ {BSI00000119/15} at 5.2.2(b) and see Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/150} at 12.4.69.

¹⁹¹ {BSI00000119/15-16} at 5.2.

¹⁹² {BSI00000119/15} at 5.1.1.

¹⁹³ {BSI00000119/16} at 5.2.1.

¹⁹⁴ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 153.



Figure 5.4: Depiction of test apparatus for BS EN 13823

- 5.33** The test runs for about 20 minutes during which the rate of heat production from the specimen is determined by means of measurements taken within the extractor hood. This information is expressed in a range of forms that include the average heat release rate, the total heat released, including in the first ten minutes, and the fire growth rate index “FIGRA”.¹⁹⁵ The propensity for lateral flame spread is measured by a single visual observation of whether sustained flames reach the end of the long wing (1m) at any time during the test. The rate of progression of the flame is otherwise not recorded. The propensity to produce flaming droplets is recorded within the first ten minutes if droplets reach floor level outside the burner zone. Information about smoke production is also produced by means of measurements which include the average smoke production rate, the total smoke production and the smoke growth rate index “SMOGRA” which measures the rate of increase of smoke production.¹⁹⁶
- 5.34** Data is collected from three separate tests.¹⁹⁷ The results of the test are expressed primarily in a series of graphs which display both burning and smoke production behaviour.¹⁹⁸ Numerical values are calculated and recorded for some parameters, including the FIGRA and the total heat release rate (“HRR”). These figures are recorded in the test reports and then averaged over the three tests and expressed as a single figure. The average is relevant for classification to EN 13501, as discussed further below. If a specimen does not perform as expected in a single burning item test, it is possible to test up to two more specimens. If that occurs, the highest and lowest results are discarded and the mean value is calculated on the remaining three values to arrive at an overall average figure.¹⁹⁹

¹⁹⁵ The FIGRA is intended to represent, in a standardised manner, how fast a fire spreads over the sample. It does not relate to any physical phenomenon beyond the fact that if the fire reaches a large heat release rate in a short period of time it delivers a large FIGRA - see Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/153} at 12.4.88.

¹⁹⁶ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/150} at 12.4.72-12.4.75, 12.4.89.

¹⁹⁷ {BSI00000119/18} at 5.4.

¹⁹⁸ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 156.

¹⁹⁹ {BSI00001738/17-18} at 7.1-7.5.

- 5.35** The standard also identifies a range of information which must be included in the test report, including a statement that the test results are not the sole criterion for assessing the potential fire hazard of the product in use.²⁰⁰ The rate at which the fire is able to grow due to ignition of the product being tested is considered indicative of the product's propensity to bring a fire from its initial stages to the point of flashover.²⁰¹

BS EN ISO 11925-2: single-flame source test

- 5.36** BS EN ISO 11925-2 is known as the “single-flame source” test.²⁰² The 2010 version was current at the time of the Grenfell Tower refurbishment. The test is designed to simulate a small flame being applied directly to the surface or to the edge of a material. The test standard makes it clear that the configuration of the test specimen should reflect the end-use application and if the product is installed with unprotected edges, tests should be performed on both covered and unprotected edges.²⁰³
- 5.37** The apparatus for the test comprises a Bunsen burner housed within an outer compartment called the combustion chamber.²⁰⁴ The test sample is 250mm long by 90mm wide²⁰⁵ and is suspended from the back wall of the combustion chamber with an aluminium tray placed below containing sheets of paper which can catch any flaming droplets. During the test the Bunsen burner applies a flame directly to the surface or edge of the material at an angle of 45°. ²⁰⁶ The flame is applied for either 15 or 30 seconds²⁰⁷ depending on the classification the test sponsor wishes to obtain. Ignition and any vertical flame spread is observed and recorded, together with the amount of flaming droplets or particles and whether they ignite the paper below. The presence of any flaming on the specimen once the pilot flame is removed is also recorded.
- 5.38** The following picture of a sample about to undergo an ISO 11925-2 test is taken from Professor Torero's report on the adequacy of the current testing regime:²⁰⁸

²⁰⁰ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 157.

²⁰¹ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/151} at 12.4.77.

²⁰² {BSI00000125} the full title of the standard is “Ignitability of building products subjected to direct impingement of flame. Part 2 – Single-flame source test.”

²⁰³ {BSI00000125/10-11} at 5.4.4 and 5.5.

²⁰⁴ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, pages 163-177; Lane {Day68/74:7}–{Day68/79:18} including video of test procedure.

²⁰⁵ With a maximum permitted thickness of 60mm.

²⁰⁶ When a surface exposure is used the flame is applied 40mm up from the bottom of the specimen on the front face of the specimen. When an edge exposure is used the flame is applied on the bottom edge of the specimen.

²⁰⁷ If applied for 15 seconds, the total test duration is 20 seconds and if applied for 30 seconds, the total test duration is 60 seconds. That allows for a period of time after the flame has been removed to observe what happens when the flame is removed.

²⁰⁸ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/147}.



Figure 5.5: Picture of sample about to undergo ISO 11925-2 test

- 5.39** This is another “scenario” test, the purpose of which is to simulate the initiation of a compartment fire and to establish if a small, localised heat source can ignite a product or material within the compartment and sustain a flame away from the initiating flame.²⁰⁹

European reaction to fire test classification system

- 5.40** BS EN 13501-1 is the European standard which contains the European reaction to fire classification system. The 2009 edition was current at the time of the Grenfell Tower refurbishment.²¹⁰ It contained a reaction to fire classification for all construction products, including products incorporated into building elements. The system was designed to create a single system of classification that would capture a broad range of physical processes.²¹¹
- 5.41** Table 1 describes the European reaction to fire performance classes. There are seven classes, from A1, which is the highest classification, to F, which means that no performance can be determined.²¹² For each category the standard provides that the classification can be obtained only by undertaking the tests or the extended application process required for that particular product. This is a copy of Table 1.²¹³

²⁰⁹ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/146} at 12.4.54.

²¹⁰ {BSI00001738} BS EN 13501-1:2007+A1 2009 “Fire classification of construction products and building elements. Classification using test data from reaction to fire tests.” See also the 2002 version at {BSI00000620}.

²¹¹ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/136} at 12.4.16.

²¹² Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 3, pages 178-190.

²¹³ {BSI00001738/40}.

Class	Test method(s)	Classification criteria	Additional classification
A1	EN ISO 1182 ^a and	$\Delta T \leq 30 \text{ }^\circ\text{C}$; and $\Delta m \leq 50 \%$; and $t_f = 0$ (i.e. no sustained flaming)	-
	EN ISO 1716	$PCS \leq 2,0 \text{ MJ/kg}$ ^a and $PCS \leq 2,0 \text{ MJ/kg}$ ^{b c} and $PCS \leq 1,4 \text{ MJ/m}^2$ ^d and $PCS \leq 2,0 \text{ MJ/kg}$ ^e	-
A2	EN ISO 1182 ^a or	$\Delta T \leq 50 \text{ }^\circ\text{C}$; and $\Delta m \leq 50 \%$; and $t_f \leq 20 \text{ s}$	-
	EN ISO 1716 and	$PCS \leq 3,0 \text{ MJ/kg}$ ^a and $PCS \leq 4,0 \text{ MJ/m}^2$ ^b and $PCS \leq 4,0 \text{ MJ/m}^2$ ^d and $PCS \leq 3,0 \text{ MJ/kg}$ ^e	-
	EN 13823	$FIGRA \leq 120 \text{ W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7,5 \text{ MJ}$	Smoke production [†] and Flaming droplets/particles ^g
B	EN 13823 and	$FIGRA \leq 120 \text{ W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7,5 \text{ MJ}$	Smoke production [†] and Flaming droplets/particles ^g
	EN ISO 11925-2 [†] : Exposure = 30 s	$F_s \leq 150 \text{ mm}$ within 60 s	
C	EN 13823 and	$FIGRA \leq 250 \text{ W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 15 \text{ MJ}$	Smoke production [†] and Flaming droplets/particles ^g
	EN ISO 11925-2 [†] : Exposure = 30 s	$F_s \leq 150 \text{ mm}$ within 60 s	
D	EN 13823 and	$FIGRA \leq 750 \text{ W/s}$	Smoke production [†] and Flaming droplets/particles ^g
	EN ISO 11925-2 [†] : Exposure = 30 s	$F_s \leq 150 \text{ mm}$ within 60 s	
E	EN ISO 11925-2 [†] : Exposure = 15 s	$F_s \leq 150 \text{ mm}$ within 20 s	Flaming droplets/particles ^h
F	No performance determined		

^a For homogeneous products and substantial components of non-homogeneous products.
^b For any external non-substantial component of non-homogeneous products.
^c Alternatively, any external non-substantial component having a $PCS \leq 2,0 \text{ MJ/m}^2$, provided that the product satisfies the following criteria of EN 13823: $FIGRA \leq 20 \text{ W/s}$, and $LFS < \text{edge of specimen}$, and $THR_{600s} \leq 4,0 \text{ MJ}$, and s1, and d0.
^d For any internal non-substantial component of non-homogeneous products.
^e For the product as a whole.
[†] In the last phase of the development of the test procedure, modifications of the smoke measurement system have been introduced, the effect of which needs further investigation. This may result in a modification of the limit values and/or parameters for the evaluation of the smoke production.
s1 = $SMOGRA \leq 30 \text{ m}^2/\text{s}^2$ and $TSP_{600s} \leq 50 \text{ m}^2$; s2 = $SMOGRA \leq 180 \text{ m}^2/\text{s}^2$ and $TSP_{600s} \leq 200 \text{ m}^2$; s3 = not s1 or s2
^g d0 = No flaming droplets/ particles in EN 13823 within 600 s;
d1 = no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s;
d2 = not d0 or d1.
Ignition of the paper in EN ISO 11925-2 results in a d2 classification.
^h Pass = no ignition of the paper (no classification);
Fail = ignition of the paper (d2 classification).
ⁱ Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.

Figure 5.6: Table 1 from BS EN 13501-1

5.42 As is apparent from the table, in order to achieve European classification A1 data obtained from the following two reaction to fire tests is required: (1) EN ISO 1716, the gross heat of combustion using the bomb calorimeter method and (2) EN ISO 1182, the non-combustibility furnace test method. In order to be classified A1, the material must achieve certain results in both.

- 5.43** There are two combinations of tests that can be used to determine European classification A2. In either combination the single burning item test (BS EN 13823) is required. In addition, the material should be tested either using the bomb calorimeter method (EN ISO 1716) or the non-combustibility furnace test method (EN ISO 1182). For Class A2, the requirements are less stringent than for A1: for example, if using the bomb calorimeter method a gross heat of combustion less than 3MJ/kg is permitted, whereas for Class A1 a gross heat of combustion of less than 2MJ/kg is required.
- 5.44** For European classes B to D, test combinations are required. Those classifications rely on the single burning item test and the single-flame source test only, with the requirements for each of the tests becoming less onerous as one moves down the classes. For example, a Class B material must achieve a FIGRA of less than 120W/s in the single burning item test, whereas a Class C material must achieve a FIGRA of less than 250W/s and a Class D material less than 750W/s. For classification E, only the single-flame source test is required.²¹⁴ Class F is appropriate when a product fails to obtain Class E and is applied when a product has no performance criteria.
- 5.45** The following summary of the European classes and the properties required to obtain them is taken from Dr Lane's presentation:²¹⁵

European Classification	Relevant tests
A1	BS EN ISO 1716 and BS EN ISO 1182
A2 (combination 1)	BS EN ISO 1182 and BS EN 13823
A2 (combination 2)	BS EN ISO 1716 and BS EN 13823
B	BS EN 13823 and BS EN ISO 11925-2
C	BS EN 13823 and BS EN ISO 11925-2
D	BS EN 13823 and BS EN ISO 11925-2
E	BS EN ISO 11925-2
F	No performance criteria OR fails to achieve Class E requirement to BS EN ISO 11925-2

Figure 5.7: Summary of the European classes

- 5.46** Each of the classes is also divided by reference to the volume of smoke and flaming droplets produced by the sample, which is designated by the notations s1, s2 and s3 for smoke production and d0, d1 and d2 for flaming droplets. Classification of smoke production is obtained from data taken during the single burning item test only, whereas classification relating to the production of flaming droplets is obtained by reference to observations taken during both the single burning item test and the single-flame source test.²¹⁶

²¹⁴ There has to be flame spread less than 150mm within 20 seconds and no ignition of the paper below.

²¹⁵ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 3, page 190.

²¹⁶ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 3, pages 192-193.

- 5.47** EN 13501-1 provides that the field of application of any classification which has been achieved must be identical to the field of application resulting from the test(s) or from any extended application process.²¹⁷ It also makes it clear that a different classification may apply if different end-use applications are envisaged for the particular product.²¹⁸

The European classes cited in Approved Document B

- 5.48** The 2013 version of Approved Document B referred to the European classifications at various places in relation to the construction of external walls. In Table A6 dealing with the use and definition of non-combustible materials,²¹⁹ any material which is classified as A1 under the European classification system is regarded as non-combustible. In addition, certain materials are regarded as Class A1 without the need for testing and are also regarded as non-combustible.²²⁰
- 5.49** In Table A7, which addresses the use and definitions of materials of limited combustibility,²²¹ any insulation material used in an external wall construction of the kind referred to in paragraph 12.7 of Approved Document B must either be non-combustible, as specified in table A6, or be classified A2-s3, d2 or better in accordance with BS EN 135011. The reference to “s3, d2” in Table A7 means that no limits are set for the production of smoke or flaming droplets or particles.
- 5.50** In Diagram 40 of Approved Document B the external surfaces of walls of buildings over 18m in height were required to be either national Class 0 or European Class B-s3, d2 or better. That meant that, if one were seeking to adopt the European classification, the external surface had to have achieved certain results in the single burning item and single-flame source test, but that there were no minimum requirements for the production of smoke or flaming droplets or particles.

Large-scale testing to BS 8414 and classification to BR 135

- 5.51** Methods for large-scale fire testing of cladding systems are contained in BS 8414 Parts 1 and 2. The classification method and performance criteria are set out in BR 135.²²² At the time of the Grenfell Tower fire BRE was the UK’s only testing laboratory with accreditation to undertake BS 8414 testing. There is no European equivalent of the BS 8414 test.
- 5.52** BS 8414 is a two-part British Standard. Part 1²²³ contains the method for testing external cladding systems applied to masonry walls; Part 2²²⁴ contains the method for testing external cladding systems fixed to and supported by structural steel frames. The exposure

²¹⁷ {BSI00001738/38} at 15 “Field of application of the classification”.

²¹⁸ *Ibid.* It also states that while the classification may be valid for products within the same family where the reaction to fire classification can be proven to be unchanged, it may be that the field of application is extended in an extended application report, separate rules for which are given in CEN/TS 15117.

²¹⁹ {CLG00000224/131}.

²²⁰ As defined in European Commission Decision 2003/424/EC 6 June 2003 e.g. cement, masonry cement.

²²¹ {CLG00000224/132}.

²²² Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 3, page 222.

²²³ BS 8414-1:2002 “Fire performance of external cladding systems – Part 1: Test method for non-loadbearing external cladding systems applied to the face of the building.” {BSI00000163}. A second edition was published in 2015 - BS 8414-1:2015 {BSI00000253}.

²²⁴ BS 8414-2:2005 “Fire Performance of external cladding systems – Part 2 Test methods for non-loadbearing external cladding systems fixed to and supported by a structural steel frame.” {BSI00000097}. A second edition was published in 2015 - BS 8414-2:2015 {BSI00000167}.

to fire of the system being tested is intended to be representative of an external fire source or a fully developed (post-flashover) fire in a room venting through an opening such as a window and exposing the cladding to the effects of external flames.²²⁵

- 5.53** The system to be tested is formed of two walls, each at least 8m high. One, the main wall, contains the combustion chamber and has a wing wall set at right angles to it at one side. The composition and structure of the walls are determined by the person commissioning the test. The main wall contains an open-faced combustion chamber at ground level measuring 2m by 2m²²⁶ in which the fuel source is located. The fuel source is a timber crib comprising layers of softwood sticks arranged alternately; when ignited, it is designed to produce a total heat output of 4,500 megajoules with a peak heat release rate of 3 megawatts. This fire source is designed to produce flames which are typical of a fully developed building fire impinging on the façade.²²⁷ The main wall of the test specimen must be a minimum of 2.6m wide and 6m in height (when measured from the top of the combustion chamber); the wing wall must be a minimum of 1.5m wide and 8m high. No guidance is given on how the system is to be constructed around the opening to the combustion chamber.²²⁸ The second editions of BS 8414-1 and 8414-2 provided that “the test specimen shall include all relevant components assembled and installed in accordance with the manufacturer’s instructions”.²²⁹
- 5.54** Two types of data are recorded during the test: temperatures and visual observations. To measure temperatures a number of thermocouples²³⁰ are located on the exterior of the cladding system at 2.5m (level 1) and 5m (level 2) above the test opening. These thermocouples do not make direct contact with the cladding system and are positioned at a distance of 50mm from the surface. Internal thermocouples are also placed within the cladding system in any combustible layers greater than 10mm in thickness. These internal thermocouples are positioned at level 2 only. A photograph and diagram from Dr Lane’s presentation showing the location of the different thermocouples appears below.

²²⁵ See {BSI00000163/5} and {BSI00000097/5} under “1 Scope”.

²²⁶ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 3, pages 242-246 and see Lane {Day68/106:25}-{Day68/114:11}, including video of the test procedure.

²²⁷ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/100} at 12.2.15 and see BR 135 1st Edition {BRE00001077/5} bottom left column.

²²⁸ Torero, Phase 2 Report, Adequacy of the Current Testing Regime {JTOR00000006/100} at 12.2.9.

²²⁹ {BSI00000167/13} under section 6 “Test specimen”. The “external cladding system” is defined in 3.3 under Note 1 as including “for example, sheeting rails, fixings, cavities, insulation and membranes, coatings, flashings or joints” see {BSI00000167/7}.

²³⁰ Thermocouples on the main wall are positioned on the centreline of the wall and then at 500mm and 1000mm either side of this centre line. Thermocouples on the return wall are positioned at 150mm, 600mm and 1050mm from the junction with the main wall.

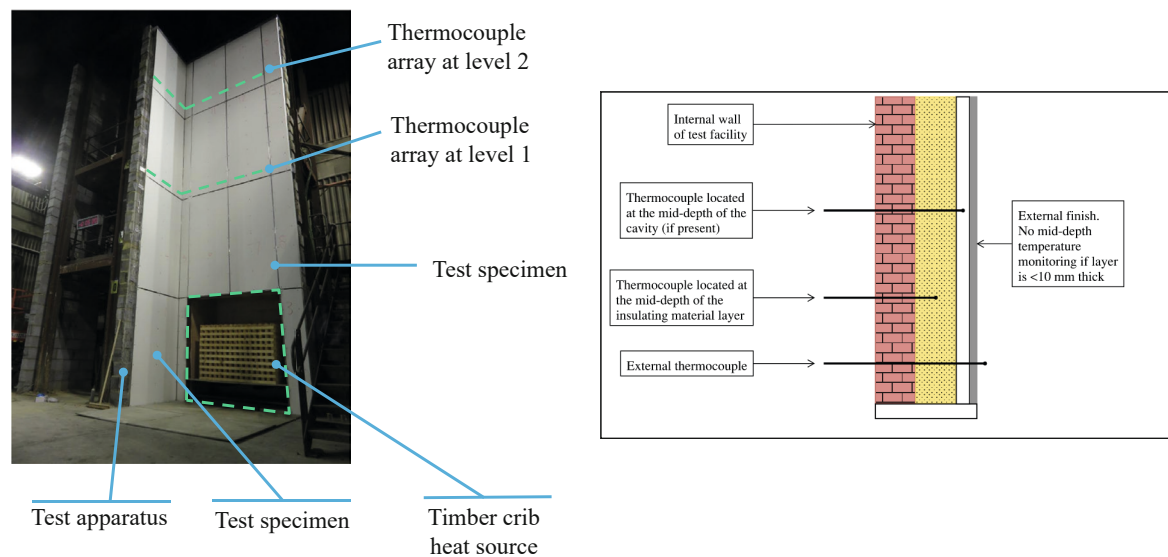


Figure 5.8: Diagram and picture showing the location of thermocouples in BS 8414 test

- 5.55** The visual observations to be taken during the test include any change in flaming conditions or the mechanical behaviour of the cladding system, especially detachment of any part of the system (whether flaming or otherwise) or any other penetrations through fire stops incorporated within it.²³¹ A continuous audio-visual record of the full height of the test face is taken throughout the test and for steel-framed systems an audio-visual record is also required of the internal face of the cladding system, so that any burn-through can be assessed.²³²
- 5.56** Temperature and visual recordings are taken from five minutes before ignition until 60 minutes after ignition.²³³ The crib is allowed to burn for 30 minutes, at which point it is extinguished and the test allowed to run for a further 30 minutes during which any observed flaming is allowed to continue. The test is stopped early if at any point flames extend above the test rig or if there is a risk to the safety of the personnel within the test facility.²³⁴ A test report should be provided for each test undertaken, even if the test is terminated early; the standard sets out a list of information which should be included in the test report.²³⁵ The following photographs of a BS 8414 test in operation are taken from Dr Lane's presentation:

²³¹ See Second Edition of BS 8414-2:2015 at 8.4 Test Observations {BSI00000167/14}.

²³² {BSI00000167/12} at 5.9 and Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 3, page 246.

²³³ Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 3, page 247.

²³⁴ The provision for early termination was contained in BS 8414-2:2005 but not BS 8414-1:2002. It was introduced to the Part 1 test in 2015 - see {BSI00000253/14} at 8.6 Early test termination criteria. The reference to early termination was also introduced into the 3rd Edition of BR 135 in 2013 - see {BRE00005555/27} at A2.

²³⁵ See example for Part 2 {BSI00000167/15} at section 10.



Figure 5.9: photographs of a BS 8414 test in operation

5.57 The second²³⁶ and third²³⁷ editions of BR 135 both contained two annexes each providing performance criteria relevant to the BS 8414 tests. The third edition, which is most relevant to the Grenfell Tower fire, contains three main performance criteria: external fire spread, internal fire spread and mechanical performance. In relation to external and internal fire spread the document contains failure criteria only. Failure due to external fire spread is deemed to have occurred if the rise in temperature over the initial ambient temperature of any of the thermocouples at level 2 exceeds 600°C for a period of at least 30 seconds within 15 minutes of the start time, which is defined as the time at which any thermocouple at level 1 equals or exceeds 200°C for a period of 30 seconds.²³⁸ Failure due to internal fire spread is deemed to have occurred if the rise in temperature above the initial ambient temperature of any of the internal thermocouples at level 2 exceeds 600°C for a period of at least 30 seconds within 15 minutes of the start time.^{239,240} No failure criteria are set in respect of mechanical performance, but continuing combustion of the system following extinction of the crib is to be included in the test and classification reports, together with details of any collapse, spalling, delamination of the system, the production of flaming debris or pool fires.²⁴¹ Although there are no criteria for mechanical failure, the nature of the mechanical performance should be considered as part of the overall risk assessment when specifying the system.²⁴²

²³⁶ {BRE00005554} Colwell, Martin 2003.

²³⁷ {BRE00005555} Colwell, Baker 2013.

²³⁸ {BRE00005555} at Annex A, A2.1 and Annex B, B2.2.

²³⁹ {BRE00005555} at Annex A, A2.3 and {BRE00005555/33} at Annex B, B2.3.

²⁴⁰ In addition, Annex B for steel-framed systems tested to BS 8414-2 provides that where system burn-through occurs so that flame reaches the internal surface, failure is deemed to have occurred if continuous flaming, defined as a flame with a duration in excess of 60 seconds, is observed on the internal face of the test specimen at or above a height of 0.5m above the combustion chamber within 15 minutes of the start time - see {BRE00005555/33} at Annex B, B2.3.

²⁴¹ {BRE00005555/29} at A2.4 and {BRE00005555/33} at B2.4.

²⁴² {BRE00005555/29} at A2.4 and {BRE00005555/33} at B2.4.

5.58 The third edition of BR 135 made it clear that, in order for a system to be classified in accordance with BR 135, it must have been tested for the full duration provided for in BS 8414 without any early termination of the period of exposure to the full fire load.²⁴³ Parts 1 and 2 of BS 8414 stipulate that records must continue to be made for an additional 30 minutes up to a maximum duration of 60 minutes, unless no part of the system is still burning 30 minutes after ignition, in which case the test should be terminated.²⁴⁴ The third edition of BR 135 also provides in terms (unlike the second edition) that the classification applies only to the system as tested and described in the classification report.²⁴⁵ Both a BS 8414 test report and a BR 135 classification report are therefore necessary to demonstrate that the system has been fully tested and classified to the necessary standard.

²⁴³ {BRE00005555/27} at A2 and {BRE00005555/32} at B2.

²⁴⁴ Part 1 (2002) {BSI00000163/10} at paragraph 7.4; Part 2 (2005) {BSI00000097/11} at paragraph 8.5.

²⁴⁵ {BRE00005555/28} at A2, left column and {BRE00005555/32} at B2 right column.

Chapter 6

Regulations and guidance relating to external walls

Introduction

- 6.1** Legislative involvement in the construction of external walls has its origin in the Great Fire of London, 1666. For many years prescriptive rules contained in local Acts of Parliament and byelaws determined the kinds of materials and methods of construction that could be used, but during the latter half of the last century there was a move towards reliance on functional requirements of a kind that were capable of being applied in accordance with the nature, location and use of the particular building. The regulations were supported by statutory guidance contained in a series of approved documents.
- 6.2** Our survey of the development of the regulatory framework relating to the construction of external walls reveals the extent to which restrictions on the use of non-combustible materials were relaxed by degrees to permit the use of combustible materials in certain circumstances. The relaxation of the requirements was accompanied by an increasing lack of clarity in the language of the regulations and associated guidance. Over time, certain definitions (including the definition of national Class 0) were altered in a way that rendered them unclear. Both developments are important in explaining the environment in which the building profession was operating when the refurbishment of Grenfell Tower was undertaken between 2012 and 2016.
- 6.3** In the chapters that follow we have sought to put the most important of those changes into context and to explain the reasons why they were made, insofar as the evidence permits us to do so. We have begun our survey with the fire at Knowsley Heights in Liverpool in 1991 because it seems to us that the events that followed laid the ground for the tragedy which occurred at Grenfell Tower in June 2017.

The London Building (Constructional) By-laws

- 6.4** At the time Grenfell Tower was built London had its own system of building legislation, principally the London Building Acts 1930–39 and associated byelaws. The London Building (Constructional) Amending By-laws (No. 1) 1964 provided that all elements of construction were to be non-combustible, but a specific byelaw permitted external cladding to be made of such materials, of such thicknesses and fixed and supported in such a manner as the District Surveyor might approve.
- 6.5** In March 1973 all existing byelaws were revoked by the London Building (Constructional) By-laws 1972. The 1972 byelaws required the construction to be non-combustible, but any external cladding could either satisfy the requirements of the District Surveyor or comprise 1mm of combustible material applied to a non-combustible backing, such that the composite material would achieve a Class 1 surface spread of flame if tested in accordance with BS 476-7.²⁴⁶

²⁴⁶ Todd {CTAR00000001/28} paragraph 4.1.16.

- 6.6** It is clear, therefore, that by 1973 the London byelaws not only drew a distinction between the construction of the external wall and external cladding but also permitted a thin layer of combustible material to be used as the surface of any external cladding provided that the composite product met certain requirements in relation to the surface spread of flame.

The 1965 Building Regulations

- 6.7** A similar approach was taken in the Building Regulations 1965 (which did not apply to Inner London). The 1965 Regulations provided that any external wall of a building exceeding 50 feet in height should not include any combustible material except any external cladding not required by paragraph (3) to be non-combustible.²⁴⁷
- 6.8** By paragraph (3), any cladding on an external wall situated more than three feet from a relevant boundary, if the building was more than 50 feet²⁴⁸ in height, was required to have a surface complying with the requirements for Class 0, save that cladding below 50 feet could consist of timber of 3/8in finished thickness. That was the first time that Class 0 had been introduced into the regulatory regime in England and Wales. By regulation E14, in order for the surface to be of Class 0 the material had to be non-combustible throughout or
- “comprise a base or background which is non-combustible with the addition of a surface not exceeding 1/32 inch thick so that the spread of flame rating of the combined product is not lower than Class 1 in clause 7 of ... [BS 476:7]; or
- comprise a base or background which is combustible but with any exposed face finished with a layer not less than 1/8 inch [3.175mm] thick of non-combustible material and with the other face not exposed to air.”²⁴⁹
- 6.9** It is apparent, therefore, that the 1965 Regulations drew a distinction between the external wall and “cladding”. They also permitted the use of external cladding with a very thin surface layer of combustible material, provided the panel as a whole achieved a Class 1 surface spread of flame rating when tested in accordance with what is now BS 476-7. The regulations also permitted cladding which consisted of a combustible “base or background”, provided that any exposed face was finished with a 1/8in thick layer of non-combustible material.
- 6.10** The 1965 Building Regulations also expressly provided that any reference to the “surface of a wall” should be construed as a reference to that surface excluding any door, door frame, window or window frame.²⁵⁰ Taken together with the Class 0 definition, there was no room for doubt about what constituted the “surface” for the purposes of the external cladding requirements, and specific thicknesses and descriptions were prescribed for external cladding so that there was no ambiguity about what type of cladding was permitted and what was not. As we will see, that clarity was lost in later guidance provided in Approved Document B.

²⁴⁷ Regulation E7(2)(b)(i) {INQ00015096/42}; Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 103

²⁴⁸ 50 feet is 15.24 metres.

²⁴⁹ Regulation E14 {INQ00015096/50-51}; Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 104; Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/69-71} paragraphs 325-335.

²⁵⁰ Regulation 14(4)(e) {INQ00015096/51}.

The Building Regulations 1972

- 6.11** The Building Regulations 1972 retained the requirement for the external wall of a building over 15 metres²⁵¹ in height to be non-combustible and any external cladding to be classified Class 0.²⁵² However the definition of Class 0 was changed to refer to materials which were non-combustible “throughout” or which had a surface material which, when tested in accordance with BS 476-6, achieved a fire propagation index (I) not exceeding 12 and a sub-index (i) not exceeding 6.²⁵³
- 6.12** The 1972 Regulations also made it clear that if the surface material were bonded to a substrate, the surface material in conjunction with the substrate had to achieve that level of performance.²⁵⁴ The definition of “surface” remained the same as in the 1965 Regulations.²⁵⁵ The provision in the 1965 Regulations that a combustible substrate with a non-combustible surface could be rated Class 0 was not retained in the 1972 Regulations.
- 6.13** As Professor Bisby has explained, those who developed the BS 476-6 method to test fire propagation appear to have been satisfied, based on the (limited) experimental data they had at the time, that a fire propagation index (I) of less than 12 indicated a lower hazard, whilst a fire propagation index above 20 indicated the highest possible hazard.²⁵⁶ That was based on comparing the performance of products in the BS 476-6 test with how they performed in small-scale compartment fire tests.²⁵⁷

The Building Regulations 1976

- 6.14** In the Building Regulations 1976 the position remained the same,²⁵⁸ save that the definition of Class 0 was changed again. Class 0 was defined either as non-combustible throughout, or by reference to a surface material which was tested both to BS 476-7 on surface spread of flame and BS 476-6 on fire propagation.²⁵⁹ Again, the regulations made clear that if the surface material was bonded to a substrate, the surface material in conjunction with the substrate had to achieve that level of performance.²⁶⁰
- 6.15** This reliance on tests according to both BS 476-7 and BS 476-6 to establish Class 0 remained essentially unchanged until the Grenfell Tower fire in 2017.

²⁵¹ Metric units of height replaced imperial.

²⁵² Regulation E7(2)(a)(i) of the Building Regulations 1972; Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 107.

²⁵³ Regulation E15(1)(e) of the Building Regulations 1972.

²⁵⁴ Regulation E15(1)(e)(ii) of the Building Regulations 1972.

²⁵⁵ In Regulation E15(b).

²⁵⁶ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/78} paragraph 375.

²⁵⁷ Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/77} paragraphs 373-374.

²⁵⁸ Regulation E7(3)(a) and (4) of the Building Regulations 1976; Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 120.

²⁵⁹ Regulation E15 (1)(e)(ii) of the Building Regulations 1976; Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 120; Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/79} paragraphs 380-383.

²⁶⁰ Regulation E15(1)(e)(ii).

Building Regulations 1985 and Approved Document B 1985

- 6.16** Following the introduction of the Building Act 1984 and the Building Regulations 1985, all technical requirements were eliminated from the regulations themselves. Instead the regulations were cast in the form of functional requirements supported by approved documents which gave practical guidance on the means by which the functional requirements could be achieved.²⁶¹
- 6.17** Section 7(1) of the Building Act 1984 provides that, in any civil or criminal proceedings, if it is alleged that a person contravened a provision of the Building Regulations, proof of compliance with an Approved Document may be relied on as tending to negative liability and a failure to comply with an Approved Document may be relied on as tending to establish liability. Its effect has been greater than may have originally been envisaged, because it has led many involved in the construction industry, including designers, contractors and building control officers, to treat the guidance in the Approved Documents as prescriptive, thereby making it unnecessary to worry about the functional requirement itself. As we shall see when we come to the history of Approved Document B, some designers and contractors set out not to satisfy the functional requirements themselves but simply to follow the Approved Documents. Some of those who acted in that way may have been motivated by a cynical desire to obtain the benefit of section 7(1), regardless of whether the functional requirement was in fact satisfied, but we suspect that many more, including many building control officers, simply felt more comfortable working within a prescriptive regime and regarded the Approved Documents as providing it.
- 6.18** Whatever the reason may have been, contractors, designers and consultants generally soon began to regard compliance with the Approved Documents as tantamount to compliance with the Building Regulations themselves.²⁶² Section 7 thus encouraged the industry generally to place more importance on complying with the Approved Documents, and thereby obtain the benefit of section 7(1), than on compliance with the Building Regulations themselves. The Approved Documents thus became a *de facto* prescriptive code.
- 6.19** Functional requirement B4(1) of the Building Regulations 1985 relating to the spread of fire over external walls provided that “The external walls of the building shall offer adequate resistance to the spread of fire over the walls...”²⁶³
- 6.20** In Approved Document B 1985 dealing with fire safety, the longstanding requirement in the Building Regulations that external walls should be non-combustible was changed to provide that all external walls should be constructed of materials of limited combustibility if the building was more than 15 metres in height²⁶⁴ and the BS 476-11 test was introduced as a method of testing to that standard.²⁶⁵
- 6.21** In addition, in the case of buildings over 15 metres in height, any cladding at a height of 15 metres or more above the ground could be combustible if it was not being relied on to contribute to the fire resistance of the wall and satisfied Class 0.²⁶⁶ However the definition

²⁶¹ See Chapter 4.

²⁶² Todd {CTAR00000001/52} paragraph 5.2.5(ii).

²⁶³ {INQ00015097/13}.

²⁶⁴ {CLG10002325/15} paragraph 2.7; Lane, Expert witness presentation - 10 November 2020: <https://www.grenfelltowerinquiry.org.uk/hearings/expert-witness-presentation-dr-barbara-lane-10-november-2020>, Part 2, page 109; Todd {CTAR00000001/52} paragraph 5.2.5(ii).

²⁶⁵ Under “Materials of limited combustibility” Appendix A, paragraph A13 {CLG10002325/50} and Table A7 at {CLG10002325/51}; Bisby, Regulatory Testing and the Path to Grenfell Report {LBYP20000001/86} paragraph 413.

²⁶⁶ {CLG10002325/15} paragraphs 2.9, 2.13 and Table 2.2.

of Class 0, which was now also set out in the Approved Document, was changed again. The description of Class 0 to be found in Appendix A of the Approved Document B under the heading “Walls and Ceiling Linings (etc)”, was as follows:

“Class 0 which restricts both the spread of flame across a surface and also the rate at which heat is released from it, imposes a more strict control than Class 1. Class 0 is not a classification identified in a British standard test, and is considered a higher class than Class 1.

A Class 0 material or the surface of a composite product is either:

- (a) composed throughout of materials of limited combustibility, or
- (b) a Class 1 material which has a fire propagation index (I) of no more than 12, and (i) of not more than 6.”²⁶⁷

6.22 The definition of Class 0 therefore changed in two important ways when Approved Document B was first introduced. First, a requirement that materials or surfaces of materials should be of limited combustibility was introduced in place of the requirement that they be composed of non-combustible materials; secondly, the requirement to consider the substrate and the surface of a composite product together was removed. As a result, the definition of Class 0 no longer made it clear that any test of a composite product had to be carried out on the surface in conjunction with its substrate. To many that might have appeared self-evident, but in the absence of any clear statement to that effect the reader might be led to think that a composite product with a combustible core could be rated Class 0 provided that its surface was a material of limited combustibility, regardless of whether or how the composite product had been tested.

6.23 However, the reference in the alternative requirements to testing in accordance with both BS 476-6 and BS 476-7 remained unchanged.

6.24 A summary of the guidance given in Approved Document B 1985 on the construction of external walls is set out in the following chart taken from Dr Lane’s presentation.

Regulation/ Statutory guidance	Cladding performance requirement for fire	External surface performance requirement	External wall requirement (except internal linings and cladding)	Specific insulation performance requirement for fire
Approved Document B 1985	Any cladding 15m or more above the ground - Class 0 Any cladding less than 15m above ground- timber at least 9mm thick; or any material with an index of performance (I) not more than 20 (Table 2.2 pp. 13)		External walls should be constructed of materials of limited combustibility if the building or separated part is more than 15m in height (Paragraph 2.7 pp 13)	

Figure 6.1: Chart showing guidance on construction of external walls in ADB 1985

²⁶⁷ {CLG10002325/49} Appendix A at paragraphs A7 and A8.

The Building Regulations 1991

- 6.25** The Building Regulations 1991 contained some minor amendments to the wording of the functional requirements, including functional requirement B4(1), which was amended to remove the word “adequate” so that it read “The external walls of the building shall resist the spread of fire...”.²⁶⁸

Approved Document B 1992

- 6.26** In the 1992 version of Approved Document B a separate performance standard for insulation was introduced for the first time. It provided that in a building with a storey at more than 20 metres above ground level, any insulation material used in the external wall construction should be of limited combustibility.²⁶⁹
- 6.27** A general warning about the risk of fire spreading in the external envelope was also included. It provided as follows:
- “The external envelope of a building should not provide a medium for fire spread if it is likely to be a risk to health or safety. The use of combustible materials for cladding framework, or of combustible thermal insulation as an overcladding or in ventilated cavities, may present such a risk in tall buildings, even though the provisions for external surfaces in Diagram 36 may have been satisfied.”²⁷⁰
- 6.28** Diagram 36²⁷¹ set out guidance on the construction of external walls. (It became Diagram 40 in later editions of Approved Document B.) Diagram 36 indicated that the surface of external walls of buildings over 20 metres in height (an increase from the previous 15 metres) should be Class 0. Reading the document as a whole, therefore, the reader was warned that the use of combustible materials for cladding might present a risk even though the external surface of the cladding was rated Class 0.
- 6.29** The definition of Class 0 was unchanged and again appeared under the heading “Internal linings”.²⁷² The definition was introduced with the words “The highest product performance classification for lining materials is Class 0.” Anyone reading that definition should therefore have appreciated that the primary purpose of the classification was as a performance standard for lining materials and might have questioned why that classification was being used in relation to the external surface of a building. Anthony Burd, at the time an official in DCLG, could not explain why it had been decided that a standard devised for internal lining materials had been considered appropriate for assessing the suitability of the surface of an external wall. He agreed that it was not the most suitable standard and as a result we are unable to understand how it could have been considered appropriate.²⁷³

²⁶⁸ Todd {CTAR00000001/43-44} paragraph 5.1.28.

²⁶⁹ {BLA00005482/74} paragraph 12.7, second paragraph.

²⁷⁰ {BLA00005482/74} paragraph 12.7, first paragraph.

²⁷¹ {BLA00005482/75}.

²⁷² At paragraph A12 of Appendix A {BLA00005482/96}.

²⁷³ Burd {Day238/158:24}-{Day238/161:15}.

- 6.30** A summary of the guidance given in Approved Document B 1992 on the construction of external walls is set out in the following chart taken from Dr Lane’s presentation.

Regulation/ Statutory guidance	Cladding performance requirement for fire	External surface performance requirement	External wall requirement (except internal linings and cladding)	Specific insulation performance requirement for fire
Approved Document B 1992		External wall surface classification: Any dimension over 20m- Class 0 Up to 20m above ground- Index (I) not more than 20. Timber cladding at least 9mm thick is also acceptable (the index I relates to tests specified in BS 476 Part 6) (Diagram 36 pp. 73)		“In a building with a storey at more than 20m above ground level, insulation material used in the external wall construction should be of limited combustibility” (Paragraph 12.7 pp.72)

Figure 6.2: Chart showing guidance on construction of external walls in ADB 1992

The Building Regulations (Amendment) No. 2 Regulations 1999

- 6.31** The Building Regulations (Amendment) No. 2 Regulations 1999 amended functional requirements B2, B3 and B4 by the re-introduction of the word “adequate”. Functional requirement B4(1) therefore provided that external walls were adequately to resist the spread of fire over the walls.²⁷⁴

Building Regulations 2000 and Approved Document B 2000

- 6.32** In the Building Regulations 2000 functional requirement B4 was unchanged, but a number of changes were made to the guidance in Approved Document B 2000.
- 6.33** First, it introduced an alternative to meeting the external wall surface classification (shown now in Diagram 40) by reference to *Fire Note 9: Assessing the fire performance of external cladding systems: a test method* published by BRE in 1999.²⁷⁵ *Fire Note 9* contained a large-scale test method which had been developed by BRE in the late 1990s as an alternative method of assessing the fire performance of an external wall.
- 6.34** Secondly, the guidance changed in a way that, if it were followed, the requirement of limited combustibility applied only to insulation used in ventilated cavities and not insulation generally.²⁷⁶ (The restriction did not apply to insulation used in a masonry cavity wall construction). The guidance also provided that advice on the use of insulation in external walls could be found in the BRE report *Fire Performance of external thermal insulation for walls of multi-storey buildings BR 135* 1988 (first edition).
- 6.35** Thirdly, the definition of a high-rise building was changed from 20 metres to 18 metres, for the purposes of the performance of both external surfaces and insulation.²⁷⁷

²⁷⁴ Todd {CTAR00000001/45-46} paragraph 5.1.35 (iii).

²⁷⁵ {INQ00014107/89} paragraph 13.5.

²⁷⁶ {INQ00014107/89} paragraph 13.7 second paragraph.

²⁷⁷ {INQ00014107/89-90} paragraph 13.7 second paragraph and Diagram 40(e).

- 6.36** Importantly, the introductory text to paragraph 13.7 of Approved Document B continued to warn, in reasonably clear terms, that the use of combustible materials in the external wall might present a risk in tall buildings, even though the guidance in Diagram 40 had been satisfied.²⁷⁸ The reader should have understood, therefore, that the fact that the surface of a cladding material was rated Class 0 might not exclude the risk posed by the use of combustible materials. In other words, following the guidance in Approved Document B might not amount to compliance with the functional requirement.
- 6.37** A summary of the guidance given in Approved Document B 2000 on the construction of external walls is set out in the following chart taken from Dr Lane’s presentation.

Regulation/ Statutory guidance	Cladding performance requirement for fire	External surface performance requirement	External wall requirement (except internal linings and cladding)	Specific insulation performance requirement for fire
Approved Document B 2000		External wall surface classification: Any dimension over 18m- Class 0 Up to 18m above ground- Index (I) not more than 20. Timber cladding at least 9mm thick is also acceptable (the index I relates to tests specified in BS 476 Part 6) (Diagram 40 pp. 91) “One alternative to meeting the provisions in Diagram 40 could be BRE Fire Note 9 Assessing the fire performance of external cladding systems: a test method” (Paragraph 13.5 pp 87)		“In a building with a storey 18m or more above ground level, insulation material used in ventilated cavities in the external wall construction should be of limited combustibility” (Paragraph 13.7 pp.90)

Figure 6.3: Chart showing guidance on construction of external walls in ADB 2000

Approved Document B 2000 with 2002 amendments

- 6.38** In Approved Document B 2000 with 2002 amendments,²⁷⁹ introduced after and as a result of the RADAR (Research on Approved Document B and Revision) project and the harmonisation exercise conducted by the government with the assistance of BRE in 2000 and 2001,²⁸⁰ the guidance on the construction of external walls was unchanged, save that the European classification system of fire performance was added as an alternative to the national system. Thus, the guidance contained in Diagram 40 was that any surface over 18 metres from the ground should be national Class 0 or European Class B-s3, d2 or better.²⁸¹ (The references to s3, d2 mean that no limits were set for the production of smoke or flaming droplets.)

Approved Document B 2006

- 6.39** In Approved Document B 2006²⁸² a number of important structural and textual changes were introduced to the guidance on the construction of external walls. Paragraph 12.5 read as follows²⁸³:

²⁷⁸ {INQ00014107/89} paragraph 13.7 first paragraph.

²⁷⁹ {CLG10000740}.

²⁸⁰ See Chapter 7 for the detailed analysis.

²⁸¹ {CLG10000740/91}.

²⁸² {CLG10000007}.

²⁸³ {CLG10000007/95}.

“The external envelope of a building should not provide a medium for fire spread if it is likely to be a risk to health or safety. The use of combustible materials in the cladding system and extensive cavities may present such a risk in tall buildings.

External walls should either meet the guidance given in paragraphs 12.6 to 12.9 or meet the performance criteria given in the BRE Report *Fire performance of external thermal insulation for walls of multi storey buildings* (BR 135) for cladding systems using full scale test data from BS 8414-1:2002 or BS 8414-2:2005.”

- 6.40** The general warning contained in the first paragraph was similar to that which had appeared in the 1992 and 2000 versions of Approved Document B, but there was now no mention of the fact that the use of combustible materials might present a risk, even though the provisions for external surfaces in Diagram 40 had been satisfied. That important warning had disappeared.
- 6.41** The second paragraph introduced an alternative way in which functional requirement B4(1) might be satisfied. Either the external wall could be constructed in accordance with the guidance set out in paragraphs 12.6-12.9 (sometimes called “the linear route”), or it could be the subject of a large-scale test in accordance with BS 8414, its performance being judged by reference to the criteria set out in BR 135 (2003, 2nd edition). In practice, that meant that combustible materials could be used in an external wall system only if the system intended to be constructed had been tested and met the performance criteria set out in BR 135.
- 6.42** The performance requirement for insulation was also changed so that it read:
- “In a building with a storey 18m or more above ground level any insulation product, filler material (not including gaskets, sealants and similar) etc. used in the external wall construction should be of limited combustibility (see Appendix A). This restriction does not apply to masonry cavity wall construction which complies with Diagram 34 in Section 9.”²⁸⁴
- 6.43** In Chapter 7 below we have explained how the words “filler material...etc.” found their way into this part of the guidance. We have also explained our interpretation of that wording, including our conclusion that it did not apply to the polyethylene core of the composite aluminium panels used at Grenfell Tower.

²⁸⁴ {CLG1000007/96} paragraph 12.7.

6.44 A summary of the guidance in Approved Document B 2006 on the construction of external walls is set out in the following chart taken from Dr Lane’s presentation.

Regulation/ Statutory guidance	Cladding performance requirement for fire	External surface performance requirement	External wall requirement	Specific insulation performance requirement for fire
Approved Document B 2006		External wall surface classification: Any dimension over 18m- Class 0 (national class) or Class B-s3, d2 or better (European Class) Profiled or flat steel sheet at least 0.5mm thick with an organic coating of no more than 0.2mm thickness is also acceptable Up to 18m above ground- Index (I) not more than 20 or class C-s3,d2 or better (European Class). Timber cladding at least 9mm thick is also acceptable (the index I relates to tests specified in BS 476 Part 6) (Diagram 40 pp. 95)	“External walls should either meet the guidance given in paragraphs 12.6 to 12.9 or meet the performance criteria given in the BRE Report Fire performance of external thermal insulation for walls of multi storey buildings (BR 135) for cladding systems using full scale test data from BS 8414-1:2002 or BS 8414-2:2005.” (Paragraph 12.5 pp. 93)	“In a building with a storey 18m or more above ground level any insulation product, filler material (not including gaskets, sealants and similar) etc. used in the external wall construction should be of limited combustibility” (Paragraph 12.7 pp.93)

Figure 6.4: Chart showing guidance on construction of external walls in ADB 2006

Approved Document B 2007, 2010 and 2013

6.45 The guidance on the construction of external walls performance in the 2006 version of Approved Document B remained unchanged in the 2007,²⁸⁵ 2010,²⁸⁶ and 2013²⁸⁷ versions.

6.46 A summary of the guidance given in Approved Document B 2013 on the construction of external walls is set out in the following chart taken from Dr Lane’s presentation.

Regulation/ Statutory guidance	Cladding performance requirement for fire	External surface performance requirement	External wall performance requirement for fire	Specific insulation performance requirement for fire
Approved Document B 2013		External wall surface classification: Any dimension over 18m- Class 0 (national class) or Class B-s3, d2 or better (European Class) Profiled or flat steel sheet at least 0.5mm thick with an organic coating of no more than 0.2mm thickness is also acceptable Up to 18m above ground- Index (I) not more than 20 or class C-s3,d2 or better (European Class). Timber cladding at least 9mm thick is also acceptable (the index I relates to tests specified in BS 476 Part 6) (Diagram 40 pp. 95)	“External walls should either meet the guidance given in paragraphs 12.6 to 12.9 or meet the performance criteria given in the BRE Report Fire performance of external thermal insulation for walls of multi storey buildings (BR 135) for cladding systems using full scale test data from BS 8414-1:2002 or BS 8414-2:2005.” (Paragraph 12.5 pp. 93)	“In a building with a storey 18m or more above ground level any insulation product, filler material (not including gaskets, sealants and similar) etc. used in the external wall construction should be of limited combustibility” (Paragraph 12.7 pp.93)

Figure 6.5: Chart showing guidance on construction of external walls in ADB 2013

²⁸⁵ {CLG10000005}.

²⁸⁶ {CLG00000161}.

²⁸⁷ {CLG00000224}.

Summary of the external wall requirement/guidance changes over time

6.47 Dr Lane helpfully included the following table in her presentation which shows the changes in the external wall requirements as defined in the Building Regulations and subsequently in ADB through time.

Year	Regulation/Statutory guidance	Cladding performance requirement	External surface performance requirement	External wall requirement (except internal linings and cladding)	Insulation performance requirement
1965	Building Regulations	Class 0		Non- Combustible	
1972	Building Regulations	Class 0		Non- Combustible	
1976	Building Regulations	Class 0		Non- Combustible	
1985	Approved Document B	Class 0		Limited combustibility	
1992	Approved Document B		Class 0		*Limited combustibility
2000	Approved Document B		Class 0		Limited combustibility
2002	Approved Document B		Class 0/Class B-s3, d2		Limited combustibility
2006	Approved Document B		Class 0/Class B-s3, d2		Limited combustibility
2007	Approved Document B		Class 0/Class B-s3, d2		Limited combustibility
2010	Approved Document B		Class 0/Class B-s3, d2		Limited combustibility
2013	Approved Document B		Class 0/Class B-s3, d2		Limited combustibility

* First instance a specific performance requirement was set for insulation

Figure 6.6: Chart showing changes in the external wall requirements as defined in the Building Regulations and subsequently in ADB through time.

Chapter 7

The government and the Building Research Establishment

Introduction

- 7.1** In this chapter, we describe the role played by the government in investigating cladding fires and regulating the use of combustible materials in the external walls of high-rise buildings. The name of the department responsible for those matters has undergone several changes during the period with which we are concerned, from the Department of the Environment, Transport and the Regions (from 1997), to the Department for Transport, Local Government and the Regions (from 2001), to the Office of the Deputy Prime Minister (from May 2002), the Department for Communities and Local Government (from May 2006), the Ministry of Housing, Communities and Local Government (from January 2018), the Department for Levelling-up, Housing and Communities (from September 2021 to July 2024) and the Ministry of Housing, Communities and Local Government (since July 2024). In this chapter we refer to it simply as “the department”. We also examine the part played in those matters by the Building Research Establishment (BRE). The period covered by this chapter runs from the fire at Knowsley Heights in 1991, widely regarded as the first cladding fire of relevance to what later happened at Grenfell Tower, to the amendment of Approved Document B published in April 2007, the relevant provisions of which remained current at the time of the Grenfell Tower fire, despite later amendments.
- 7.2** Our findings are based on the documents and the evidence of four principal witnesses, Dr Deborah Smith and Dr Sarah Colwell, both employees of BRE, and Anthony Burd and Brian Martin, both officials in the department. Mr Martin was employed by BRE for nine years, during which he was seconded part-time to the department.

Knowsley Heights: 1991

- 7.3** On 5 April 1991 a fire was started in an external refuse area at the base of Knowsley Heights, an eleven-storey block of flats in Huyton, Merseyside. By the time the firefighters arrived, the entire external wall on one side of the building was alight and flames were issuing from windows on all floors and from the roof.²⁸⁸ Fortunately, there were no fatalities; the fire had spread vertically up an unoccupied area of the building that did not interfere with the escape route²⁸⁹ and all the residents were safely evacuated.²⁹⁰
- 7.4** In 1988 Knowsley Heights had been clad in what was later described by BRE as “Class 0 GRP rainscreen cladding”. GRP (Glass Reinforced Plastic) is a combustible polymer material.²⁹¹ Behind those panels, a layer of mineral wool insulation had been fixed to the building with a gap between the insulation and the cladding to allow the movement of air.²⁹² The refurbishment at Knowsley Heights was carried out as part of a pilot scheme run and

²⁸⁸ {BRE00035385/3} paragraph 3.1; {BRE00035385/5} Figure 3.1.1 “External view of the damaged block”.

²⁸⁹ {BRE00035385/4} third paragraph.

²⁹⁰ {BRE00035385/3} paragraph 3.1.

²⁹¹ For further details of the GRP panels used at Knowsley Heights, see Bisby, Phase 2 Report {LBYP20000001/94-95} paragraph 465.

²⁹² {BRE00035385/3} paragraph 3.1.

funded by the government’s Housing Management Estates Action programme to improve the appearance of high-rise blocks, to reduce energy consumption and to prevent the damp from which many such buildings suffered at the time.²⁹³

- 7.5** The fire was investigated by BRE, then a government-owned laboratory,²⁹⁴ which produced a report for the department in November 1992 under the Investigation of Real Fires contract.²⁹⁵ In a section headed “Implications for Building Regulations” BRE drew attention to the absence of cavity barriers in the cladding system and concluded that there was no reason to suggest that cladding in general posed a risk to life unless there were cavities large enough to allow the vertical spread of fire.²⁹⁶ It also suggested that where the use of a Class 0 cladding material was recommended the material should be Class 0 on both sides exposed to air.²⁹⁷ It also advised that there were implications for the protection of window reveals in circumstances where refurbishment had involved the use of certain types of combustible materials in close proximity.²⁹⁸
- 7.6** Notably absent from the report was any reference to the combustibility of the GRP panels themselves or the contribution they had or might have made to the spread of fire. When noting that cavity barriers had not been fitted as part of the system, the report said that the guidance in force at the time allowed them to be omitted if the cladding system was not combustible.²⁹⁹ In the same vein, it noted that the fire had called into question the departmental guidance on cavity barriers because it had spread vertically up the entire height of the building.³⁰⁰
- 7.7** It is not clear what that guidance was.³⁰¹ At the time Knowsley Heights was refurbished, Approved Document B recommended that the external walls of buildings over 15 metres in height should be constructed of materials of limited combustibility.³⁰² Cladding used on walls over 15 metres in height could be combustible if it was not relied on to contribute to the fire resistance of the wall and if it was certified Class 0.³⁰³ Although Approved Document B did not specifically address cavity barriers in ventilated rainscreen cladding systems, it did recommend that they be fitted in any cavity abutted by a wall, ceiling, roof or floor.³⁰⁴ It seems likely, therefore,³⁰⁵ that BRE was referring there to the first edition of BR 135, which had been produced in the same year as Knowsley Heights had been refurbished (1988) and stated that in ventilated cladding systems constructed of non-combustible materials fire barriers were not essential.³⁰⁶ That remained the advice at the time of the

²⁹³ {BRE00035385/3} paragraph 3.1.

²⁹⁴ BRE (previously FRS) was Government-owned until it was privatised in March 1997. Field {BRE00043710/6} page 6, paragraph 28; Smith {MET00081237/7} page 7, paragraph 18; Shipp {BRE00047594/6} page 6, paragraph 38; Bisby, Phase 2 Report {LBYP20000001/113} paragraph 592.

²⁹⁵ {BRE00035385}; the report’s authors were Penny Morgan, Derek Jones and Sharon Clinch {BRE00035385/2}.

²⁹⁶ {BRE00035385/5} first paragraph.

²⁹⁷ {BRE00035385/4} fourth paragraph.

²⁹⁸ {BRE00035385/5} first paragraph.

²⁹⁹ {BRE00035385/3} penultimate paragraph. Morgan {BRE00043866/18} page 18, paragraph 96; Shipp {BRE00047594/48} page 48, paragraph 237.

³⁰⁰ {BRE00035385/4} fourth paragraph.

³⁰¹ Asked what “DOE/BRE guidance” she had been referring to in the report, one of the authors, Penny Morgan, could not recall; Morgan {BRE00043866/18} page 18, paragraph 97.

³⁰² {CLG10002325/15} paragraph 2.7; Bisby, Phase 2 Report {LBYP20000001/87} paragraph 424.

³⁰³ {CLG10002325/15} paragraphs 2.9 and 2.13, Table 2.2.

³⁰⁴ {CLG10002325/65}; Bisby, Phase 2 Report {LBYP20000001/96} paragraphs 473 - 475.

³⁰⁵ Bisby, Phase 2 Report {LBYP20000001/96} paragraph 480. This view is also supported by the evidence of Martin Shipp and Dr Raymond Connolly, Shipp {BRE00047594/48} page 48, paragraph 238; Connolly {BRE00047667/4} page 4, paragraph 8(b).

³⁰⁶ {BRE00001077/9} paragraph 1, second bullet point.

fire and could fairly be described as “departmental”,³⁰⁷ given that at the time BRE was a governmental organisation. We have not been able to find any other guidance to which that passage could have been referring.

- 7.8** However, the cladding at Knowsley Heights was *not* non-combustible and it is therefore difficult to see why BRE said that cavity barriers could be omitted if the cladding was non-combustible. Anyone reading that passage might well understand that the omission of cavity barriers from the system installed at Knowsley Heights was justifiable precisely because it *was* a non-combustible system, which of course was not the case.
- 7.9** Given the passage of time, very few of those who had been involved in the investigation into the fire or in drafting the report were able to assist us by providing background information, details of the investigation or the thinking behind the report. The only two who could were Penny Morgan, one of BRE’s investigators,³⁰⁸ and her line manager, Martin Shipp, who in November 1992 was the Head of BRE’s Fire and Security section with responsibility for fire investigations.³⁰⁹ He was aware of what was going on in relation to the fire at Knowsley Heights, since both Penny Morgan and Derek Jones, both of whom visited the scene of the fire on 10 April 1991,³¹⁰ reported to him,³¹¹ but he did not personally take part in the investigation into the fire.³¹² However, it is very likely that he reviewed the report both for technical and editorial purposes.³¹³
- 7.10** Mr Shipp said that, as he read the report, the authors *had been* aware that the cladding was combustible, since they had recorded that it had been destroyed.³¹⁴ They must therefore have understood that the panels had burnt and therefore were combustible.³¹⁵ However, although that is a reasonable analysis of the report, we do not think that it necessarily reflects Penny Morgan’s understanding. The tenor of the report suggests that she did not realise that the system was combustible, which would explain the reference to the omission of cavity barriers and the calling into question of the current guidance that cavity barriers were not required in non-combustible systems. If the authors of the report had understood that the fire had been caused by a failure to comply with a requirement for cavity barriers in what was recognised to be a combustible cladding system, there would be no reason for the guidance to be called into question. Instead, we should have expected BRE to have identified and questioned the use of combustible GRP panels.
- 7.11** Penny Morgan told us that she had considered the vertical fire spread to be significant and unusual because a fire that had started at ground level had spread over what was purportedly non-combustible cladding.³¹⁶ It appears that she thought that the GRP rainscreen panels used at Knowsley Heights were non-combustible *because* they had been certified Class 0.³¹⁷ That is supported by a note dated 5 April 1991 from Alison Curtis of the Housing Management Estates Action Division, who had spoken with Penny Morgan

³⁰⁷ {BRE00035385/4} fourth paragraph.

³⁰⁸ Morgan {BRE00043866/1-16} pages 1, 2 and 16, paragraphs 6, 12 and 83-85.

³⁰⁹ Shipp {BRE00047594/3} page 3, paragraph 14.

³¹⁰ Morgan {BRE00043866/31} page 31, paragraphs 174 and 178.

³¹¹ Shipp {BRE00047594/43-45} pages 43-45, paragraphs 205 and 218.

³¹² Shipp {BRE00047594/45} page 45, paragraph 220.

³¹³ Shipp {BRE00047594/47} page 47, paragraph 229.

³¹⁴ {BRE00035385/4} second paragraph.

³¹⁵ Shipp {BRE00047594/49} page 49, paragraph 245.

³¹⁶ Morgan {BRE00043866/22-23} pages 22-23, paragraphs 125 and 127.

³¹⁷ Morgan {BRE00043866/21} page 21, paragraph 115; Morgan {BRE00043866/19} page 19, paragraph 105; Morgan {BRE00043866/20} page 29, paragraph 113; Morgan {BRE00043866/24} page 24, paragraph 140.

by telephone on the day of the fire,³¹⁸ in which she said that the cladding system had no vertical fire stopping “in line with BRE recent advice in cases where all materials used in the over cladding and insulation are non-combustible”.³¹⁹

- 7.12** Although Penny Morgan’s recollection of events so long ago was understandably limited,³²⁰ it seems likely to us that she and the other authors of the report had equated Class 0 with non-combustibility and that others, both in BRE and the department, repeated that error. That might explain why the report produced by BRE in November 1992 contained no analysis of the contribution of the cladding panels themselves to the fire. It might also explain why the report was silent on the combustibility of the panels, their contribution to the vertical spread of fire, their compliance with current guidance or the adequacy of Class 0 as a classification for external walls of buildings over (at the time) 15 metres in height.
- 7.13** On the day of the fire, Penny Morgan was alerted to its outbreak by a telephone call from Alison Curtis, followed by a note which said that the fire was of particular interest to the department because the building had been overclad using techniques that were relatively new to public sector housing and were currently being used on other blocks.³²¹ Ms Curtis also referred in the note to concerns about the innovative and high profile nature of the improvements to the block.³²² A second, handwritten, note dated 11 April 1991 from “Lyn” to “Mr Sage” contains the following comment,
- “We have received, via HMEA,³²³ a request from M. St Press Office [the department’s press office]³²⁴ to play down the issue of the fire. Our briefing for [the Secretary of State] is purely factual and as far as I am aware Knowsley will not be making an issue of the fire.”³²⁵
- 7.14** In the light of the fact that other high-rise residential buildings had been, and were still being, overclad using the same or similar materials under the department’s programme,³²⁶ we find it difficult to understand why the press office thought it necessary to play down the fire at Knowsley Heights.
- 7.15** The failure by the BRE’s investigators to understand the distinction between combustibility and Class 0 was a basic error. In our view, the fire represented a significant opportunity for the department, and perhaps industry more widely, to recognise and respond to the fact that the use of combustible cladding panels on high-rise buildings, even where the surface of those panels was certified as Class 0, might lead to the uncontrolled spread of fire to the full height of the building if fire were to take hold in the external wall. If that and the tendency of many in the industry to treat Approved Document B as containing a definitive statement of what was required had been more clearly recognised, it might, and indeed should, have prompted consideration whether Class 0 was a suitable standard to include in Approved Document B for cladding panels used on high-rise buildings.

³¹⁸ Morgan {BRE00043866/29} page 29, paragraph 162.

³¹⁹ {INQ00014995} paragraph 4.

³²⁰ Morgan {BRE00043866/15} page 15, paragraph 80.

³²¹ {INQ00014752} paragraph 1.

³²² {INQ00014752} paragraph 4.

³²³ Housing Management Estates Action Division.

³²⁴ Morgan {BRE00043866/32} page 32, paragraph 187. Bisby, Phase 2 Report {LBYP20000001/105} paragraph 543.

³²⁵ {INQ00014755}.

³²⁶ {INQ00014752} paragraph 1; {INQ00014995} paragraphs 1-12.

- 7.16** The fire at Knowsley Heights was frequently referred to in BRE reports and presentations³²⁷ and by witnesses³²⁸ as an event of major significance in the understanding of the spread of fire across the external walls of high-rise buildings. However, when asked why it was of such significance, Dr Crowder (who in 2014 was appointed to lead the fire investigation business group at BRE)³²⁹ reiterated that the key factor was the absence of cavity barriers.³³⁰ He went so far as to say that, if the cladding system at Knowsley Heights had included cavity barriers, the fire would probably not have spread to anything like the same extent.³³¹ That suggests to us that, even with the benefit of hindsight, some in BRE had not recognised that the combustibility of the cladding panels themselves had been an important factor in the development of the fire.
- 7.17** Dr Sarah Colwell, who became involved in BRE’s large-scale testing programme in 1996,³³² told us that one of the lessons from the fire was that the testing of individual components of a cladding system could not tell one much about its overall performance in fire,³³³ and it appears that following the fire at Knowsley Heights both the department and BRE accepted³³⁴ that a large-scale fire test method was needed to provide a better means of assessing and controlling the potential fire hazards associated with external cladding systems.³³⁵ The department therefore funded further research by BRE into large-scale testing,³³⁶ a subject to which we return below.
- 7.18** However, even if the department had recognised that small-scale testing (such as the methods used to determine Class 0) was not adequate to assess the danger of the spread of fire over the walls of high-rise buildings, it does not appear that at that stage it gave any consideration to restricting the use of combustible cladding on high-rise buildings. Other than including in paragraph 12.7 a general warning of the risks involved in the use of combustible materials,³³⁷ no action was taken in that regard in the revised version of Approved Document B, published in 1992.³³⁸ Instead, the only practical action taken was to strengthen the guidance on the use of cavity barriers³³⁹ and to provide that the panels forming the external walls of buildings over 20 metres in height should have Class 0 surfaces on both sides.³⁴⁰ Those amendments directly reflected the contents of BRE’s report on the fire at Knowsley Heights.

³²⁷ {BRE00043751/5} “The most significant of the historic fires is that of the 1991 fire in Knowsley Heights.”; {CLG00019445/3} second paragraph, “One of the most significant of the historical fires is the 1991 fire in Knowsley Heights.”.

³²⁸ Crowder {Day230/158:21-25} “...one of, you know, the major fires in terms of understanding external fire spread”; Colwell {MET00080530/8} page 8 “...those fires were our anchor points. They were the reference points that we were using in terms of moving guidance and understanding”; Martin {Day250/76:17-23}; Smith {Day234/129:5-12}.

³²⁹ Crowder {BRE00043716/50} page 50, paragraphs 164-165.

³³⁰ Crowder {Day230/158:25}-{Day230/160:15}; {Day230/182:2-10}.

³³¹ Crowder {Day230/182:8-10}; Martin {Day250/77:20-22} “I’m pretty sure the focus was on undivided cavities”.

³³² Colwell {BRE00047571/2} page 2, paragraph 9. In 1991, Dr Colwell was a Higher Scientific Officer in the BRE’s Explosion Protection section: Colwell {BRE00047571/2} page 2, paragraph 6. By 2016, Dr Colwell was the Director of the Fire Suppression Team, Colwell {BRE00047571/3} page 3, paragraph 14.

³³³ Colwell {Day231/127:1-14}.

³³⁴ Smith {Day234/130:15-22}.

³³⁵ Smith {BRE00005624/8} page 8, paragraph 24.

³³⁶ Smith {BRE00005624/8} page 8 paragraph 25. Dr Sarah Colwell agreed that it was the fire at Knowsley Heights that led to funding for further research on large-scale testing, Colwell {Day231/128:24} -{Day231/129:2}.

³³⁷ {BLA00005482/74} paragraph 12.7, “The use of combustible materials for cladding framework, or of combustible thermal insulation as an overcladding or in ventilated cavities, may present such a risk in tall buildings, even though the provisions for external surfaces in Diagram 36 may have been satisfied”.

³³⁸ {BLA00005482}.

³³⁹ {BLA00005482/2} Section B3, paragraph w; {BLA00005482/64}; Crowder {Day230/159:9-14} and {RCO00000001/7} second paragraph.

³⁴⁰ {BLA00005482/74} paragraphs 12.5- 12.6; {BLA00005482/75} Diagram 36; Martin {Day250/73:17-22}.

1994: Dr Raymond Connolly's ten large-scale tests

- 7.19** In 1993, the department commissioned BRE to examine the hazards associated with external cladding systems and to assess the influence of a range of fire barriers on both the fire hazard and on the movement of air within the cavity in relation to the control of damp.³⁴¹ The research was carried out by Dr Raymond Connolly, a Senior Scientific Officer in BRE's Structural Fire Protection section,³⁴² and was published on behalf of the department in 1994.³⁴³ He designed and carried out full-scale tests on ten different external cladding systems³⁴⁴ chosen as representative of systems in use at the time.³⁴⁵ The four-storey (nine metre high)³⁴⁶ test rig had been designed specifically for the purpose of the tests.³⁴⁷
- 7.20** In his statement Dr Connolly said that the purpose of the research had been to develop a means of examining all the relevant variables in a holistic manner by full-scale testing, rather than by relying on tests of individual components.³⁴⁸ In the opening paragraph of his report, however, he had said that the purpose of the work had been to assess the effectiveness of fire barriers³⁴⁹ and in that context to develop the most appropriate heat source for large-scale testing.³⁵⁰ That suggests that at that stage the department was still more interested in learning how to limit the spread of flame by the use of cavity barriers than in assessing the combustibility of different products. That is significant because successive versions of the large-scale test method that became BS 8414 were all derived directly from Dr Connolly's original work.³⁵¹
- 7.21** The second of the ten tests was carried out on a system comprising 6mm polyester glass reinforced sheeting with a Class 0 certification, mineral wool insulation and no cavity barriers. The object was to examine the need for fire barrier protection. Dr Connolly expected the fire hazard to be limited by the fire properties of the cladding sheet material (i.e. its Class 0 rating).³⁵² After the test, however, he reported unlimited spread of the fire over the full height of the test facility³⁵³ and that flames had reached the level of the roof 15 minutes after ignition of the crib.³⁵⁴ He also reported more generally that the polyester-bound sheet Class 0 cladding, which had been used in eight of the ten tests,³⁵⁵ had suffered

³⁴¹ {RCO00000001/3} penultimate paragraph; {RCO00000001/7} points (i)-(iii).

³⁴² Connolly {BRE00047667/1} page 1, paragraph 2(b).

³⁴³ {RCO00000001}.

³⁴⁴ {RCO00000001/12} section 3.

³⁴⁵ Connolly {BRE00047667/9} page 9, paragraph 21(d).

³⁴⁶ {RCO00000001/46} section 4.2.3 final paragraph.

³⁴⁷ {RCO00000001/8} section 2.1.

³⁴⁸ Connolly {BRE00047667/9} page 9, paragraph 21(g)(ii).

³⁴⁹ {RCO00000001/3} first paragraph.

³⁵⁰ Connolly {BRE00047667/9} page 9, paragraph 21(a).

³⁵¹ The theoretical basis of Fire Note 3 "is as set out in Dr Connolly's 1994 report", Colwell {BRE00047571/11} paragraph 63; {Day231/132:15-22}; {Day231/152:14-17}. Fire Note 9 simply incorporated the method in Fire Note 3 and contained no changes to the method or the assessment criteria, Colwell {BRE00047571/19} paragraph 127; {BRE00047571/21} paragraph 138; {Day231/200:8}-{Day231/201:16}. The BS 8414 test series represented the adoption by the British Standards Institution of the test method set out in Fire Note 9, Colwell {BRE00047571/26} paragraph 168; {Day232/135:6-15}. The test method did not change between Fire Note 9 and BS 8414, though the classification element of Fire Note 9 was removed and published separately in the second edition of BR 135, Colwell {BRE00047571/29} page 29, paragraph 184 and {Day232/139:21}-{Day232/140:1}.

³⁵² {RCO00000001/16}.

³⁵³ {RCO00000001/18} final paragraph.

³⁵⁴ {RCO00000001/17} Plate 6.

³⁵⁵ {RCO00000001/12} section 3.

from extensive surface spread of flame in nearly all configurations,³⁵⁶ often spreading to the top of the test facility,³⁵⁷ and that fire barriers had not been not completely effective in any test.³⁵⁸

- 7.22** Dr Connolly considered it clear that BS 476 Parts 6 and 7 (i.e. the tests relevant to a Class 0 classification) did not accurately reflect the fire hazards that might be associated with cladding systems.³⁵⁹ Furthermore, in his overall conclusions he recorded that the way in which cladding materials reacted to fire in small-scale tests did not reflect the fire hazard associated with a full-scale system³⁶⁰ and were an inadequate measure of the hazard if used in isolation.³⁶¹
- 7.23** Dr Connolly told us that that was neither new or surprising; it simply confirmed what had already been suspected and what he understood already to have been publicly recognised by the department,³⁶² albeit in what he described as an “open-ended”³⁶³ general warning in Approved Document B that Class 0 might not provide adequate assurance of safety. It is surprising, therefore, that the department took no action, either then or for many years after, to amend the guidance in Approved Document B to take account of what was known to be the unsuitable nature of Class 0 as a standard for assessing the spread of flame over an external wall. That is particularly so when the cladding systems used by Dr Connolly in his tests had been chosen precisely because they were then in current use on high-rise buildings.
- 7.24** There is no evidence that anyone in the department gave any consideration to introducing a recommendation that only non-combustible materials be used in the construction of external walls of high-rise buildings. Dr Connolly did not think that was necessary³⁶⁴ and neither he, nor it seems anyone else, thought that there was a need to take action as a matter of urgency.³⁶⁵ He considered that the results of the tests that BRE had carried out confirmed the need for a full-scale test to enable evaluation of a complete system³⁶⁶ and that BRE should develop such a test. He envisaged that Approved Document B would then be amended to require external wall systems used on high-rise buildings to pass that test.³⁶⁷

1996–1998: *Fire Note 3*

- 7.25** In the years that followed, staff at BRE (including Dr Connolly³⁶⁸ and Dr Colwell³⁶⁹) worked on the development of a large-scale test method for the fire performance of external cladding systems. That method was initially known as *Fire Note 3*, which was submitted to the department in 1996³⁷⁰ and published in 1998.³⁷¹ It built on the work Dr Connolly had

³⁵⁶ {RCO00000001/46} section 4.2.3 second paragraph.

³⁵⁷ {RCO00000001/46} section 4.2.3 final paragraph.

³⁵⁸ {RCO00000001/46} section 4.2.3 second paragraph.

³⁵⁹ {RCO00000001/46} section 4.2.3 fourth paragraph.

³⁶⁰ {RCO00000001/48} paragraph 8.

³⁶¹ Connolly {BRE00047667/13} page 13, paragraph 24(c)(i).

³⁶² Connolly {BRE00047667/12} page 12, paragraph 23(g).

³⁶³ Connolly {BRE00047667/12} page 12, paragraph 23(g).

³⁶⁴ Connolly {BRE00047667/16} page 16, paragraph 25(f)(i).

³⁶⁵ Connolly {BRE00047667/13-14} pages 13-14, paragraph 24(c)(ii).

³⁶⁶ Connolly {BRE00047667/12} page 12, paragraph 23(f).

³⁶⁷ Connolly {BRE00047667/12-13} pages 12-13, paragraphs 23(g)(i) and 24(c)(ii).

³⁶⁸ Connolly {BRE00047667/17} page 17, paragraphs 26(c) and 27(b).

³⁶⁹ Colwell {Day231/155:6-10}.

³⁷⁰ Colwell {BRE00047571/18} page 18, paragraph 120; Colwell {Day231/179:25} - {Day231/181:4}.

³⁷¹ {BRE00005868}.

done in 1994³⁷² and adopted the theoretical basis of his experimental research.³⁷³ Following various additional tests on various types of rainscreen cladding and insulated renders (no records of which have been provided to us)³⁷⁴ and discussions with the department and other interested bodies,³⁷⁵ three performance criteria were eventually selected against which the performance of a system was to be evaluated: mechanical performance, external fire spread and internal fire spread.³⁷⁶

7.26 No pass or fail criteria were set for mechanical performance.³⁷⁷ *Fire Note 3* simply stated that observation should be made of any collapse or partial collapse judged to be hazardous.³⁷⁸ Dr Connolly, who said that he had no specific recollection of the evolution of, or the reasoning underlying, the test method,³⁷⁹ thought that that might have been the result of a comparison with glazing systems, which were not required to exhibit any mechanical resistance when exposed to fire.³⁸⁰ By contrast, Dr Colwell told us that it had proved too difficult to set criteria for mechanical performance because that depended very much on the particular system.³⁸¹ It was therefore left to the end-user to assess the significance of whatever signs of collapse had been observed.³⁸²

7.27 In relation to both the external and internal spread of fire, *Fire Note 3* provided that failure would occur if the temperature of the relevant thermocouples at certain levels on the test rig exceeded 600 degrees for a period of at least 30 seconds within 15 minutes of the start of the test.³⁸³ Although Dr Colwell was asked to explain the basis on which each of those criteria had been chosen,³⁸⁴ she was unable to give us any precise information.³⁸⁵ Ultimately, she agreed that she and the other authors of *Fire Note 3* had worked collaboratively and had sought to reach a consensus on its contents. The criteria they had adopted were generally accepted as suitable by those involved in testing of that kind,³⁸⁶ by which we understood her to mean that the department considered them to reflect an acceptable degree of risk. Dr Connolly had a rather vague recollection that he and his manager, Tony Morris,³⁸⁷ had calculated that flames spreading vertically at the rate of 2.5 metres in 15 minutes from a level of 2.5 metres immediately above the source of the fire³⁸⁸ did not represent undue fire spread, but he could not remember how or on what basis that calculation had been made.³⁸⁹ We have been left with the impression that the criteria emerged from discussions among those involved in the process without being supported by any specific data or calculations.

³⁷² Colwell {Day231/150:3-5}; {Day231/152:14-17}.

³⁷³ Colwell {BRE00047571/11} page 11, paragraphs 63 and 67.

³⁷⁴ Colwell {Day231/150:3-5}; Colwell {BRE00047571/11} page 11, paragraphs 61, 62 and 67; Colwell {Day231/161:24}-{Day231/162:22}.

³⁷⁵ Colwell {Day231/173:6-11}.

³⁷⁶ {BRE00005868/9} paragraph 10.1; Colwell {BRE00047571/12} page 12, paragraph 68.

³⁷⁷ {BRE00005868/10} paragraph 10.5; Colwell {BRE00047571/12} page 12, paragraph 68.

³⁷⁸ {BRE00005868/10} paragraph 10.5.

³⁷⁹ Connolly {BRE00047667/17-18} pages 17-18, paragraphs 27(b) and 27(e).

³⁸⁰ Connolly {BRE00047667/19} page 19, paragraph 27(k).

³⁸¹ Colwell {Day231/168:9-15}; {Day231/177:15}-{Day231/178:1}.

³⁸² Colwell {Day231/178:1-9}.

³⁸³ {BRE00005868/9} paragraphs 10.3 and 10.4.

³⁸⁴ Colwell {Day231/168:25}-{Day231/169:18}; {Day231/170:21}-{Day231/171:12}; {Day231/173:12}-{Day231/174:7}.

³⁸⁵ Colwell {Day231/174:11}-{Day231/175:24}.

³⁸⁶ Colwell {Day231/176:19-23}.

³⁸⁷ Tony Morris was Dr Raymond Connolly's immediate line manager: Connolly {BRE00047667/2} page 2, paragraph 3(c). He supervised the work on and was one of the authors of *Fire Note 3*: Smith {Day234/159:3}-{Day231/160:1}.

³⁸⁸ 2.5 metres was chosen as representative of the minimum height between storeys, Connolly {BRE00047667/18-19} pages 18-19, paragraph 27(j).

³⁸⁹ Connolly {BRE00047667/18-19} pages 18-19, paragraph 27(j).

1999: the Garnock Court fire

- 7.28** On 11 June 1999, a fire broke out in a flat on the fifth floor³⁹⁰ of Garnock Court, a fourteen-storey³⁹¹ block of flats in Irvine, North Ayrshire, Scotland. By the time firefighters arrived the fire had spread externally up the face of the building to the eighth floor. It continued to spread rapidly thereafter, eventually enveloping a vertical section of the external face from the fifth floor to the roof.³⁹² Three residents were rescued from the seventh floor of the block, several were evacuated safely and one, who had been in the flat where the fire had started, died.³⁹³
- 7.29** Garnock Court had been built in 1968³⁹⁴ and was one of a group of five blocks that had been refurbished in 1991 in an attempt to solve problems of damp.³⁹⁵ As part of that work, glass reinforced polymer (GRP) spandrel panels had been used to clad certain parts of the external walls³⁹⁶ together with new windows, each of which had been enclosed in a GRP “pod”.³⁹⁷
- 7.30** BRE, which had become a commercial organisation in 1997, was asked by North Ayrshire Council to investigate the fire.³⁹⁸ It produced two confidential reports dated 8 September 1999³⁹⁹ and 5 May 2000.⁴⁰⁰ The investigation was undertaken in phases and was carried out by Penny Morgan, Brian Martin (both of whom reported at the time to Martin Shipp)⁴⁰¹ and Tony Morris.⁴⁰² The reports were approved by Nigel Smithies, then BRE’s Fire Safety business group manager.⁴⁰³
- 7.31** After some years working in construction, first as a carpenter, then as a site manager and finally for nine years as a building control officer,⁴⁰⁴ Brian Martin joined BRE in 1999⁴⁰⁵ as an expert on the Building Regulations specialising in fire.⁴⁰⁶ It is unclear to us how he was chosen for that position or what experience he had in fire safety matters. He had no fire engineering qualifications and could tell us only that his experience in fire safety came from his nine years working as a building control officer.⁴⁰⁷ Very shortly after he joined BRE Mr Martin was seconded part-time to the department’s Building Regulations Division as the lead consultant providing technical support on fire safety, principally working and advising on Part B of Schedule 1 to the Building Regulations and Approved Document B.⁴⁰⁸ He remained in that dual role, dividing his time about equally between BRE and the department,⁴⁰⁹ for nine years until September 2008, when he joined the department

³⁹⁰ {BRE00035375/4}.

³⁹¹ {BRE00035375/3} second paragraph.

³⁹² {BRE00035375/4} third paragraph; {BRE00035375/11} Figure 3.1.3.13 and Bisby, Phase 2 Report {LBYP20000001/126} Figure 15.

³⁹³ {BRE00035377/5} section 1 first paragraph; {BRE00035377/8} section 3.2.3.

³⁹⁴ {BRE00035375/3} second paragraph.

³⁹⁵ {BRE00035375/3} fourth paragraph.

³⁹⁶ Bisby, Phase 2 Report {LBYP20000001/123} paragraphs 634-635.

³⁹⁷ {BRE00035375/3} penultimate paragraph.

³⁹⁸ {BRE00035375/3} first paragraph; {BRE00035377/5} section 1 first paragraph.

³⁹⁹ Report 79902 {BRE00035377/2-13}.

⁴⁰⁰ Report 81310 {BRE00035377/22-56}.

⁴⁰¹ Shipp {BRE00047594/8-70} pages 8 and 70, paragraphs 47 and 380.

⁴⁰² {BRE00035377/2}; {BRE00035377/5} section 2 first paragraph; {BRE00035377/22}.

⁴⁰³ Shipp {BRE00047594/7} page 7, paragraph 45. This group had responsibility for fire investigations and for the Investigation of Real Fires contract with the department, Shipp {BRE00047594/23} page 23, paragraph 116.

⁴⁰⁴ Martin {Day250/6:12}-{Day250/7:16}.

⁴⁰⁵ Martin {Day250/15:2-5}.

⁴⁰⁶ Field {BRE00043710/8} page 8, paragraph 39; Martin {Day250/18:8-14}.

⁴⁰⁷ Martin {Day250/18:12-19}.

⁴⁰⁸ Martin {CLG00019469/2} page 2, paragraph 6; Martin {Day250/25:11-23}.

⁴⁰⁹ Martin {Day250/22:20-24}.

full-time as the Principal Construction Professional in the Building Regulations Division.⁴¹⁰ He worked in that role until November 2017.⁴¹¹ During that period Mr Martin played a central role in reviewing, drafting, implementing and shaping government guidance and policy on the Building Regulations as they related to fire safety. During the period in which BRE was working on the fire at Garnock Court, Brian Martin therefore had one foot in the department and one in BRE. It is not clear whether any of those involved recognised the risk that Mr Martin's involvement might result in the department's interests influencing the advice it obtained from BRE, or if so, how that risk should be managed.

- 7.32** Separately from its reports into the fire at Garnock Court for North Ayrshire Council, BRE produced a report for the department under the Investigation of Real Fires contract.⁴¹² The report, dated August 2000,⁴¹³ was written by Penny Morgan⁴¹⁴ and submitted to Anthony Burd, then Principal Fire Safety Professional at the department.⁴¹⁵ As we explain below, the contents of that third report replicated the first report to North Ayrshire in September 1999 almost verbatim, save in two key respects.
- 7.33** In contrast to the report into the fire six years earlier at Knowsley Heights, the report produced by BRE into the fire at Garnock Court⁴¹⁶ recorded in clear terms the contribution of the GRP cladding, which it identified as the main material involved in the fire.⁴¹⁷ It said that the GRP panels had been ignited by the fire plume spilling from the living room of the fifth floor flat in which the fire had started⁴¹⁸ and that the GRP had then generated a self-propagating fire.⁴¹⁹ It recorded rapid external fire spread to the full height of the building, with full involvement of the GRP cladding within 15 minutes, and noted that the even burning of the GRP cladding and the production of flames and dense black smoke indicated the involvement of the GRP alone.⁴²⁰ In a section dealing with the remedial measures planned for the five blocks in Irvine, BRE suggested that non-combustible materials should be chosen wherever possible.⁴²¹
- 7.34** BRE noted that, in order to comply with the provisions of Approved Document B at the time, the cladding panels should have been certified Class 0⁴²² and expressed doubt about whether in their aged state at the time of the fire the panels met that requirement.⁴²³ For that reason, BRE recommended a series of tests on undamaged samples of the panels to assess (amongst other things) their surface spread of flame and fire propagation characteristics.⁴²⁴

⁴¹⁰ Martin {Day250/29:23}-{Day250/30:3}.

⁴¹¹ Martin {Day250/39:2-5}.

⁴¹² We explain that project in more detail in Chapter 8.

⁴¹³ {BRE00035375}.

⁴¹⁴ {BRE00035375/2}.

⁴¹⁵ Burd {CLG00019461/1-2} pages 1-2, paragraph 4.

⁴¹⁶ 8 September 1999 {BRE00035377}.

⁴¹⁷ {BRE00035377/10} section 4, first paragraph.

⁴¹⁸ {BRE00035377/4} paragraphs 1 and 2.

⁴¹⁹ {BRE00035377/10} section 4, first paragraph.

⁴²⁰ {BRE00035377/7} first paragraph. Investigators were able to make these observations from video footage of the fire captured on security cameras, {BRE00035377/5} Section 2, second paragraph; {BRE00035379/12} paragraphs 3-5.

⁴²¹ {BRE00035377/10} section 4, paragraph 6.

⁴²² {BRE00035377/10} section 5, paragraph 4.

⁴²³ {BRE00035377/10} section 4, second paragraph and section 5, paragraph 5.

⁴²⁴ {BRE00035377/10} section 5, paragraph 6.

- 7.35** To that end, on 16 February 2000 BRE carried out tests in accordance with BS 476 Part 6 on three specimens⁴²⁵ from the panels.⁴²⁶ They reacted so badly⁴²⁷ that they put the integrity of the test equipment itself at risk. Following that test, BRE decided to abandon any further testing of the GRP panels in accordance with BS 476 Parts 6 or 7. It was clear from that test alone that the GRP panel would not obtain a Class 0 classification.⁴²⁸ As a result, BRE concluded not only that it was highly unlikely that the panels used at Garnock Court had been Class 0 at the time of the fire but also that it was highly unlikely that the panels would ever have obtained a Class 0 classification.⁴²⁹ In other words, the fire at Garnock Court was primarily caused by a failure to follow the statutory guidance then in force.⁴³⁰
- 7.36** Despite its obvious importance, neither that finding nor any mention of the test on the GRP panels in accordance with BS 476 Part 6 was included in the report BRE sent to the department in August 2000.⁴³¹ In fact, that later report contained no reference at all to Class 0. Having examined the two reports carefully, we think that in at least one case⁴³² (and probably in all the others) the reference to Class 0 must have been deliberately removed from the text of the later report, which otherwise reproduces the earlier one.⁴³³ We have been unable to determine why or by whom the changes were made, not least because none of the witnesses was able to shed any light on the matter.
- 7.37** Penny Morgan, one of the authors of the reports provided to North Ayrshire Council and the sole author of the report provided to the department, could not remember how the references to Class 0 had been omitted from the report she had sent to the department in August 2000, although she said that if there had been a conscious decision to remove them, she would have remembered it.⁴³⁴ Brian Martin, the other author of the report provided to North Ayrshire Council in September 1999, had no recollection of reading either the report given to the department or the second report given to North Ayrshire Council.⁴³⁵ He told us that he knew nothing about the removal of any reference to Class 0 from the report to the department, had not been aware of it at the time or since⁴³⁶ and could offer no explanation for the discrepancy between the reports.⁴³⁷ Their line manager, Martin Shipp, could not recall whether he had read or reviewed the reports to North Ayrshire Council at the time⁴³⁸ and did not know whether a decision to remove references to Class 0 had been made.⁴³⁹
- 7.38** Martin Shipp's evidence that the report given to the department contained no more than a factual description of the findings of the investigation⁴⁴⁰ does not provide an answer to the mystery. The fact that the panels did not meet the requirements of Class 0 was the key finding, as Mr Martin agreed.⁴⁴¹ Even if Mr Shipp's suggestion that that report (although

⁴²⁵ {BRE00035377/38} paragraph 4.1.

⁴²⁶ {BRE00035377/37}.

⁴²⁷ The sample (tested as three specimens) achieved a fire propagation index of 20.8 {BRE00035377/42} paragraph 8.

⁴²⁸ {BRE00035377/26} "Results of Test 2". Shipp {BRE00047594/74-75} pages 74-75, paragraph 416.

⁴²⁹ {BRE00035377/29} paragraphs 1 and 2.

⁴³⁰ As BRE noted in an internal outline document for the report for North Ayrshire, "Can we say that we think they were sold a pup?": {BRE00035380/18}; Martin {Day250/135:7-20}.

⁴³¹ {BRE00035375}.

⁴³² {BRE00035377/6} section 3.1.1 as compared with {BRE00035375/4} first paragraph, where the words "either... or Class 0" from the former has clearly been removed in the latter.

⁴³³ Bisby, Phase 2 Report {LBYP20000001/134-136} paragraphs 704-710.

⁴³⁴ Morgan {BRE00043866/51} page 51, paragraphs 302 and 303.

⁴³⁵ Martin {Day 250/112:12-21}; {Day250/115:6-13}.

⁴³⁶ Martin {Day250/118:23}-{Day250/119:17}; {Day250/137:16-24}.

⁴³⁷ Martin {Day250/118:13-22}; {Day250/157:11-16}.

⁴³⁸ Shipp {BRE00047594/70} page 70, paragraph 383.

⁴³⁹ Shipp {BRE00047594/78} page 78, paragraph 432.

⁴⁴⁰ Shipp {BRE00047594/78} page 78, paragraph 430.

⁴⁴¹ Martin {Day250/135:7-20}.

dated August 2000) could have been written before the reports for North Ayrshire Council⁴⁴² were correct, it would not explain why BRE did not amend the text to include the important finding that the GRP panels did not meet the requirements of Class 0 before sending it to the department in August 2000. Mr Martin accepted that that the absence of any reference to Class 0 in the report sent to the department was strange,⁴⁴³ but denied that the references had been removed on the instructions of either the department or BRE.⁴⁴⁴

- 7.39** Equally surprising, if true, is the fact that, as Brian Martin told us, he did not discuss BRE’s findings about the cladding panels with Mr Burd, to whom he reported at the time⁴⁴⁵ and with whom he worked closely throughout the period.⁴⁴⁶ Anthony Burd told us that he had not previously seen BRE’s second report to North Ayrshire Council dated 5 May 2000, which contained the results of its tests.⁴⁴⁷ Mr Burd was concerned by the absence of any reference to Class 0 in the report to the department.⁴⁴⁸ He said that it was imperative that the department should receive the fullest information about fires investigated for it by BRE.⁴⁴⁹ Following the fire neither the department nor (so far as we are aware) any other authority carried out any investigation into the use of cladding panels that did not comply with existing guidance,⁴⁵⁰ but without some kind of investigation the department could not have known whether the problem was limited to the refurbishment of the blocks in Irvine or was more widespread.⁴⁵¹ Viewing the evidence in the round, we think it much more likely than not that the omission of any reference to Class 0 in the report to the department was deliberate, but we are unable to identify the person responsible for it or the reason why the information was suppressed.
- 7.40** There was a second important omission from the report to the department, namely, the suggestion that non-combustible materials should be used wherever possible, which had been included in the second report to North Ayrshire.⁴⁵² Again, none of the witnesses could explain that.⁴⁵³ We accept that the suggestion was probably directed to the remedial work at the five blocks in Irvine,⁴⁵⁴ but we are nonetheless surprised that BRE did not advise the department that only non-combustible materials should be used in the construction of the external walls of high-rise buildings and that the department itself did not consider the implications of using combustible materials in the context of the Building Regulations and guidance.⁴⁵⁵
- 7.41** We find those omissions surprising when considered against the background of the fire at Knowsley Heights, which was not a case of a failure to comply with the recommendation in the Approved Document for the use of Class 0 materials, and the apparently clear

⁴⁴² Shipp {BRE00047594/78} page 78, paragraph 431.

⁴⁴³ Martin {Day 250/137:20}; Martin {Day250/157:15} “It does seem odd”.

⁴⁴⁴ Martin {Day250/118:18-22}.

⁴⁴⁵ Martin {Day250/24:14-16}.

⁴⁴⁶ Martin {Day250/127:18-23}; {Day250/128:14-22}; {Day250/136:21}-{Day250/137:8}.

⁴⁴⁷ {BRE00035377/22}; Burd {Day238/136:20-25}.

⁴⁴⁸ Burd {Day238/142:2-7}.

⁴⁴⁹ Burd {Day238/143:8-11}.

⁴⁵⁰ Martin {Day250/137:25}-{Day250/140:17}.

⁴⁵¹ Martin {Day250/140:6-17}.

⁴⁵² Compare {BRE00035377/10} Section 4, third paragraph “The remedial measures planned for the high-rise blocks in Irvine should address the problems identified i.e. damp penetration and the avoidance of an external route for fire spread. We suggest that non-combustible materials are chosen wherever possible” with {BRE00035375/7} fifth paragraph “The remedial measures planned for the high-rise blocks in Irvine should address the problems identified i.e. damp penetration and the avoidance of an external route for fire spread”.

⁴⁵³ Martin {Day250/136:21}-{Day250/137:8}.

⁴⁵⁴ Martin {Day250/125:12-19}.

⁴⁵⁵ Martin {Day250/143:15-21}; {Day250/125:12-19}.

understanding that the panels used at Garnock Court had been highly combustible.⁴⁵⁶ They were particularly surprising, given that Mr Martin himself told us that one of the most important lessons drawn from the fire at Garnock Court had been not to use combustible cladding.⁴⁵⁷ In contrast to his colleagues Martin Shipp,⁴⁵⁸ Dr Smith, Dr Colwell⁴⁵⁹ and Dr Connolly,⁴⁶⁰ Brian Martin did not share the view (which on their evidence had become widely accepted following the fire at Knowsley Heights) that Class 0 was an inadequate standard for assessing or controlling the danger of fire spreading across the external walls of high-rise buildings. He had regarded Class 0 as a reasonable form of control⁴⁶¹ and told us that he had never seen the report produced by Dr Connolly in 1994.⁴⁶²

- 7.42** The section of BRE’s report to the department entitled “Implications for the Building Regulations” stated only that the matter had been thoroughly explored by a Select Committee.⁴⁶³ In fact, by August 2000, a Parliamentary Select Committee had recommended that the full-scale test and performance criteria developed by BRE that were subsequently adopted by the British Standards Institution as BS 8414 should be substituted in Approved Document B for the previous requirements relating to the fire safety of external cladding systems.⁴⁶⁴ However, as BRE was well aware by August 2000, that recommendation had not been implemented by the department.⁴⁶⁵

Fire Note 9

- 7.43** In 1999, BRE published *Fire Note 9*,⁴⁶⁶ a revised version of the test method that had been set out in *Fire Note 3*.⁴⁶⁷ *Fire Note 9* was written by Dr Colwell and David Smit, who at the time was a laboratory technician and therefore junior to her.⁴⁶⁸ As Dr Colwell explained,⁴⁶⁹ *Fire Note 9* contained no technical or substantive changes to the test method or assessment criteria set out in *Fire Note 3*. Similarly, the drafting of *Fire Note 9* did not involve any reconsideration of the theoretical basis for the test method. The only revisions to *Fire Note 3* were the inclusion of a definitions section,⁴⁷⁰ a sample graph (for showing the determination of test start time and temperature)⁴⁷¹ and a maximum thickness for test samples to ensure that samples would fit on to the test facility.⁴⁷²

1999: recommendations of the Parliamentary Select Committee

- 7.44** Following the fire at Garnock Court, the Environment, Transport and Regional Affairs Select Committee,⁴⁷³ acting through its Environment sub-committee, established an inquiry to examine the potential risk of the spread of fire through external cladding systems.⁴⁷⁴

⁴⁵⁶ Martin {Day250/101:2-5}; {Day250/131:15-19}; Burd {Day239/135:23-25}; Morgan {BRE00043866/44} page 44, paragraphs 264 and 266.

⁴⁵⁷ Martin {Day250/102:10-14}.

⁴⁵⁸ Shipp {BRE00047594/66} page 66, paragraphs 354 and 356.

⁴⁵⁹ Colwell {Day231/130:13-17}; {Day231/131:15}-{Day231/132:2}.

⁴⁶⁰ Martin {Day250/93:10-17}.

⁴⁶¹ Martin {Day250/124:6-14}; {Day250/126:15}-{Day250/127:5}.

⁴⁶² Martin {Day250/93:5-11}.

⁴⁶³ {BRE00035375/7} final paragraph.

⁴⁶⁴ {CLG00019478/9-10} paragraph 20.

⁴⁶⁵ {CLG10000347/2-3} paragraphs 8-11.

⁴⁶⁶ {CTAR00000019}.

⁴⁶⁷ {BRE00005868}.

⁴⁶⁸ Colwell {Day231/198:13-16}.

⁴⁶⁹ Colwell {BRE00047571/19-21} pages 19-21, paragraphs 127 and 134-135; Colwell {Day231/200:8}-{Day231/202:7}.

⁴⁷⁰ {CTAR00000019/4} section 3.

⁴⁷¹ {CTAR00000019/10}.

⁴⁷² {CTAR00000019/4} clause 1.2.

⁴⁷³ {CLG00019478/2} for a list of members of the Committee.

⁴⁷⁴ {CLG10000349/1}.

The Select Committee heard evidence on 20 July 1999 from a variety of witnesses,⁴⁷⁵ including witnesses from BRE⁴⁷⁶ and the department.⁴⁷⁷ It also received memoranda from the department⁴⁷⁸ and several other organisations.⁴⁷⁹

7.45 The Select Committee reported on 14 December 1999.⁴⁸⁰ It concluded that the evidence it had heard did not suggest that the majority of external cladding systems currently in use in the UK posed a serious threat to life or property in the event of fire⁴⁸¹ and it made a number of recommendations. Notwithstanding that conclusion, however, it added that it did not believe that it should take a serious fire in which many people were killed before all reasonable steps were taken towards minimising the risks and it went on to note that the evidence it had heard strongly suggested that the small-scale tests then in use to determine the fire safety of external cladding systems were not fully effective in assessing the performance of such systems in a fire.⁴⁸² (Those small-scale tests included the BS 476-6 and BS 476-7 tests which supported the Class 0 classification.) The Select Committee noted that the department had said that *Fire Note 9* would be referred to in Approved Document B but pointed out that that would represent only one of the ways of ensuring that the system complied with the Building Regulations and would not amount to a requirement that cladding systems pass the test.⁴⁸³ The Select Committee therefore expressed the view that all external cladding systems should be required either to be entirely non-combustible or be proved through full-scale testing not to pose an unacceptable level of risk through the spread of fire⁴⁸⁴ and recommended that compliance with *Fire Note 9* be substituted in Approved Document B for the existing requirements relating to the fire safety of external cladding systems.⁴⁸⁵ The Select Committee's recommendation was therefore clear: that *only* non-combustible materials should be used, *unless* the entire construction had been tested as a complete system and met the performance criteria in *Fire Note 9*.

2000: The department's response

7.46 However, the Select Committee's recommendation was not implemented. Instead, in the revised edition of Approved Document B that was published in January 2000 and came into force on 1 July 2000⁴⁸⁶ the guidance in the 1992 edition that the external surfaces of walls of high-rise buildings should be Class 0⁴⁸⁷ remained unchanged,⁴⁸⁸ although *Fire Note 9* was referred to as an alternative to meeting the provisions of Diagram 40, which contained the Class 0 guidance.⁴⁸⁹

⁴⁷⁵ {CLG10000349/4}.

⁴⁷⁶ {CLG10000349/19-22}.

⁴⁷⁷ {CLG10000349/32-37}.

⁴⁷⁸ {CLG10000349/29-32}.

⁴⁷⁹ The memoranda are listed at {CLG10000349/3} and included either as appendices to the minutes of evidence {CLG10000349/39-51} or within the evidence {CLG10000349/5-11}; {CLG10000349/17-18}; {CLG10000349/23}; {CLG10000349/29-32}.

⁴⁸⁰ {CLG00019478}.

⁴⁸¹ {CLG00019478/9} paragraph 18.

⁴⁸² {CLG00019478/9} paragraph 19.

⁴⁸³ {CLG00019478/9} paragraph 17.

⁴⁸⁴ {CLG00019478/9-10} paragraph 20.

⁴⁸⁵ {CLG00019478/9-10} paragraph 20 and {CLG00019478/7-8} paragraphs 9-10 and 12.

⁴⁸⁶ {INQ00014107}.

⁴⁸⁷ {BLA00005482/74-75} paragraphs 12.5, 12.6 and Diagram 36.

⁴⁸⁸ {INQ00014107/89-90} paragraphs 13.5, 13.6 and Diagram 40.

⁴⁸⁹ {INQ00014107/89} Note to paragraph 13.5.

- 7.47** In his response to the Select Committee on 6 April 2000,⁴⁹⁰ the Rt Hon Nick Raynsford MP, Parliamentary Under Secretary of State and Minister for Construction at the time,⁴⁹¹ who had given evidence before the committee, explained that decision on behalf of the department.⁴⁹² He said that during its review of the 1992 edition of the Approved Document, which had been completed by December 1999,⁴⁹³ there had been no suggestion that the existing guidance was insufficient or that, if followed, it would tend to create an unsafe situation.⁴⁹⁴ Mr Raynsford also said that when *Fire Note 9* had been adopted as a British Standard and Approved Document B had been amended to reflect the new status of the test method, the department would consider whether the reference to that method of demonstrating compliance should be strengthened.⁴⁹⁵
- 7.48** In the event, there is no evidence that the department ever considered strengthening the reference to full-scale testing in 2002 when the European supplement to the Approved Document was published and references to European test methods were incorporated into Diagram 40.⁴⁹⁶ In fact, for the purposes of that review it was agreed by the members of the working party that consideration of any amendments to Approved Document B for the 2002 revision would be limited to facilitating the process of harmonisation and would not involve reconsideration of any of the general technical guidance.⁴⁹⁷ Nor have we seen evidence that any serious consideration was given to adopting the Select Committee's recommendation in the reviews, consultations or discussions leading to the publication of the 2006,⁴⁹⁸ 2007,⁴⁹⁹ 2010⁵⁰⁰ or 2013⁵⁰¹ editions of Approved Document B. In all those editions the guidance continued to refer to a Class 0 surface as an appropriate standard for external cladding on high-rise buildings. Meeting the criteria in BR 135 following full-scale testing in accordance with BS 8414 was included as an alternative.⁵⁰²
- 7.49** Largely due to the passage of time, few witnesses were able to give us any insight into the reasoning behind the department's response to the Select Committee's recommendations. Paul Overall, then Deputy Director of the Building Regulations Division⁵⁰³ could not recall what had led to the formulation of the department's response.⁵⁰⁴ Anthony Burd thought⁵⁰⁵ that the advice to ministers not to adopt the Select Committee's recommendation had been given by Tony Edwards⁵⁰⁶ and did not know why or how it had been formulated.⁵⁰⁷
- 7.50** Mr Raynsford told us that he had no recollection of the Select Committee's report but that he was confident that he had read it and had taken advice on it from officials at the time.⁵⁰⁸ He recalled that the department had had concerns about the application of small-scale fire

⁴⁹⁰ {CLG10000347}.

⁴⁹¹ Raynsford {CLG00035627/3-4} pages 3-4, paragraphs 6-7.

⁴⁹² {CLG10000347/3} paragraph 9.

⁴⁹³ {CLG10000347/2} paragraph 5.

⁴⁹⁴ {CLG10000347/2} paragraph 6.

⁴⁹⁵ {CLG10000347/3} paragraph 11.

⁴⁹⁶ {CLG10000740/90-91} paragraphs 13.5, 13.6 and Diagram 40; Martin {Day250/166:2-15}.

⁴⁹⁷ {CLG10000508/2} paragraph 7; Martin {Day250/166:13-15}.

⁴⁹⁸ {CLG10000007/95-97} paragraphs 12.5, 12.6 and Diagram 40.

⁴⁹⁹ {CLG10000005/98-100} paragraphs 12.5, 12.6 and Diagram 40.

⁵⁰⁰ {CLG00000161}.

⁵⁰¹ {CLG00000224/95-97} paragraphs 12.5, 12.6 and Diagram 40.

⁵⁰² Burd {Day238/177:18-25}; Martin {Day250/167:6-16}.

⁵⁰³ Overall {CLG00019482/1} page 1, paragraphs 3-5.

⁵⁰⁴ Overall {CLG00019482/10-13} pages 10-13, paragraphs 44 and 57.

⁵⁰⁵ Burd {Day238/174:12-20}.

⁵⁰⁶ Principal Fire Safety Professional in the Department's Building Regulations Division at the time, Burd {Day238/136:15-18}.

⁵⁰⁷ Burd {Day238/175:2-5}.

⁵⁰⁸ Raynsford {CLG00035627/21} page 21, paragraph 52.

tests in the context of large-scale cladding systems,⁵⁰⁹ but did not recall any concerns about reliance on Class 0 as a classification for materials that could be used on the external walls of high-rise buildings.⁵¹⁰ He did not recall having given any consideration to the creation of guidance recommending that all components of an external wall system should be of limited combustibility and did not recall the proposal having been brought to his attention by any official.⁵¹¹ He told us that his role in the department's response had been to consider the advice of officials and give directions at a high level.⁵¹²

7.51 There was only one ministerial submission which touched on the subject. It was dated 9 March 2000 and was drafted by Caroline Cousin, the Building Regulations Division's Head of Technical Policy. The submission was sent to Deputy Director Paul Overall, who approved it, and then sent to the minister.⁵¹³ It stated that none of the Select Committee's recommendations was substantial in nature⁵¹⁴ and explained that the draft response the minister was being asked to approve had assumed that he would wish to accept the spirit of the recommendations.⁵¹⁵ It referred to the recommendation that the BRE large scale test for the fire performance of external cladding systems should be substituted in Approved Document B as a requirement for the safety of cladding systems but it did not tell the minister that the Select Committee believed that all external cladding systems should be entirely non-combustible unless proved through full-scale testing not to pose an unacceptable level of risk. It therefore failed to provide the minister with enough information to question the rationale behind the department's response or to decide to adopt a different course. None of the witnesses was able to assist us with any aspect of the drafting of the submission. Although Mr Burd suggested that more comprehensive advice and options might have been given to the minister in separate discussions,⁵¹⁶ we saw no evidence of that.

7.52 Brian Martin said that in the period after the publication of the 2000 edition of Approved Document B he had not asked his colleague Anthony Burd why the Select Committee's view had not been followed.⁵¹⁷ It seems that within the department the matter was considered closed.⁵¹⁸

2000–2001: review of BR 135

7.53 In response to the Select Committee's inquiry and the pending adoption of *Fire Note 9* as a British Standard test, in January 2000 the department entered into a contract with BRE⁵¹⁹ to carry out research leading to the proposed revision of BR 135,⁵²⁰ the first edition of which had been published in 1988.⁵²¹

⁵⁰⁹ Raynsford {CLG00035627/18} page 18, paragraph 40.

⁵¹⁰ Raynsford {CLG00035627/18} page 18, paragraph 41.

⁵¹¹ Raynsford {CLG00035627/20} page 20, paragraph 48.

⁵¹² Raynsford {CLG00035627/22} page 22, paragraph 54.

⁵¹³ {CLG00019457/1}.

⁵¹⁴ {CLG00019457/1} paragraph 4.

⁵¹⁵ {CLG00019457/2} paragraph 9.

⁵¹⁶ Burd {Day238/182:21}–{Day238/184:10}.

⁵¹⁷ Martin {Day250/170:5-10}.

⁵¹⁸ Martin {Day250/165:20-22}.

⁵¹⁹ Contract CC1924.

⁵²⁰ {CLG10000347/2} paragraphs 6-7; {BRE00041836/3} final paragraph; Colwell {BRE00047571/29-30} pages 29-30, paragraphs 185-187; Colwell {Day232/12:15-25}; Smith {Day234/195:23}–{Day234/196:8}; Martin {Day250/206:13-18}.

⁵²¹ {BRE00001077}.

- 7.54** Among other things, the department’s objectives were to review the guidance in Approved Document B on the external walls of multi-storey buildings, to revise the Building Regulations and guidance based on a series of experimental studies on new and existing cladding systems⁵²² and to use the large-scale test to determine the most appropriate method for specifying the fire performance requirements of cladding systems.⁵²³ The work fell into five main parts: a literature review, a survey of building owners, analysis of the survey results, an experimental testing programme and the drafting of a revised edition of BR 135,⁵²⁴ each of which we consider below.
- 7.55** Dr Colwell was the project leader.⁵²⁵ Brian Martin was responsible for the survey and the drafting of BR 135.⁵²⁶ Both Dr Colwell and Mr Martin were involved in the project from beginning to end⁵²⁷ and all the work on the project, including in relation to technical detail, was supervised and monitored by Dr Smith.⁵²⁸ Dr Colwell and Dr Smith met frequently during the course of the project.⁵²⁹ Dr Smith was responsible for supervising the work and exercising quality control⁵³⁰ and Dr Colwell consulted her whenever necessary.⁵³¹ All project reports were submitted to Anthony Burd at the department.⁵³²

The literature review: 2000

- 7.56** The first piece of work produced under the project was a report entitled *Fire Spread in External Cladding – a Literature Review* dated 30 March 2000.⁵³³ It was written by Dr Colwell, Brian Martin and J Foster⁵³⁴ and was approved by Dr Smith.⁵³⁵ The executive summary stated that the report identified and summarised the types of external cladding systems then in use, the existing requirements and guidance contained in the 2000 edition of Approved Document B and the research previously undertaken on the spread of fire across the external walls of high-rise buildings.⁵³⁶ Dr Colwell told us that the purpose of the review was to provide a point of reference based on previously published information that would provide a platform for future work.⁵³⁷
- 7.57** Among other matters, the review resulted in a number of findings, two of which are important for present purposes. First, that a large-scale test method was necessary to assess the performance in fire of a complete external cladding system. Secondly, that the revised (2000) edition of Approved Document B had gone some way to addressing “the issues of fire performance of external cladding systems” and that the review of BR 135 would help to “clarify any remaining issues”.⁵³⁸

⁵²² {BRE00041836/3} section 2.

⁵²³ {BRE00041836/4} section 2, second bullet point; {BRE00041836/6} task 6.

⁵²⁴ Colwell {Day232/13:1-14}.

⁵²⁵ {BRE00041836/1}; {BRE00041836/9} “Project Team”; {BRE00041836/11} sixth paragraph.

⁵²⁶ {BRE00041836/9} “Project Team”; Colwell {Day232/14:17}–{Day232/15:13}; Martin {Day250/207:18}–{Day250/208:8}.

⁵²⁷ Colwell {Day232/13:18-20}; {Day232/15:14-16}; Martin {Day250/208:10-14}.

⁵²⁸ {BRE00041836/11} second and sixth paragraphs; {BRE00041836/12} “Project Responsibilities”; Martin {Day250/211:19}–{Day250/212:1}; Colwell {Day232/17:19-21}.

⁵²⁹ Colwell {Day232/17:19}–{Day232/18:6}.

⁵³⁰ {BRE00041836/12} “Project Responsibilities”.

⁵³¹ Smith {Day234/198:5-14}.

⁵³² Burd {Day239/99:11-14}.

⁵³³ {BRE00001353/4-29}.

⁵³⁴ Mr Foster was a junior member of the Reaction to Fire team: Colwell {Day232/29:25}–{Day232/30:4}; Smith {Day234/205:6-8}.

⁵³⁵ {BRE00001353/4}.

⁵³⁶ {BRE00001353/6} Executive Summary.

⁵³⁷ Colwell {BRE00047571/24} page 24, paragraph 155; Colwell {Day232/32:22}–{Day232/33:3}.

⁵³⁸ {BRE00001353/27} paragraphs 2-3.

- 7.58** The word “issue” used in that way is notoriously imprecise but usually connotes something unsuitable or unsatisfactory. It is not clear from the paper itself what “the issues of fire performance of external cladding systems” were and neither Dr Colwell nor Mr Martin could tell us. Although there were references to Approved Document B, none of them suggested that it was defective in any way. Nor was either of them able to explain the basis of the finding that the 2000 edition of Approved Document B had gone some way towards addressing them. The most that either of them could tell us was that they had been referring to the addition of the new reference to the large-scale test method⁵³⁹ and the guidance that both surfaces of cladding panels used in the construction of the external walls of high-rise buildings should be classified Class O.⁵⁴⁰ Neither of them explained what “issues” they had thought would be clarified by BRE’s work on BR 135.⁵⁴¹ Mr Burd was equally unclear about those matters, saying only that he could not recall precisely what the issues were but that there was a need to look at full-scale testing and the guidance provided by BR 135.⁵⁴²
- 7.59** The literature review was, in our view, a poor piece of work, as the uncertainty surrounding its conclusions demonstrates. It was superficial at best, even as a reference point, and contained at least one significant inaccuracy. The report appeared to misrepresent what Class O actually signified and conflated it with non-combustibility, thereby repeating the error in the report of BRE’s investigation into the fire at Knowsley Heights. It was an error that was repeated many times in the years to come, particularly in BRE’s summaries of the relevant provisions of Approved Document B.⁵⁴³ Most significantly, in a section summarising the guidance given in the 2000 edition of Approved Document B, the report stated that “Diagram 40...restricts the combustibility of external walls of high buildings”.⁵⁴⁴ That was not correct. Diagram 40⁵⁴⁵ did not restrict the combustibility of materials used in the external walls of buildings over 18 metres in height; it described an appropriate classification for the surfaces of external wall products that was primarily concerned with the spread of flame.
- 7.60** Dr Colwell said that Mr Martin had written the paragraphs summarising the provisions of the guidance,⁵⁴⁶ that Approved Document B was outside her area of expertise⁵⁴⁷ and that she had not noticed the error at the time.⁵⁴⁸ Dr Smith, who had approved the report and was responsible for the technical accuracy of the project as a whole,⁵⁴⁹ told us that her review had been essentially editorial and typographical.⁵⁵⁰ She accepted that there appeared to be a degree of confusion in the mind of the author about the effect of Diagram 40⁵⁵¹ and said that she would not have described it in that way.⁵⁵² All in all, the review does not reflect the work of an institution wedded to rigorous thinking, careful analysis or precise expression.

⁵³⁹ Colwell {BRE00047571/25} page 25, paragraph 159.

⁵⁴⁰ Martin {Day251/19:8-21}.

⁵⁴¹ Colwell {Day232/46:13}-{Day232:50:2}; Martin {Day251/19:8}-{Day251/21:12}.

⁵⁴² Burd {Day239/4:14}-{Day239/6:1}.

⁵⁴³ {BRE00041986/15}; {BRE00005881/18}; {CLG00019202/2} paragraph 7; {CLG00019445/3}.

⁵⁴⁴ {BRE00001353/14} first paragraph.

⁵⁴⁵ {INQ00014107/90}.

⁵⁴⁶ Colwell {Day232/36:15-18}.

⁵⁴⁷ Colwell {Day232/36:11-14}; {Day232/37:11-13}.

⁵⁴⁸ Colwell {Day232/37:14-18}.

⁵⁴⁹ Smith {Day234/198:8-11}; {Day235/85:11-14}.

⁵⁵⁰ Smith {Day234/206:15}-{Day234/207:6}.

⁵⁵¹ Smith {Day235/5:6-17}.

⁵⁵² Smith {Day235/3:23-24}.

- 7.61** Although he said that he could not remember having done so, Mr Martin probably did write the sections of the literature review dealing with the 2000 edition of Approved Document B.⁵⁵³ He accepted that the statement that Diagram 40 restricted combustibility was not accurate but did not go so far as to agree⁵⁵⁴ with Mr Burd that the use of the word “combustibility” had been a basic mistake.⁵⁵⁵ He attempted to justify his use of it by saying that he had used it in a lay sense.
- 7.62** Just as we are critical of the way in which BRE expressed itself in the literature review, we are equally critical of the loose way in which Mr Martin used expressions such as “combustibility” and “Class 0” when giving his evidence. We have already referred to his use of the word “combustibility”. He also said that he considered Class 0 to form part of a sliding scale on which there were degrees of combustibility.⁵⁵⁶ We found this aspect of his evidence unsatisfactory because we should have expected someone in his position to use language more carefully when dealing with matters on which he was credited with some expertise. That would not have been “pedantic”, as he put it, merely careful and precise. However, his casual use of language had led us to question whether his grasp of the concepts with which he was dealing was as sure as it should have been. In our view Mr Burd was correct to describe the use of the word “combustibility” as a basic mistake. Despite those misgivings, we think that Mr Martin was in fact well aware of the distinctions between Class 0, limited combustibility and non-combustibility and of their importance in the context of Approved Document B and that his unsatisfactory evidence reflected an attempt to justify his poor choice of language.
- 7.63** The BRE’s literature review contained three tables setting out the typical costs of using different cladding systems based on information obtained from the February 1998 edition of the *Architects Journal*.⁵⁵⁷ In the third table, relating to “In-fill panels”, figures were given for a composite panel made of 0.5mm aluminium skins with a 3mm polyethylene core,⁵⁵⁸ i.e. ACM panels with polyethylene cores.⁵⁵⁹ Dr Colwell, Dr Smith, Mr Martin and Mr Burd each told us that, at the time of the report, they had not been aware that material of that kind was being used in the external walls of high-rise buildings in England and Wales.⁵⁶⁰
- 7.64** Mr Martin told us that he had not noticed at the time the reference to aluminium composite panels with polyethylene cores.⁵⁶¹ Anthony Burd said that he had not noticed it either.⁵⁶² Dr Colwell said that she had no experience of the product and that although she would have been aware that it was combustible (as were Mr Martin and Dr Smith),⁵⁶³ she was not particularly struck by its inclusion and could remember no discussions about it either within BRE or with the department.⁵⁶⁴ Nor could Dr Smith or Mr Martin.⁵⁶⁵ None of them paid sufficient attention to the fact that the product, or something very similar to it, had been included in the experimental phase of the project because it was of interest to

⁵⁵³ Martin {Day251/5:8-12}.

⁵⁵⁴ Martin {Day251/8:19}-{Day251/9:6}.

⁵⁵⁵ Burd {Day238/193:20-23}.

⁵⁵⁶ Martin {Day251/7:2-10}; {Day251/10:6-7}.

⁵⁵⁷ {BRE00001353/12-13} Tables 1-3.

⁵⁵⁸ {BRE00001353/13} row 4.

⁵⁵⁹ Colwell {Day232/42:21-23}; Burd {Day238/194:23}-{Day238/195:6}; Smith {Day234/13:19-20}; Martin {Day251/12:14-16}.

⁵⁶⁰ Martin {Day251/12:18-22}; Colwell {Day232/42:24}-{Day232/43:2}; Smith {Day234/14:23}-{Day234/15:4}; Burd {Day238/195:12-19}.

⁵⁶¹ Martin {Day251/17:9-11}.

⁵⁶² Burd {Day238/195:2-9}.

⁵⁶³ Martin {Day251/14:9-14}; Smith {Day235/17:20-24}.

⁵⁶⁴ Colwell {Day232/43:7}-{Day232/45:6}.

⁵⁶⁵ Smith {Day235/19:21-24}; Martin {Day251/16:15-17}.

the industry⁵⁶⁶ and none of them appears to have realised that it would have been difficult to obtain costs for aluminium composite panels from the Architects Journal if they had not been in use in the United Kingdom at the time.⁵⁶⁷

The survey

- 7.65** One of the Select Committee’s recommendations had been that the department should instruct local authorities to undertake a review of existing buildings in order to ascertain how many of them had external cladding systems and how many of those might not comply with the Building Regulations. The Select Committee had recommended that in the light of the responses fire safety assessors should be called on to advise on the work required to ensure that none of them posed any undue risk.⁵⁶⁸ As a result,⁵⁶⁹ one of the tasks set by the department as part of the project was to carry out a survey of high-rise buildings in Great Britain in order to determine the composition and design of existing cladding systems and the changing nature of the materials currently in use.⁵⁷⁰
- 7.66** To that end Dr Colwell designed a questionnaire⁵⁷¹ directed to local authorities and companies in the construction industry seeking information about the number of buildings over 18 metres in height with which they had been involved, their age, the proportion that had external cladding, whether it had been installed as part of a refurbishment and the nature of the cladding systems and the materials used.⁵⁷² The questionnaire also asked respondents whether they had experienced the spread of fire due to external cladding systems and if so, to provide details.⁵⁷³
- 7.67** In the event, only 45 questionnaires were sent out.⁵⁷⁴ Responses were received from 17 recipients, four of which contained no relevant information⁵⁷⁵ and only eight of which came from local authorities.⁵⁷⁶ The decision to send out only 45 questionnaires and to proceed with only 13 completed returns was taken by Mr Burd,⁵⁷⁷ who told us that it had been taken on the advice of BRE and the Industry Advisory Group,⁵⁷⁸ a group of 27 representatives drawn from building owners and the construction industry⁵⁷⁹ to provide advice and support during the project.⁵⁸⁰ One of its functions was to make sure that the products and systems tested during the experimental phase of the project were representative of materials and designs in use at the time.⁵⁸¹
- 7.68** It is clear that the data from which BRE worked had not been derived from the comprehensive review of the country’s building stock that the Select Committee had originally envisaged.⁵⁸² Nonetheless, Dr Colwell thought it contained enough information

⁵⁶⁶ {BRE00041882}.

⁵⁶⁷ Colwell {Day232/43:16-19}.

⁵⁶⁸ {CLG00019478/10} paragraph 22.

⁵⁶⁹ {BRE00041887/5} first and second paragraphs; Colwell {Day232/51:3-20}.

⁵⁷⁰ {BRE00041836/3} section 2, fourth bullet point.

⁵⁷¹ Colwell {Day232/52:7-12}.

⁵⁷² {BRE00041885}.

⁵⁷³ {BRE00041885/5} question 11.

⁵⁷⁴ {BRE00041886} “Circulation List”; {BRE00041887/5} “Distribution and Selection”.

⁵⁷⁵ {BRE00041886} “Introduction”.

⁵⁷⁶ {BRE00041887/7} Figure 1.

⁵⁷⁷ Colwell {Day232/53:25}–{Day232/54:5}; {Day232/57:24}–{Day232/58:23}.

⁵⁷⁸ Burd {Day239/9:2-8}; {Day239/9:18}–{Day239/10:24}.

⁵⁷⁹ {BRE00001392/5}; {BRE00001392/9} Table 1.

⁵⁸⁰ Colwell {Day232/22:2}–{Day232/23:4}; Smith {Day235/201:2-13}; Burd {Day238/190:13-20}; Smith {MET00081237/12-13} pages 12-13, paragraph 44.

⁵⁸¹ Colwell {Day232/23:7}–{Day232/24:10}.

⁵⁸² Colwell {Day232/61:1-9}; Burd {Day239/13:3-6}.

to provide a reliable view of the types of external cladding systems currently being used in the public housing sector⁵⁸³ and the department apparently considered it to be representative.⁵⁸⁴

- 7.69** Mr Martin collated the responses to the survey,⁵⁸⁵ which were also provided to the department in tabulated form.⁵⁸⁶ It is clear that no immediate action was taken as a result. The report to Mr Burd informed the department that the use of cavity barriers appeared to be very sporadic,⁵⁸⁷ a finding that piqued his interest and eventually led to a further piece of research on the use of cavity barriers some years later for the guidance in the 2006 edition of Approved Document B.⁵⁸⁸
- 7.70** One of the companies that responded to the survey, WS Atkins, said in response to the question about the spread of fire caused by external cladding systems “Spread of flames generally rapid due to loss of integrity of composite aluminium panels using combustible cores”.⁵⁸⁹ Neither Dr Colwell nor Dr Smith could remember receiving that response or knew whether the company had been asked for further information.⁵⁹⁰ Nor is there any evidence that anyone approached WS Atkins on behalf of the department to seek further information. That is surprising, because it ought to have alerted BRE and the department to a potentially widespread problem relating to ACM panels.

Experimental testing programme

- 7.71** The information produced by the survey was used as the basis for the programme of tests that subsequently took place, including the choice of the types of system to be tested.⁵⁹¹ In 2001 and 2002, BRE carried out a series of full-scale tests on cladding systems and small- and intermediate-scale tests on various products. They included 14 full-scale tests (using the test method in *Fire Note 9*),⁵⁹² national reaction to fire tests in accordance with BS 476 Parts 6 and 7 on 11 products⁵⁹³ and several tests relating to the relevant European classifications (BS EN ISO 11925 Part 2,⁵⁹⁴ BS EN 13823⁵⁹⁵ and ISO 9705⁵⁹⁶). The testing was done as part of the project that was itself carried out under a framework contract with the department bearing the number cc1924. As a result, the testing series became known as “cc1924”.⁵⁹⁷
- 7.72** The 11 products and systems selected for testing were chosen in collaboration between BRE, the Industry Advisory Group and the department, with the department having the final say.⁵⁹⁸ Although Mr Burd approved the testing programme, it was devised by BRE and the Industry Advisory Group with little contribution from the department.⁵⁹⁹ Materials and products were chosen for testing largely on the advice of the Industry Advisory

⁵⁸³ {BRE00041887/3} first bullet point.

⁵⁸⁴ Burd {Day239/14:10-22}.

⁵⁸⁵ Colwell {Day232/54:16-24}.

⁵⁸⁶ Colwell {Day232/56:25}-{Day232/57:2}.

⁵⁸⁷ {BRE00041887/10} “Fire Breaks”.

⁵⁸⁸ Burd {Day239/15:21}-{Day239/16:11}.

⁵⁸⁹ {BRE00041886} row 54, column C.

⁵⁹⁰ Colwell {Day232/55:22}-{Day232/56:6}; Smith {Day235/52:7-16}.

⁵⁹¹ {BRE00041887/10-14}; Colwell {Day232/69:22-24}.

⁵⁹² {BRE00041882/23} Table 8; {BRE00041913}.

⁵⁹³ {BRE00041882/12} Table 2.

⁵⁹⁴ {BRE00041882/13} Table 3.

⁵⁹⁵ {BRE00041882/15} Table 4.

⁵⁹⁶ {BRE00041882/17} Table 5.

⁵⁹⁷ {BRE00001353/1}.

⁵⁹⁸ Colwell {Day232/22:8-15}; {Day232/24:2-4}; {Day232/69:25}-{Day232/70:10}; {Day232/75:22}-{Day232/76:24}; Smith {Day235/92:22-25}; {Day235/94:9-22}.

⁵⁹⁹ Burd {Day239/23:8-11}; {Day239/25:17-24}.

Group about what was most relevant and pertinent to the industry.⁶⁰⁰ The aim was to test materials that were widely used so that the tests would be of maximum value both to the department and the industry.⁶⁰¹

- 7.73** BRE's report on the cc1924 tests, written by Dr Colwell and approved by Dr Smith, was dated 19 September 2002 but the results of those tests were not published until after this Inquiry had begun its investigations.⁶⁰² They revealed two matters of great significance, neither of which appears to have been met with any appropriate response from either BRE or the department, let alone any action on the part of either of them.

Products sold as Class 0 did not achieve Class 0

- 7.74** All 11 of the products selected by BRE for testing in accordance with BS 476, Parts 6 and 7 had been chosen on the basis that they were marketed as being classified Class 0.⁶⁰³ However, only four actually achieved that classification when tested.⁶⁰⁴ BRE's report simply recorded that the results were not as expected⁶⁰⁵ and said that there did not appear to be any one reason for that lack of performance.⁶⁰⁶ Brian Martin said that he could not remember having seen any of the small-scale test data,⁶⁰⁷ and doubted that he had seen it until he was preparing to give evidence before us.⁶⁰⁸ He said that he had no recollection of any reaction to or discussions about those findings at the time⁶⁰⁹ but that they might have been discussed in his absence.⁶¹⁰
- 7.75** There are two possible explanations for those results: either the manufacturers were misrepresenting the characteristics of their products (deliberately or otherwise) or there were problems reproducing the results of the tests used to achieve the original classification. Either way, the results were a matter of serious concern to BRE.⁶¹¹ Dr Smith did not think that the explanation lay in the reproducibility of the tests⁶¹² and she and Dr Colwell agreed that, since it was not possible to know whether the same situation applied more widely across the market, the matter needed to be considered further.⁶¹³
- 7.76** Nonetheless, neither BRE nor the department contacted the manufacturers of the seven products that had failed to achieve Class 0 in the tests to tell them of the results⁶¹⁴ and neither of them took steps to report the manufacturers to National Trading Standards or any other authority.⁶¹⁵ Despite its concerns, BRE did nothing other than present the results to the department. Dr Colwell and Dr Smith considered that it was for the department to review the position and take any appropriate action.⁶¹⁶ As far as Dr Colwell could recall, there had been no reaction from the department when the test results were presented to it.⁶¹⁷ Mr Burd's recollection was very limited. He thought that misrepresentation

⁶⁰⁰ Colwell {Day232/23:1-15}.

⁶⁰¹ Colwell {Day232/70:5-10}.

⁶⁰² Burd {Day239/104:22}-{Day239/105:9}.

⁶⁰³ Colwell {Day232/112:15-24}.

⁶⁰⁴ {BRE00041882/11} first paragraph; {BRE00041882/19} first paragraph; {BRE00041882/12} Table 2, final column.

⁶⁰⁵ {BRE00041882/11} first paragraph.

⁶⁰⁶ {BRE00041882/19} first paragraph.

⁶⁰⁷ Martin {Day251/65:22-24}.

⁶⁰⁸ Martin {Day251/66:22-23}.

⁶⁰⁹ Martin {Day251/65:22}-{Day251/67:16}.

⁶¹⁰ Martin {Day251/67:23-25}.

⁶¹¹ Colwell {Day232/113:25}-{Day232/114:2}.

⁶¹² Smith {Day235/133:11-16}.

⁶¹³ Colwell {Day232/115:1}-{Day232/116:1}; Smith {Day235/136:24}-{Day235/137:3}.

⁶¹⁴ Colwell {Day232/116:2-5}.

⁶¹⁵ Colwell {Day232/116:6-9}; Smith {Day235/134:9-20}.

⁶¹⁶ Colwell {Day232/116:11-19}; Smith {Day235/134:18}.

⁶¹⁷ Colwell {Day232/114:19-21}; Smith {Day235/136:12-19} who could not recall the reaction of Anthony Burd.

by the manufacturers must have been a consideration⁶¹⁸ and that he might have had discussions with Dr Smith about it,⁶¹⁹ but he could not remember his or the department's reaction, beyond saying that it would have been one of surprise⁶²⁰ and would have given rise to concern.⁶²¹ However, he could not recall any contact having been made with the manufacturers, National Trading Standards or any other authority and confirmed that ministers had not been informed of the results.⁶²²

7.77 Accordingly, less than three years after the Select Committee had made recommendations directly connected to the fatal fire at Garnock Court⁶²³ the discovery that the majority of a selection of typical cladding products marketed as Class 0 did not in fact meet that standard was simply ignored by the department. It did not alert the industry to the potential danger and took no steps to review the statutory guidance. We do not understand its failure to act in relation to a matter of such importance.

Aluminium composite panels with polyethylene cores

7.78 One of the four products that did achieve Class 0 in BRE's tests was a panel described in its report as an "aluminium sheet",⁶²⁴ which was also tested under the three European test methods⁶²⁵ and was incorporated into one of the 14 systems subjected to a full-scale test.⁶²⁶ Despite the generic description of the product in almost all the BRE reports,⁶²⁷ it is clear from other documents that it was in fact a composite aluminium panel with a polyethylene core.⁶²⁸

7.79 Aluminium composite panels with polyethylene cores were selected for testing because they represented a product that was available on the market and was of interest to the construction industry.⁶²⁹ When subjected to a full-scale test, a system incorporating panels of that kind reached the failure criteria in *Fire Note 9* at a very early stage,⁶³⁰ exceeding the external temperature limits within three minutes of the start⁶³¹ and the internal limits after 4.34 minutes.⁶³² Staff intervened to terminate the test, manually extinguishing the crib fire at 5.45 minutes⁶³³ and ending the test at 5.75 minutes.⁶³⁴ Detailed observations recorded during the test included the fact that at 3.05 minutes molten aluminium was dropping from the front face of the system, that at 4.20 minutes flames had reached the

⁶¹⁸ Burd {Day239/73:21-25}.

⁶¹⁹ Burd {Day239/73:3-20}.

⁶²⁰ Burd {Day239/75:9-13}.

⁶²¹ Burd {Day239/74:5-7}.

⁶²² Burd {Day239/88:15}-{Day239/89:12}.

⁶²³ {CLG00019478}.

⁶²⁴ {BRE00041882/12} Table 2 "Rainscreen Systems", row 3; Colwell {Day232/98:16-18}; Smith {Day235/107:11-14}.

⁶²⁵ {BRE00041882/13} Table 3 "Rainscreen Panels", row 5; {BRE00041882/15} Table 4 "Rainscreen System", row 5; {BRE00041882/17} Table 5 "Rainscreen System", row 5.

⁶²⁶ {BRE00041882/23} Table 8 "Rainscreen System" row 5.

⁶²⁷ {BRE00041912}; {BRE00041895/9}; {BRE00042045/5}. Dr Colwell told us that it was the practice of BRE not to refer to specific products or manufacturers in its reports in deference to the wishes of the department: Colwell {Day232/28:23}-{Day232/29:8}; Colwell {Day232/84:5-11}. Burd {Day239/44:15-22} and {Day239/45:24}-{Day239/46:7}.

⁶²⁸ {BRE00041882/10} Table 1 "Rainscreen", row 5; {BRE00041909} "Rainscreen", final row.

⁶²⁹ Colwell {Day232/95:14}-{Day232/96:11}; Smith {Day235/104:2-23}.

⁶³⁰ {BRE00041912} row 15, column R; {BRE00041882/23} Table 8, row 5.

⁶³¹ {BRE00041882/23} Table 8, row 5, column "Ext".

⁶³² {BRE00041882/23} Table 8 "Rainscreen System", row 5, column "Insulation".

⁶³³ {BRE00041911/3}.

⁶³⁴ Colwell {Day232/97:9-20}; {BRE00041882/23} Table 8, row 5, column "Test Time (min)".

top of the test rig and that 5.00 minutes from the start flames had reached 20 metres in height, approximately twice the height of the test facility.⁶³⁵ On any view, that was a catastrophic escalation.⁶³⁶

- 7.80** Dr Colwell was present at the test and was shocked both by the rapid rate at which the fire grew and the extent of its growth.⁶³⁷ By contrast, Dr Smith did not recall the test as being particularly notable⁶³⁸ and did not remember anyone at BRE being particularly surprised at the way in which the system failed.⁶³⁹ She simply noted that the test had failed at an early stage.⁶⁴⁰
- 7.81** Neither Dr Smith nor Mr Martin recalled having seen the test data or detailed observations from that test at the time.⁶⁴¹ Mr Martin did recall that Dr Colwell had come into his office at BRE to tell him about the test and to show him a sample of the aluminium cladding panel,⁶⁴² but did not remember her being shocked or alarmed.⁶⁴³ As far as he could recall, they had not discussed the performance of the system in any detail.⁶⁴⁴
- 7.82** In the light of the test it was clear to Dr Colwell⁶⁴⁵ and Dr Smith⁶⁴⁶ that ACM panels with unmodified polyethylene cores were not suitable for use in cladding systems on high-rise buildings. Nonetheless, in its report dated 16 September 2002⁶⁴⁷ BRE said only that the aluminium sheet product had satisfied Class 0 but had proved to be one of the worst performing products in the intermediate scale and Single Burning Item tests. It concluded by saying that, as the current guidance in Approved Document B asked for Class 0 performance in Diagram 40, those matters might require further consideration.⁶⁴⁸ That was as far as the report went.
- 7.83** BRE expected the department to decide what it wanted to do in response.⁶⁴⁹ Apparently, no report it produced for the department spoke in overt terms about an immediate risk to life, because its function was simply to present the evidence, including the technical facts and the data.⁶⁵⁰ It was for the department to decide what to make of it.⁶⁵¹ It is clear that BRE did not share with the department, at least in any formal way, its opinion that aluminium composite panels with unmodified polyethylene cores should never be used on tall buildings.⁶⁵²
- 7.84** We are not convinced that it was as clear to the department as apparently it was to Dr Smith and Dr Colwell what the results of the tests incorporating the ACM PE panels meant in practical terms for the degree or immediacy of the danger their use presented or why there was a need to make changes to the guidance. Whatever may have been the accepted way of reporting the results of experimental work carried out for the department,

⁶³⁵ {BRE00041911/3}.

⁶³⁶ For further analysis of the test data Bisby, Phase 2 Report {LBYP20000001/148-151} paragraphs 807-816.

⁶³⁷ Colwell {Day232/96:23-24}; {Day232/97:5-8}; {Day232/99:25}-{Day232/100:4}.

⁶³⁸ Smith {Day235/101:19}-{Day235/102:2}.

⁶³⁹ Smith {Day235/106:10-17}; {Day235/109:17}-{Day235/110:7}.

⁶⁴⁰ Smith {Day235/107:3-10}.

⁶⁴¹ Smith {Day235/107:24}-{Day235/108/8}; Martin {Day251/51:5-10}; {Day251/52:6-7}.

⁶⁴² Martin {Day251/47:14}-{Day251/48:15}.

⁶⁴³ Martin {Day251/48:20-22}; {Day251/49:16-20}.

⁶⁴⁴ Martin {Day251/49:21}-{Day251/51:10}.

⁶⁴⁵ Colwell {Day232/100:11-25}.

⁶⁴⁶ Smith {Day235/111:7-13}.

⁶⁴⁷ {BRE00041895}.

⁶⁴⁸ {BRE00041895/13} paragraph 5.

⁶⁴⁹ Smith {Day235/152:3-16}.

⁶⁵⁰ Smith {Day235/152:24-25}.

⁶⁵¹ Colwell {Day232/127:24}-{Day232/128:25}.

⁶⁵² Smith {Day235/113:8-18}.

the disastrous performance of the panels in the full scale-test should have prompted BRE to draw the department's attention to the dangers inherent in the use of ACM PE rainscreen panels.

- 7.85** Dr Smith eventually agreed that the results of the tests had led her to have serious misgivings about the existence of statutory guidance that treated Class 0 as an appropriate standard for external panels on high-rise buildings.⁶⁵³ Dr Colwell went so far as to agree that the results indicated that there was a serious problem with the relevant provisions of Approved Document B.⁶⁵⁴ In those circumstances, given the performance of the product both in full-scale tests and in small-scale tests using the European methods,⁶⁵⁵ BRE's comments on the performance of the ACM panels fell far short of what was required.⁶⁵⁶
- 7.86** One object of the research project was to find a test method that ensured that products that performed badly in response to fire would not be able to pass it. Dr Smith appears to have thought that the broader reaction of those at BRE to the tests had been communicated to the department in the course of discussions about the criteria to be included in BR 135.⁶⁵⁷ However, that fails to take account of the fact that full-scale testing was not the only way of demonstrating compliance with functional requirement B4(1) recommended by Approved Document B⁶⁵⁸ and apart from anything else, the guidance continued to recognise the use of ACM panels with a Class 0 surface.
- 7.87** BRE itself was not asked for its opinion on the retention of Class 0 as an appropriate standard for panels to be used on the external walls of high-rise buildings and did not give any consideration to that question.⁶⁵⁹ In its view, that was a matter for the government.⁶⁶⁰
- 7.88** Mr Burd was aware that the full-scale test on the system incorporating ACM panels had produced a very fierce, fast fire.⁶⁶¹ That made him think that it was imperative to ensure that the work being carried out on BR 135 would produce a test that would exclude the use of products of that kind.⁶⁶² He appears to have thought that it was the responsibility of BRE to explain the significance of the results to him,⁶⁶³ but could not recall that BRE had communicated to him any sense of shock at the test results.⁶⁶⁴
- 7.89** The department discussed the report with the Industry Advisory Group but Mr Burd could not recall whether any consideration had been given to intervening in the use of ACM on high-rise buildings.⁶⁶⁵ Nor could he recall whether the department had taken any steps to alert others to the danger posed by the product⁶⁶⁶ or to find out how many high-rise

⁶⁵³ Smith {Day235/141:8-19}.

⁶⁵⁴ Colwell {Day232/111:14-24}.

⁶⁵⁵ {BRE00041882/14} fifth paragraph "The aluminium system generated high rates of fire growth and in both cases was extinguished early due to excessive temperatures and fire growth. This is reflected in the indicative classification of D-s2, d0." Smith {Day235/141:20-23}; Colwell {Day232/118:12-20}.

⁶⁵⁶ {BRE00041895/13} paragraph 5.

⁶⁵⁷ Smith {Day235/111:14-24}.

⁶⁵⁸ Smith {Day235/29:6-13}; Colwell {Day232/111:14-21}.

⁶⁵⁹ Smith {Day235/114:23}-{Day235/115:6}; {Day235/143:4-13}.

⁶⁶⁰ Smith {Day235/143:23}-{Day235/144:3}.

⁶⁶¹ Burd {Day239/51:25}.

⁶⁶² Burd {Day239/51:13-21}; {Day239/54:13-22}; {Day239/55:23}-{Day239/56:1}; {Day239/59:2-7}; {Day239/64:6-11}.

⁶⁶³ Burd {Day239/53:19-21}.

⁶⁶⁴ Burd {Day239/52:7-10}.

⁶⁶⁵ Burd {Day239/58:18}-{Day239/59:7}.

⁶⁶⁶ Burd {Day239/57:19}-{Day239/58:17}.

buildings might already have been clad in ACM products.⁶⁶⁷ There is no evidence of any discussions within the department about withdrawing Diagram 40 (and thus Class 0) as a relevant standard for the fire performance of the external surfaces of high-rise buildings.⁶⁶⁸

- 7.90** One might reasonably question whether Mr Burd or anyone else in the department, including Mr Martin, studied the BRE report in any detail or really gave any thought to the implications of the results of the full-scale test using the ACM product. If they had done so, they would surely have realised that although it had a Class 0 surface, it was highly combustible and entirely unsuitable for use on the external walls of buildings, particularly high-rise buildings. Mr Burd's view at the time was that the use of ACM panels on buildings over 18 metres in height did not comply with functional requirement B4(1) of the Building Regulations.⁶⁶⁹ In his view, the general warning in paragraph 13.7 of Approved Document B against the use of combustible materials⁶⁷⁰ and the existence of functional requirement B4(1) were sufficient to prevent the use of such products on high-rise buildings.⁶⁷¹ That view is difficult to reconcile, however, with the selection of ACM panels for testing on the grounds that they were a form of material then being widely used.
- 7.91** Brian Martin also thought that, although Diagram 40 allowed the use of ACM panels with a Class 0 surface to be used on buildings over 18 metres in height,⁶⁷² their use would contravene functional requirement B4(1) of the Building Regulations,⁶⁷³ but he could not explain why Approved Document B contained guidance that appeared to allow the use of a product that would result in a breach of the Building Regulations.⁶⁷⁴ On any view, that created a deeply unsatisfactory position for at least two reasons: first, because following the guidance is evidence of compliance with the requirements of the Building Regulations and, secondly, because although the contents of Approved Document B are no more than guidance, their detailed nature encourages people in the construction industry to treat them as prescriptive and not to pay sufficient attention to the functional requirements themselves. If the department thought that the use of some cladding panels with Class 0 surfaces did not comply with the Building Regulations, it should have given urgent thought to withdrawing Class 0 as a standard or at least to including in Approved Document B an explicit warning about the use of composite products, substantial parts of which were combustible. As it is, there is no evidence that any discussions of that kind took place.
- 7.92** We have been unable to establish how or why such important information was ignored. There are three possibilities: the first is that those in the department who were responsible for the research project, principally Mr Burd and Mr Martin, did not read it carefully or appreciate its implications; the second is that they did read it but did not understand the full seriousness of its implications for the use of ACM and put it aside without taking appropriate action; the third is that they understood the seriousness of the implications for the use of ACM panels and decided to suppress it.
- 7.93** There is no evidence to support the conclusion that the department deliberately decided to refrain from acting in response to what it knew constituted a serious danger to people working and living in high-rise buildings. The fact that the results of the research were

⁶⁶⁷ Burd {Day239/60:6-17}; {Day239/61:10-21}.

⁶⁶⁸ Burd {Day239/75:14-17}; {Day239/76:17}-{Day239/77:4}.

⁶⁶⁹ Burd {Day239/55:5-22}; {Day239/61:15-18}; {Day239/64:14-23}; {Day239/65:8-12}; {Day239/94:12-19}; {Day239/100:22}-{Day239/101:13}; {Day239/167:17}-{Day239/168:8}.

⁶⁷⁰ {INQ00014107/89} paragraph 13.7

⁶⁷¹ Burd {Day239/59:5-7}; {Day239/70:8-11}.

⁶⁷² Martin {Day251/71:16-21}.

⁶⁷³ Martin {Day251/71:25}-{Day251:72:1}.

⁶⁷⁴ Martin {Day251/72:22-25}; {Day250/87:4-21}.

not published at the time suggests that their significance was not fully appreciated and is consistent with the failure of Dr Smith and Mr Martin to refer to the cc1924 tests when they took part in a meeting in June 2017 to advise the government whether the cladding used on Grenfell Tower had been fit for its purpose.⁶⁷⁵ BRE's failure to draw the attention of the department to the performance of the ACM panels in the full-scale test in suitably forceful terms bears some responsibility for that.

- 7.94** No one was able to explain why the results of the tests had never been made public,⁶⁷⁶ even in the wake of the fire at Grenfell Tower, when they would have been highly relevant to the department's investigations into the fire performance of similar products. We think that the explanation lies in the fact that having once been shelved they had subsequently been entirely forgotten.

Harmonisation and RADAR 2

- 7.95** In February 2000 the European Commission directed that the European reaction to fire classification system, EN 13501, which we have described in a separate chapter of this report,⁶⁷⁷ be adopted across all European member states and that national testing standards should be harmonised.⁶⁷⁸ There was no harmonisation of building regulations, however. Although it remained open to member states to determine how and in what circumstances particular test methods and classifications would be required or recommended, each member state was obliged to incorporate the new European classification standards into its own regulations and associated guidance, if necessary alongside existing national standards.⁶⁷⁹ In the UK the approach taken by the department was to recognise both the European and national testing methods and standards.⁶⁸⁰

The RADAR research

- 7.96** In preparation for the introduction of the European classification system the department commissioned research from Warringtonfire Research Centre Ltd⁶⁸¹ to help it decide how the European test methods and classifications should be incorporated into UK regulations and guidance and to understand the effect of their adoption.⁶⁸² Warringtonfire produced a series of reports under the title "RADAR" (Research on Approved Document B and Revision).⁶⁸³ A two-part RADAR 2 report delivered in May 2000 specifically addressed the reaction to fire test methods under BS 476 Parts 6 and 7 and related national classifications.
- 7.97** The RADAR 2 report entitled "Correlation of UK Reaction to fire classes for building products with Euroclasses and Guidance on Revision of Approved Document B"⁶⁸⁴ was intended to determine whether satisfactory correlations could be established between

⁶⁷⁵ Smith {Day238/109:7-13}; {Day238/109:18}-{Day238/110:4}; {Day238/111:1-9}; Martin {Day257/208:7-14}; {Day257/215:12}-{Day257/216:9}; {CLG00005247/5}.

⁶⁷⁶ Burd {Day239/104:22}-{Day239/106:4}; Martin {Day251/85:16}-{Day251/86:20}; Smith {Day235/155:21}-{Day235/156:25}; {Day235/159:12-24}; Colwell {Day232/129:24}-{Day232/130:10}.

⁶⁷⁷ Chapter 5.

⁶⁷⁸ 2000/147/EC implementing Council Directive 89/106/EEC.

⁶⁷⁹ {CLG00007308/2} paragraph 3.2; Burd {Day238/166:10-19}; {Day239/109:18}-{Day239/110:1}; Martin {Day250/65:17-23}; Smith {Day235/160:12-18}; Bisby, Phase 2 Report {LBYP20000001/115} paragraph 600.

⁶⁸⁰ Burd {Day239/157:21-23}; {CLG00007308/3} paragraph 3.7.

⁶⁸¹ Now Warringtonfire Testing and Certification Ltd.

⁶⁸² {CLG00001464/4} paragraph 17; Smith {Day235/160:19-25}; Burd {Day239/109:23}-{Day239/110:14}; Martin {Day250/175:15-25}.

⁶⁸³ {CLG00001068/1} paragraph 4; Burd {Day239/109:15-17}; RADAR 1 addressed fire resistance and RADAR 3 dealt with tests for roofing materials.

⁶⁸⁴ {CLG00000950/2}; {CLG00000951/1}.

the different methods of testing and classification.⁶⁸⁵ The focus of the work, therefore, was on comparing the classifications of various products under the Euroclass and national systems.⁶⁸⁶ For that purpose, 64 different products⁶⁸⁷ were chosen for testing.⁶⁸⁸ The RADAR research was commissioned under the Partners in Innovation Scheme, meaning that it was funded half by the department and half by industry, including manufacturers.⁶⁸⁹ Mr Burd told us that the products selected for testing were chosen following discussions with those industry partners.⁶⁹⁰

- 7.98** Following the testing, the results for 60⁶⁹¹ of the 64 products were plotted onto a matrix. The second RADAR 2 report stated that where a high density (in other words a large number) of products occurred at any given transposition point on the matrix, that could be interpreted as giving confidence that a “representative correlation” existed and that a “reliable transposition” could be made.⁶⁹²
- 7.99** The report contained a table that suggested possible options for the transposition of classes for performance in reaction to fire. It suggested a transposition between national Class 0 and Euroclass B (or better).⁶⁹³ Of the products tested, 35 satisfied the requirements of Class 0 under the national system. When those 35 products were tested under the Euroclass systems, 21 achieved Class B, 10 achieved Class A1 or A2 and, at the other end of the scale, one achieved Class C, two achieved Class D and one achieved only Class E.⁶⁹⁴ The Class 0 products which achieved Euroclass C, D or E were not identified in the report.
- 7.100** The possible options for transposition were discussed by members of the Part B Working Party of the Building Regulations Advisory Committee (known as “BRAC”)⁶⁹⁵ at a series of meetings between 2000 and 2002,⁶⁹⁶ as well as with the Industry Advisory Group that had been set up to steer the project.⁶⁹⁷ Mr Burd attended a number of those meetings, as did Dr Smith,⁶⁹⁸ who told us that she had been called in to advise because of her expertise in fire testing and European harmonisation.⁶⁹⁹ Her role was to act as a co-ordinator of BRAC’s discussions.⁷⁰⁰

⁶⁸⁵ {CLG00000951/3} paragraph 1.

⁶⁸⁶ {CLG00000950/4} section 3.

⁶⁸⁷ {CLG00000950/5} paragraph 4.1. The seven industry sectors referred to were: Wood, Mineral Wool, Paints, Cellular Plastics, Wallcoverings, Board and Sheet and Plastics {CLG00000950/5-6} paragraphs 6.2-6.8.

⁶⁸⁸ {CLG00000951/3} section 1.

⁶⁸⁹ Martin {Day250/175:25}-{Day250/176:1}; Smith {Day235/162:14-20}; Burd {Day239/111:23}-{Day239/112:3}.

⁶⁹⁰ Burd {Day239/113:2-12}.

⁶⁹¹ {CLG00000951/5} section 3, first paragraph.

⁶⁹² {CLG00000951/3} section 2, first paragraph.

⁶⁹³ {CLG00000951/6} Table 6.

⁶⁹⁴ {CLG00000951/4} Table 2.

⁶⁹⁵ The Building Regulations Advisory Committee was a statutory advisory public body sponsored by the department ordinarily made up of twelve members. The Secretary of State was required to consult the Committee on any changes to the Building Regulations. When changes were being considered, a technical working party (such as the Part B Working Party) was normally set up, Ledson {CLG00019465/30} page 30, paragraph 116; {CLG00007308/1} for a list of members of the Part B Working Party.

⁶⁹⁶ See for example meetings on 28 February 2001 {CLG00001051}; 10 May 2001 {CLG00007308}; 15 April 2002 {CLG00000720}; 2 May 2002 {CLG00001462}.

⁶⁹⁷ {CLG00000950/3-4} section 2.

⁶⁹⁸ {CLG00007308/1} and {CLG00001462/1}.

⁶⁹⁹ {CLG00007308/1} paragraph 1.3; Smith {Day235/174:19-21}; {Day235/194:10}-{Day235/195:1}.

⁷⁰⁰ {CLG00000950/3} section 2, second row, third column; Smith {Day235/164:2-4}.

Transposition

- 7.101** The department concluded that the most appropriate transposition point for Class 0 was Euroclass B and so the proposal made by Warringtonfire was accepted.⁷⁰¹ In the amended (2002) edition of Approved Document B, Diagram 40 therefore referred both to Class 0 and to Euroclass B-s3, d2 (or better) as the recommended standard for the external surfaces of walls over 18 metres in height.⁷⁰²
- 7.102** The second RADAR 2 report had suggested that a decision to treat Class 0 as equivalent to Euroclass A2 would severely restrict the choice of materials available to designers and clients. Euroclass A2 is a more stringent standard than Euroclass B and there may have been a view that very few Class 0 products were capable of achieving Euroclass A2. Accordingly, placing the transposition point at Euroclass A2 rather than at Euroclass B might not only have restricted market choice but would potentially have met resistance from, and caused losses to, the UK construction industry.⁷⁰³ However, if the transposition point for Class 0 had been Euroclass A2, at the end of any transition period buildings would be clad in materials that performed better in a fire.⁷⁰⁴ The decision to use Class B as the transposition point to Class 0 was a compromise between the need to maintain fire safety standards and the need to avoid distortion of the market.⁷⁰⁵
- 7.103** The effect on manufacturers of the harmonisation scheme rested largely in the hands of the department, since it determined the transposition points, any notional equivalence between classification under the two systems, and any period of co-existence.⁷⁰⁶ However, Mr Burd said that the likelihood of resistance from the construction industry to a correlation between Class 0 and Euroclass A2 had not been a factor in his consideration of the possible transposition points⁷⁰⁷ and that he had not considered whether that transposition point might restrict choice at the end of any period of co-existence.⁷⁰⁸ He did concede, however, that it might have been too demanding. Indeed, one of the stated objectives of the RADAR research was to ensure that the introduction of the new European test methods did not significantly change the existing regulatory position.⁷⁰⁹ The department appears to have made no attempt to find out whether the four products that had achieved Class 0 but only Euroclass C, D or E were in widespread use,⁷¹⁰ and if so, in what circumstances.

The retention of Class 0

- 7.104** When considering what amendments to make to Approved Document B in the light of the RADAR report, the department gave no thought to the removal of Class 0 as the appropriate standard for the fire performance of materials used for the external surfaces of walls of buildings over 18 metres in height, despite the catastrophic performance of a system incorporating Class 0 aluminium composite panels with polyethylene cores in a full-scale test under contract cc 1924.⁷¹¹ One reason for that was the fact that Class 0 represented the established method of determining the suitability of products for use

⁷⁰¹ Martin {Day250/181:9-13}; Burd {Day239/156:11-15}.

⁷⁰² {CLG10000740/91} Diagram 40.

⁷⁰³ Smith {Day235/192:7}-{Day235/193:3}.

⁷⁰⁴ Smith {Day235/193:4-9}.

⁷⁰⁵ Smith {Day235/193:15-22}.

⁷⁰⁶ Burd {Day239/134:7-15}.

⁷⁰⁷ Burd {Day239/128:15-21}.

⁷⁰⁸ Burd {Day239/128:5-8}.

⁷⁰⁹ {CLG00000950/3} section 1, third paragraph.

⁷¹⁰ Burd {Day239/118:5-10}.

⁷¹¹ Burd {Day239/209:12}-{Day239/210:1}; Smith {Day236/37:17}-{Day236/39:7}.

in the external walls of high-rise buildings⁷¹² and the purpose of the exercise then being conducted was seen as being to harmonise national and European classification and testing standards, not to review the technical requirements of Approved Document B generally.⁷¹³

The transitional period

- 7.105** It was originally intended that the national classes (including Class 0) would be retained in use alongside the Euroclass system for a limited transitional period, after which they would no longer be relied on as the relevant classification standards.⁷¹⁴ In the event, the transitional period continued until December 2018, after the fire at Grenfell Tower.⁷¹⁵
- 7.106** A Regulatory Impact Assessment prepared by the department in May 2002 suggested that the transitional period would begin in 2002 and would last for three years,⁷¹⁶ but no date for the end of the period of co-existence was fixed at the time.⁷¹⁷
- 7.107** It was difficult to discern what other factors led to the retention of Class 0 for so many years. As far as we can see, it did not form part of any of the discussions or consultations leading to the amendments of Approved Document B in 2010⁷¹⁸ or 2013.⁷¹⁹
- 7.108** Reliance on the national classes in Approved Document B could have been discontinued at any time,⁷²⁰ provided the proper processes for amendment had been followed.⁷²¹ Similarly, Diagram 40 could have been amended at any time to recommend the use of materials of limited combustibility for the external surfaces of buildings over 18 metres in height.⁷²²

Equivalence and the note in Diagram 40

- 7.109** As everyone agrees, there was no technical correlation or equivalence between Class 0 and Euroclass B because the two classification regimes were completely different, testing for different properties according to different criteria and in different circumstances.⁷²³ Nonetheless, a footnote to Diagram 40 was added in the 2002 version of Approved Document B stating:

“National classifications do not automatically equate with the equivalent European classifications, therefore products cannot typically assume a European class unless they have been tested accordingly”.⁷²⁴

- 7.110** The note was intended to warn readers that Class 0 could not be achieved by testing under the European system and obtaining a Class B (or vice versa). Only tests under the national system (i.e. BS 476-6 and 476-7) could provide a Class 0 classification and only tests under

⁷¹² Burd {Day239/207:10-21}.

⁷¹³ Burd {Day239/121:19-20}; {Day239/123:4-5}.

⁷¹⁴ {CLG00000720/4} paragraphs 6.11 and 10 “The UK currently utilises our own British Standards – mainly the BS 476 suite of documents, however these will eventually be withdrawn”; {CLG00001464/3-4} paragraphs 15-16; {CLG00001462/3} paragraph 6.7 “The transpositions proposed for AD B are for Class B to be substituted for Class 0 in time”.

⁷¹⁵ Martin {Day250/167:12-16}.

⁷¹⁶ {CLG00001464/4} paragraph 16.

⁷¹⁷ Burd {Day239/164:3-14}; {Day239/175:21}-{Day239/176:19}.

⁷¹⁸ Burd {Day240/12:8-22}.

⁷¹⁹ Burd {Day240/13:20}-{Day240/14:3}; {Day240/16:5-14}.

⁷²⁰ Burd {Day239/188:12-16}; {Day239/191:4-25}.

⁷²¹ Burd {Day240/13:2-9}; {Day240/14:9-25}.

⁷²² Burd {Day240/18:15-25}.

⁷²³ Smith {Day235/184:17-19}; {Day235/185:1-13}; {Day235/188:24}-{Day235/189:1}; {Day235/197:8-23}; {Day236/17:14-15}; Burd {Day239/144:19}-{Day239/145:8}; {Day240/6:17-19}; Martin {Day250/190:11-16}; {CLG00007308/7} paragraph 5.8; {CLG00001051/1-2} paragraph 6.

⁷²⁴ {CLG10000740/91} Diagram 40.

the European system could provide a Class B classification.⁷²⁵ Although we agree that that is one possible reading of the footnote, we think that it could equally be understood to mean that there *could be* an equivalence of some kind between the two classifications, albeit not an automatic one. Indeed, the note uses the word “equivalent” in that very context.

- 7.111** In our view the footnote was certainly confusing. The use of the word “automatically” suggested that there could be an equivalence in some cases, though not all, and the expression “equivalent European classifications” suggests that there is an equivalence between national classes and European classes. Although some readers might have understood that testing under each system was necessary in order for a product to obtain the related classification, they might have understood that Class 0 and Euroclass B were technically equivalent, which was not the case. They were equivalent only for the limited purposes of complying with the guidance in Diagram 40, but they were not technically equivalent and did not confirm the same characteristics.
- 7.112** Although Brian Martin, Anthony Burd and Dr Smith all told us that they had not been aware of any manufacturers claiming that Class 0 was equivalent to Euroclass B,⁷²⁶ they all saw an email to the department from the fire safety authorities in Singapore sent in December 2009⁷²⁷ asking specifically whether the two were equivalent. However, that inquiry did not lead any of them to think that the note in Diagram 40 might not be clear or that consideration ought to be given to amending it.⁷²⁸ Mr Martin’s view, which seems to have been shared by others involved, was that people understood that the two systems operated in parallel and were not interchangeable.⁷²⁹ The department appears to have assumed that the inquiry from Singapore was an isolated instance, but that may have been wishful thinking. There was evidence before us that some manufacturers and others in the construction industry thought that Class 0 and Euroclass B were technically equivalent and that others did not know whether they were equivalent or not, whether technically or for the purposes of Diagram 40.⁷³⁰

The development of the BS 8414 test series and the second edition of BR 135

BS 8414 Part 1: 2002

- 7.113** While the work on harmonisation of testing standards had been going on and the work towards the revision of BR 135 under contract cc 1924 was continuing, *Fire Note 9* had been submitted to the British Standards Institution for adoption as a British Standard. Following editorial amendments and approval,⁷³¹ BS 8414 Part 1 was published in December 2002.⁷³²

⁷²⁵ Burd {Day239/202:13-17}; Smith {Day236/30:14-18}; {Day236/33:22}–{Day236/34:1}; Martin {Day250/188:9-18}.

⁷²⁶ Martin {Day250/204:9-18}; {Day250/205:7-10}; Burd {Day240/8:6-17}; Smith {Day236/35:19-21}; {Day236/60:12-21}.
⁷²⁷ {CLG10004229}.

⁷²⁸ Martin {Day250/196:14-22}; {Day250/197:14-22}; {Day250/200:18-21}; {Day250/203:16-24}; Burd {Day240/7:6}–{Day240/8:4}; Smith {Day236/59:12-19}.

⁷²⁹ Martin {Day250/204:15-18}.

⁷³⁰ {KIN0000060/3} left column, fourth paragraph, “Class 0 correlates with Euroclass B in the new regime”; Rochefort {Day80/60:13}–{Day80/61:1} “...if I remember correctly, you can read across from a C-s1 d0 and that was deemed to be equivalent to a BS 476 Class 0”; French {Day87/84:21}–{Day87/85:9}; {Day87/86:15-25}; Gregorian {Day105/19:24}–{Day105/20:14}.

⁷³¹ Colwell {BRE00047571/27} page 27, paragraph 172.

⁷³² {CEL00001205}.

7.114 BS 8414-1 set out the test method for full-scale testing of external wall systems. The performance criteria against which the test data were to be assessed were moved from *Fire Note 9* into the second edition of BR 135, which Dr Colwell and Brian Martin drafted as part of their work under contract cc1924.⁷³³ The second edition was published in 2003.⁷³⁴ Separating the test method from the performance criteria reflected the approach then being taken in relation to European standards, in which test methods and classification criteria were contained in separate documents.⁷³⁵

BR 135, second edition: 2003

- 7.115** Dr Colwell and Mr Martin, together with the department, decided that the first edition of BR 135⁷³⁶ provided a suitable basis for the second.⁷³⁷ They reviewed the text of the first edition and revised the contents to take account of developments in the testing of external cladding systems and advances in knowledge about the mechanism of fire spread, including those that had arisen from the work undertaken for the department under contract cc1924.⁷³⁸ The classification performance criteria, which had themselves been derived from *Fire Note 3*, were taken from *Fire Note 9*.⁷³⁹
- 7.116** The second edition of BR 135 placed heavy emphasis on the potential difference that cavity barriers could make to the performance of external cladding systems.⁷⁴⁰ However, it took no account of the fact that all five of the ventilated rainscreen systems subjected to a full-scale test under contract cc1924, including the system with cavity barriers fitted, had failed to meet the criteria in *Fire Note 9*.⁷⁴¹ It also took no account of the fact that Dr Connolly had concluded in 1994 that a number of the fire barriers used in his testing had proved to be ineffective.⁷⁴² It is not clear why the second edition of BR 135 placed so much emphasis on cavity barriers.⁷⁴³ There seems to have been a widely held view that properly designed cavity barriers could potentially improve performance,⁷⁴⁴ but that does not appear to have been supported by any empirical evidence and in our view BRE should not have allowed its conclusions to be influenced by unsubstantiated opinion in that way.
- 7.117** The first (1988) edition of BR 135 had contained an explicit warning that BS 476 Parts 6 and 7 could provide information only about external surfaces.⁷⁴⁵ That warning was removed from the second edition, but it is not clear why. Neither Dr Colwell nor her co-author, Mr Martin, was able to provide a satisfactory explanation.⁷⁴⁶ He expressly rejected the suggestion that the passage in the first edition had been deliberately omitted to avoid upsetting the industry.⁷⁴⁷

⁷³³ Colwell {BRE00047571/30} page 30, paragraph 190; Colwell {Day232/150:1-4}.

⁷³⁴ {BRE00005554/22} Annex A.

⁷³⁵ Colwell {BRE00047571/29} page 29, paragraph 184; Colwell {Day232/140:2}-{Day232/141:16}.

⁷³⁶ {BRE00001077}.

⁷³⁷ Colwell {BRE00047571/30} page 30, paragraph 192; Colwell {Day232/150:16-23}.

⁷³⁸ Colwell {BRE00047571/31-32} pages 31-32, paragraph 196.

⁷³⁹ Colwell {Day232/152:5-11}; Smith {MET00081237/12} page 12, paragraph 41; Colwell {BRE00047571/32} page 32, paragraph 200; Colwell {Day232/165:21}-{Day232/166:4}.

⁷⁴⁰ Colwell {Day232/165:13-17}; {BRE00005554/14} "Fire Barriers".

⁷⁴¹ Colwell {Day232/162:18}-{Day232/163:10}.

⁷⁴² {RCO00000001/48-49} paragraphs 9-11.

⁷⁴³ Colwell {Day232/163:3}-{Day232/164:16}.

⁷⁴⁴ Smith {Day236/102:2-13}.

⁷⁴⁵ {BRE00001077/4} under the heading "Regulatory aspects".

⁷⁴⁶ Martin {Day251/113:9-15}.

⁷⁴⁷ Martin {Day251/111:9-16}; {Day251/111:24}-{Day251/112:2}; {Day251/112:19}-{Day251/113:2}.

7.118 We find it difficult to accept that the omission was an oversight. On the contrary, the removal of a passage pointing out the limitations of Class 0 was wholly consistent with the attitude that the department had taken to Class 0 since the Knowsley Heights fire in 1991, namely, that it must be retained, despite the evidence that it was unreliable and much misunderstood and despite a Parliamentary Select Committee expressly recommending its abrogation. We think it likely that commercial considerations played a part in the decision to delete the warning from BR 135.

BS 8414 Part 2: 2005

7.119 In October 2005, BS 8414 Part 2, setting out the large-scale test method for cladding systems on steel-framed structures, was published.⁷⁴⁸ By that time, Dr Colwell had become chair of the British Standards Institution's joint committee working on the test standard.⁷⁴⁹ She produced the initial draft⁷⁵⁰ and was responsible for obtaining a consensus on the draft text before it went out to consultation.⁷⁵¹ The test method in BS 8414-2 was based on the same principles as BS 8414-1. The need for a test method for steel-framed structures had become apparent during BRE's work on large-scale cladding tests under contract cc1924⁷⁵² and during the development of BS 8414-1,⁷⁵³ as a result of which it was realised that there was insufficient knowledge about the fire performance of external cladding systems where no masonry wall was present.⁷⁵⁴ Following its publication, BRE produced a document containing the performance criteria and classification method for BS 8414-2.⁷⁵⁵ They were attached to BR 135 as Annex B.⁷⁵⁶

BR 135, third edition: 2013

7.120 In 2013, a revised version of BR 135 was published, written by Dr Tony Baker⁷⁵⁷ and Dr Sarah Colwell.⁷⁵⁸ The performance and classification criteria remained unchanged.⁷⁵⁹ The guidance in the third edition contained new wording making it clear that a classification in accordance with BR 135 applied only to the system tested and not to any other.⁷⁶⁰ Dr Baker told us that he had thought that the second edition of BR 135 had not been quite as clear as it could have been in that respect. New clauses had been added in order to clarify the position⁷⁶¹ because he was concerned that the message was not getting through to the industry.⁷⁶² For the same reason, BRE decided to insert the same wording into all classification reports.⁷⁶³

⁷⁴⁸ {BSI00000097} BS8414-1 applied only to masonry structures.

⁷⁴⁹ Colwell {BRE00047571/52} page 52, paragraph 330.

⁷⁵⁰ Colwell {Day232/186:4-9}.

⁷⁵¹ Colwell {BRE00047571/52} page 52, paragraph 330.

⁷⁵² Colwell {Day232/70:13}–{Day232/71:25}; Colwell {BRE00047571/53} page 53, paragraph 333.

⁷⁵³ Colwell {BRE00047571/58} page 58, paragraph 367.

⁷⁵⁴ {BRE00041887/13} Option 2; {BRE00041895/9-10} tasks 6 and 7.

⁷⁵⁵ Smith {MET00081237/22-23} pages 22-23, paragraph 89.

⁷⁵⁶ {BRE00005552}.

⁷⁵⁷ Dr Tony Baker joined the BRE in 2004. He was the Certification Scheme Manager for the Passive Fire Protection Group and from 2013 onwards the fire resistance Test Laboratory Manager: Baker {BRE00005774/1-2} pages 1-2, paragraphs 4-7.

⁷⁵⁸ {CELO0000584}.

⁷⁵⁹ Smith {MET00081237/23} page 23, paragraph 91; Colwell {BRE00047571/59} page 59, paragraph 378; Colwell {Day233/46:10-14}.

⁷⁶⁰ {CELO0000584/9} left-hand column, final paragraph; {CELO0000584/27} left-hand column under bullet points; {CELO0000584/33} right-hand column under bullet points.

⁷⁶¹ Baker {Day100/122:3-13}.

⁷⁶² Baker {Day100/122:15-24}.

⁷⁶³ Baker {Day100/122:12-13}.

Approved Document B 2006

The background to the amendment

- 7.121** In March 2004, the department commissioned BRE to undertake a review of Part B of Schedule 1 to the Building Regulations and Approved Document B.⁷⁶⁴ It did so because it felt that the technical aspects of the requirements of Part B and the guidance in Approved Document B were due for revision.⁷⁶⁵ The work was led and managed by Brian Martin in his capacity as an employee of BRE⁷⁶⁶ (although he continued to be seconded part-time to the department). It was split into a number of tasks, one of which was a survey of interested parties intended to identify matters they might think it important to include in the review.⁷⁶⁷ In the light of the responses to those enquiries Mr Martin and Mr Burd prepared a draft revision of Approved Document B for public consultation.⁷⁶⁸
- 7.122** The topics considered as part of a “Forwards Look” exercise and on which recipients were consulted⁷⁶⁹ did not include the retention of Class 0, any amendments to Diagram 40 or the guidance relating to the construction of the external walls of buildings over 18 metres in height.⁷⁷⁰ For whatever reason, none of those involved in the survey raised the question whether Class 0 should be retained as one of the standards by which the suitability of materials used in the external walls of buildings over 18 metres in height was to be judged.⁷⁷¹ Mr Martin did not suggest that topic for discussion because the object of the exercise was to find out what other interested parties thought the department should be considering.⁷⁷² At that time he himself had not given any thought to the suitability of Class 0 for that purpose⁷⁷³ and thought that it would have been odd to identify that particular subject, given the wide range of matters covered by Approved Document B.⁷⁷⁴

The 2002 edition

- 7.123** The 2002 edition of Approved Document B provided in paragraph 13.7 as follows:⁷⁷⁵

“External wall construction

The external envelope of a building should not provide a medium for fire spread if it is likely to be a risk to health or safety. The use of combustible materials for cladding framework, or of combustible thermal insulation as an overcladding or in ventilated cavities, may present such a risk in tall buildings, even though the provisions for external surfaces in Diagram 40 may have been satisfied.

In a building with a storey 18m or more above ground level, insulation material used in ventilated cavities in the external wall construction should be of limited combustibility (see Appendix A). This restriction does not apply to masonry cavity wall construction which complies with Diagram 32 in Section 10.”

⁷⁶⁴ {BRE00001953}; {CLG00001508}.

⁷⁶⁵ {BRE00001953/4} section 1, third paragraph.

⁷⁶⁶ {BRE00001953/10} section 3; Martin {CLG00019469/2} page 2, paragraph 6.

⁷⁶⁷ {BRE00001953/5} section 2 Task 1.

⁷⁶⁸ Martin {Day251/195:21-24}; {Day251/181:16-24}.

⁷⁶⁹ {CLG00002410/10-11} and {CLG00002410/22-23} in relation to B4 External Fire Spread, the topics consulted on were space separation and roof coverings.

⁷⁷⁰ Martin {Day251/145:19}-{Day251/146:4}.

⁷⁷¹ Martin {Day251/145:19}-{Day251/146:4}.

⁷⁷² Martin {Day251/142:20}-{Day251/143:4}; Burd {Day240/25:11-24}.

⁷⁷³ Martin {Day251/171:6-11}.

⁷⁷⁴ Martin {Day250/171:12-22}.

⁷⁷⁵ {CLG10000740/90}.

- 7.124** Three things should be noted. First, the paragraph contained a warning that the fact that the surface of an external wall might satisfy Diagram 40 by having either a Class 0 or Euroclass B classification did not eliminate the risk of the spread fire across it. In other words, it drew attention to the fact that satisfaction of the requirements of Diagram 40 would not necessarily result in compliance with functional requirement B4(1). The person carrying out the work, therefore, *always* had to make a judgement about whether the wall as a whole (including the proposed cladding system) met the functional requirement, even if the surface of the outer material was classified Class 0.⁷⁷⁶ That was how the department understood that provision and it does not appear to have crossed the mind of anyone within the department that it might be understood in any other way.⁷⁷⁷
- 7.125** Secondly, notwithstanding the reference to external surfaces and Diagram 40 in the first part of paragraph 13.7, external surfaces were dealt with in paragraphs 13.5 and 13.6. Moreover, Diagram 40 had nothing to do with insulation.
- 7.126** Thirdly, the guidance suggested that only insulation used in a ventilated cavity in an external wall of a building over 18 metres in height need be of limited combustibility.

The 2006 edition

- 7.127** In the 2006 version of Approved Document B the former paragraphs 13.5, 13.6 and 13.7 were reorganised and re-worded as paragraphs 12.6 – 12.9. The first part of paragraph 12.5, which now bore the heading “External wall construction”, read:

“The external envelope of a building should not provide a medium for fire spread if it is likely to be a risk to health or safety. The use of combustible materials in the cladding system . . . may present such a risk in tall buildings.”

External surfaces were then covered by paragraphs 12.6, and insulation by paragraph 12.7.

- 7.128** On the face of it, the reorganisation did to some extent make the section easier to use, but in the attempt to achieve greater simplicity the warning that had existed in the first part of paragraph 13.7 of the 2002 edition was removed, so that there was now no overt statement that the use of a material or product that was Class 0 did not itself mean that the external wall would comply with functional requirement B4(1). Neither Mr Burd nor Mr Martin could offer any satisfactory explanation for the change.⁷⁷⁸
- 7.129** Paragraph 12.7, which was the successor to paragraph 13.7 of the 2002 edition, now read as follows:

“Insulation Materials/Products

In a building with a storey 18m or more above ground level any insulation product, filler material (not including gaskets, sealants and similar) etc. used in the external wall construction should be of limited combustibility (see Appendix A). This restriction does not apply to masonry cavity wall construction which complies with Diagram 34 in Section 9.”

- 7.130** There were two other amendments of linked significance: first, the title of the paragraph was new, and secondly, the paragraph itself now contained the phrase “filler material (not including gaskets, sealants and similar) etc...”. The significance of those changes lies in the fact that the department’s contention, at least after the fire at Grenfell Tower,

⁷⁷⁶ Burd {Day239/81:14}–{Day239/84:14}.

⁷⁷⁷ Burd {Day 239/64:14}–{Day239/67:17}.

⁷⁷⁸ Martin {Day252/28:7}–{Day252/31:5}; Burd {Day240/79:25}–{Day240/82:21}.

was that the words required the core of an external wall cladding panel to be of limited combustibility. Acceptable materials therefore, it argued, did not include ACM panels with unmodified polyethylene cores. However, we do not think that an ordinary reader would understand those words in that way and it is clear that in the years that followed many in the construction industry did not do so.

The origin and evolution of the amendments

- 7.131** In the light of subsequent events we think it is useful to consider the origin of those amendments and the way in which they were introduced.
- 7.132** On 6 January 2005 a fire broke out at The Edge, a partly-occupied 19-storey block of flats in Salford, Greater Manchester.⁷⁷⁹ Within ten minutes it had spread from the point of origin on a second floor balcony to the top of the building.⁷⁸⁰ BRE investigated the fire for the department under the Investigation of Real Fires contract⁷⁸¹ and Mr Martin discussed it with BRE colleagues, including Dr Colwell.⁷⁸² BRE found that the fire had spread externally over the building’s aluminium composite cladding panels,⁷⁸³ which had delaminated, exposing the combustible polystyrene cores, which had then become involved in the fire.⁷⁸⁴ In its report it also pointed out that what had then been paragraph 13.7 of Approved Document B⁷⁸⁵ had limited the combustibility of insulation alone and that, although polystyrene might ordinarily be used as an insulation material, in that case it had been used to stiffen the decorative panels rather than for its insulating properties.⁷⁸⁶ It referred to the polystyrene core of the panels as “a low cost filler”.⁷⁸⁷
- 7.133** It is clear that neither BRE nor the department thought at the time that those responsible for the choice of the panels used at The Edge had failed to follow the existing guidance in Approved Document B; on the contrary, they thought that there was something wrong with the guidance that needed to be corrected. It does not seem to have occurred to anyone in the department that many in the industry were treating the guidance as prescriptive and that the warning in section 13.7 was insufficiently clear.⁷⁸⁸
- 7.134** At the time of the fire at The Edge Approved Document B did not warn against the use of aluminium composite panels with combustible cores on the walls of high-rise buildings; on the contrary, Diagram 40 tended to support the use of such panels if they had Class 0 surfaces.⁷⁸⁹ BRE’s second report into the fire dated 31 March 2005 warned that even if the construction had complied with current guidance, that would not have restricted the speed at which the fire had spread through it. It also reported that the fire and rescue services had grave concerns that a fire of that nature could quickly get out of control and put the lives of occupants at risk.⁷⁹⁰ To that extent the guidance in Approved Document B was ineffective.

⁷⁷⁹ {BRE00035368/1} under heading “Type of building”.

⁷⁸⁰ {BRE00035368/1} final paragraph.

⁷⁸¹ Martin {Day251/148:5-8}.

⁷⁸² Martin {Day251/146:25}-{Day251/147:11}; {Day251/149:5-9}.

⁷⁸³ {BRE00035368}.

⁷⁸⁴ {BRE00035368/1} final paragraph; {CLG00019455/76} paragraph 4.1.148.

⁷⁸⁵ {CLG10000740/90} paragraph 13.7.

⁷⁸⁶ {BRE00035368/2}; Martin {Day251/154:6-13}.

⁷⁸⁷ {BRE00035368/2}.

⁷⁸⁸ Burd {Day240/57:21}-{Day240/58:17}.

⁷⁸⁹ Martin {Day251/161:1-17}.

⁷⁹⁰ {CLG00019455/76-79} paragraph 4.1.148 (Investigation of Real Fires Report April 2004 to March 2005, dated 31 March 2005).

7.135 On 18 January 2005, Brian Martin sent Anthony Burd some suggested amendments to section B4 of the working draft of Approved Document B then being prepared for consultation.⁷⁹¹ The reference to ventilated cavities in what was proposed as paragraph 11.8 was removed and the words “or any other material” were added, so that it read:

“In a building with a storey 18m or more above ground level, insulation **or any other material** used in ~~ventilated cavities~~ in the external wall construction should be of limited combustibility.”⁷⁹²

7.136 If that form of words had been adopted, the guidance would have been that *all* materials used in the external wall construction of a building over 18 metres in height should be of limited combustibility.⁷⁹³ However, they thought that a blanket provision of that kind would go too far, because it would prevent the use of many materials that might otherwise have been considered acceptable in various circumstances.⁷⁹⁴

7.137 Accordingly, paragraph 11.7 of the draft sent out for consultation in July 2005⁷⁹⁵ was amended to provide that:

“In a building with a storey 18m or more above ground level, insulation used in the external wall construction should be of limited combustibility.”⁷⁹⁶

7.138 The intention at that stage was to ensure that what eventually became paragraph 12.7 covered materials which, although normally used as insulation, were being used for purposes other than their thermal performance.⁷⁹⁷ Apparently, the department was not willing to delay the consultation to allow time to improve the wording but was willing to reconsider it after the consultation had been completed.⁷⁹⁸

The response of NHBC to the consultation

7.139 The origin of the word “filler” lies either in the first BRE report into the fire at The Edge or in NHBC’s response to the consultation,⁷⁹⁹ in which it sought clarification whether sandwich panels that used polystyrene as what it described as a “filler” could be used on buildings over 18 metres in height. “Filler” was not a word that had any settled technical or customary meaning. Mr Martin did not have a clear understanding of what it meant⁸⁰⁰ and Mr Burd described it as “something that fills a void”.⁸⁰¹ Both said that they had intended it to include the core of a sandwich panel, regardless of whether it was a material that could in other circumstances be used for the purposes of insulation,⁸⁰² and thus to control the combustibility of the material below the surface.⁸⁰³ Mr Martin may have thought that if the combustibility of the core was controlled, the classification of the surface would become less of a problem,⁸⁰⁴ but that seems unlikely, because at the time no one in the department thought there was any problem with the use of Class 0.

⁷⁹¹ {CLG00018832}.

⁷⁹² {CLG00018833}.

⁷⁹³ Martin {Day251/197:9-15}; Burd {Day240/45:19-23}.

⁷⁹⁴ {CLG00018832}.

⁷⁹⁵ {CLG00000022}.

⁷⁹⁶ {CLG00000022/147}.

⁷⁹⁷ Burd {Day240/53:13-21}.

⁷⁹⁸ Martin {Day251/209:15}-{Day251/210:8}.

⁷⁹⁹ Burd {CLG00019461/8-13} pages 8-13, paragraphs 23-31; Martin {Day252/16:25}-{Day252/17:11}.

⁸⁰⁰ Martin {Day251/155:4-19}.

⁸⁰¹ Burd {Day240/101:20-21}, {Day240/102:24}.

⁸⁰² Martin {Day252/19:14-17}; Burd {Day240/72:22}-{Day240/73:9}; {Day240/100:8}-{Day240/101:6}.

⁸⁰³ Martin {Day251/171:18}-{Day251/172:21}.

⁸⁰⁴ Martin {Day251/191:7-16}.

- 7.140** We accept that the use of the broad expression “filler material” was also intended to capture the use of materials in ways or circumstances that Mr Martin and Mr Burd had not yet come across,⁸⁰⁵ such as the use of sheet materials to provide additional stiffness to a steel frame.⁸⁰⁶ Mr Martin⁸⁰⁷ and Mr Burd⁸⁰⁸ both said that they had wanted people to think about it and work out for themselves what did or did not fall within its scope.⁸⁰⁹ That approach was wholly inappropriate, however, since the purpose of Approved Document B was to provide clear guidance on how to comply with the regulations.
- 7.141** A new heading to paragraph 12.7, “Insulation Materials/Products”, was introduced when the revised edition of Approved Document B was published. Mr Martin said that its purpose had been to prompt people to think more broadly about other combustible material they might be thinking of using, but he was unable to explain how it might achieve that.⁸¹⁰ It is much more likely that it was included simply to reflect the scope of the paragraph, which on a natural reading is directed to insulation materials and products.
- 7.142** Later confusion over the meaning of paragraph 12.7 may have reflected two competing aims we have mentioned: preventing the use of combustible materials in the cores of composite panels and in other, as yet unforeseen, ways⁸¹¹ and allowing some combustible materials to be used in the construction of the external walls of high-rise buildings.

The course of the amendment

- 7.143** The reference to “filler material” was added at a very late stage in the revision process. The expression made its appearance for the first time, together with the new heading, in a single-page document drafted by Mr Martin on 22 November 2006.⁸¹² The final revision came even later with the insertion of the words “(not including gaskets, sealants, and similar) etc.”, which are not found in any drafts and appear to have been added to the version approved for publication by Anthony Burd on 18 December 2006 as the final proofs went to press.⁸¹³ Neither Mr Martin⁸¹⁴ nor Mr Burd⁸¹⁵ was able to recall any discussion about the addition of the reference to gaskets and sealants or the reason for it.
- 7.144** It was highly unusual to make changes to Approved Document B without going through a number of established procedures,⁸¹⁶ which included public consultation and scrutiny by the Building Regulations Advisory Committee, an independent body whose function was to ensure that any changes were appropriate.⁸¹⁷ In this case, however, none of the established procedures was followed in relation to the additional wording and we have been left with the clear impression that the changes were rushed through by the back door without proper consideration.

⁸⁰⁵ Martin {Day252/16:2-11}; {Day252/23:15}-{Day252:24:1}; {Day252/51:8-13}.

⁸⁰⁶ Martin {Day252/21:24}-{Day252/22:16}.

⁸⁰⁷ Martin {Day252/13:13-25}; {Day252/20:12-23}; {Day252/47:3-8}.

⁸⁰⁸ Burd {Day240/73:10-13}.

⁸⁰⁹ Martin {Day252/24:2-7}.

⁸¹⁰ Martin {Day252/35:2-20}.

⁸¹¹ Martin {Day252/16:4-11}.

⁸¹² {CLG10002070}.

⁸¹³ {CLG10002200/96}.

⁸¹⁴ Martin {Day252/42:5-24}.

⁸¹⁵ Burd {Day240/95:11-23}.

⁸¹⁶ Burd {Day240/14:9-25}; Martin {CLG00019469/6} page 6, paragraph 18.

⁸¹⁷ Harral {CLG00019487/38} page 38, paragraph 149.

- 7.145** No statements appear to have been made by the department about the meaning of paragraph 12.7 after the revised edition of Approved Document B had been published. The reference to filler material was not listed as one of the main changes⁸¹⁸ and there was no reference to it in a circular issued by the department to building control organisations in December 2006⁸¹⁹ alerting them to the main changes. Mr Martin accepted that the circular should have contained a reference to it and could not explain why it had not done so.⁸²⁰
- 7.146** The term “filler material” was later addressed in a series of⁸²¹ presentations given by the department to professional organisations and building control bodies following the publication of the revised version of Approved Document B,⁸²² but the slides used in those presentations simply set out the text of paragraph 12.7 and gave no indication that the expression applied to the core of a composite panel or to any material other than insulation.⁸²³ No effort was made to draw attention to the change; on the contrary, as Mr Martin accepted, it was made quietly and without publicity in order to avoid a fuss.⁸²⁴
- 7.147** Although from time to time during the four years or so leading up to the Grenfell Tower fire Mr Martin was asked about the meaning of the phrase “filler material”, it was not until he attended the meeting organised by the Centre for Windows and Cladding Technology in March 2016 that he said that it was intended to cover the core of a composite panel. Even when he did offer that explanation, it was restricted to a relatively small group of industry participants.⁸²⁵ Why he was so reticent is not entirely clear. There appears to have been some concern on his part that being more specific about the products that fell within the guidance might lead to legal challenges by manufacturers.⁸²⁶ The fact that the changes had been slipped in without consultation was also one of his concerns⁸²⁷ and he may also have thought that it was not for him to say what the statutory guidance issued in the name of the Secretary of State was intended to mean. However, he could have drawn the attention of more senior officials to the confusion in the industry about the meaning of paragraph 12.7, albeit at the risk of having to explain how the amendment had found its way into Approved Document B in the first place. At all events, no document or statement emanating from the department until after the fire at Grenfell Tower explained that the expression “filler material” was intended to include the cores of cladding panels.

⁸¹⁸ {CLG10000007/2}.

⁸¹⁹ {CLG10000038}.

⁸²⁰ Martin {Day252/65:11-25}.

⁸²¹ Burd {Day240/124:1-2}.

⁸²² Burd {CLG00019461/13} page 13, paragraph 32; Burd {Day240/117:10}-{Day240/119:11}.

⁸²³ {CLG00019451/55}; Burd {Day240/120:6-22}.

⁸²⁴ Martin {Day252/39:21}-{Day252/40:3}; {Day252/36:13-19}.

⁸²⁵ See Chapter 11.

⁸²⁶ Martin {Day252/39:11-20}.

⁸²⁷ Martin {Day252/39:21}-{Day252/40:3}.

Chapter 8

The Investigation of Real Fires project

Introduction

- 8.1** Between 1988 and 2017 the government engaged BRE to monitor the effectiveness of the Building Regulations and the guidance contained in Approved Document B by examining the circumstances and causes of real fires. The work was known as the “Investigation of Real Fires” project.⁸²⁸ It was carried out under a series of contracts between BRE and DCLG (the department),⁸²⁹ each of which ran for about two or three years and was based on an invitation to tender, and a proposal submitted by BRE for the work.⁸³⁰

Background

- 8.2** BRE, originally known as the Fire Research Station, had been involved in the investigation of fires since the early 1970s. In 1970 the Fire Survey Group was formed, which consisted of a number of scientists who attended the scene of selected fires.⁸³¹ In 1988 Martin Shipp took over as head of the Fire and Security Section of the Fire Research Station, which by then was the department with responsibility for carrying out investigations into fires.⁸³² In that capacity he attended the scenes of fires, drafted reports for the department and engaged with departmental officials.⁸³³ Thereafter, he was involved in the investigation of a number of significant incidents, such as the fire at the Yarl’s Wood Detention Centre in 2002 and the fire at the Rose Park Care Home in 2004.⁸³⁴
- 8.3** The purpose of the Investigation of Real Fires project was to ensure that the government was informed in good time of new matters affecting fire safety, particularly those that emerged from significant incidents, and thereby to inform government policy.⁸³⁵ More particularly, the principal objective was to identify whether there were aspects of the guidance in Approved Document B or the functional requirements in Part B of Schedule 1 to the Building Regulations that were not working as intended and required amendment.⁸³⁶ The project had been established following the coming into force of the Building Act 1984 in recognition of the fact that it was necessary to monitor the introduction of the functional requirements to ensure that they were operating as envisaged.⁸³⁷ Dr David Crowder was involved in the project at BRE from 2006 onwards and took over responsibility for running it from April 2015.⁸³⁸

⁸²⁸ {BRE00001054/6}; Shipp {BRE00047594/24} page 24, paragraph 118.

⁸²⁹ Martin {CLG00019469/27} page 27, paragraph 86; {BRE00001054/6}.

⁸³⁰ Crowder {Day229/126:11-14}; {HOM00046292}; {CLG10003892}.

⁸³¹ Shipp {BRE00047594/21} page 21, paragraph 108.

⁸³² Shipp {BRE00047594/3} page 3, paragraph 14; Shipp {BRE00047594/21} page 21, paragraph 108; Shipp {BRE00047594/24} page 24, paragraph 118.

⁸³³ Shipp {BRE00047594/24} page 24, paragraph 118.

⁸³⁴ Shipp {BRE00047594/5} page 5, paragraphs 27 and 28; {CLG10003892/1} paragraph 1.

⁸³⁵ Shipp {BRE00047594/26} page 26, paragraph 127; {CLG10003892/3}.

⁸³⁶ Crowder {Day229/94:23}-{Day229/95:11}; Crowder {BRE00047668/12} page 12, paragraph 51; Shipp {BRE00047594/26} page 26, paragraph 127; Martin {CLG00019469/27} page 27, paragraph 86.

⁸³⁷ Crowder {Day229/95:13-24}.

⁸³⁸ Crowder {BRE00047668/6} page 6, paragraph 27; Crowder {Day229/96:1-7}.

- 8.4** The project was not concerned with matters that had no potential bearing on the statutory guidance or the Building Regulations, such as fires started deliberately and accidental fires resulting from a simple failure to follow the regulations or guidance.⁸³⁹ By 2006 the following objectives for the project had been identified:⁸⁴⁰
- a. To provide timely reports to the department on the effectiveness of the guidance in Approved Document B in achieving fire safety in buildings in England and Wales.
 - b. To improve understanding of how unusual fires develop and grow, particularly in domestic and other residential properties.
 - c. To monitor the effect of European standards on building materials and systems.
 - d. To monitor the approach adopted by fire safety engineering and other means of meeting the requirements of the Building Regulations.
 - e. To identify the need for research relating to specific problems identified in fire investigations.
 - f. To identify the efficacy of the Building Regulations in providing protection for fire fighters.
 - g. To maintain close contacts with investigators, including the fire and rescue services, to encourage the exchange of information on unusual fires that would be of benefit to the department.
 - h. To disseminate findings from fire investigations to the fire and rescue services, designers and owners of buildings and others, as appropriate.
- 8.5** From 2007 onwards Dr Debbie Smith was BRE's contract manager for the project and remained responsible for it at the time of the Grenfell Tower fire.⁸⁴¹ However, she did not have day to day involvement in it, although she was involved in any formal correspondence with the department.⁸⁴² Most of the reports produced pursuant to the project after 2007 were approved by Dr Corinne Williams, deputy contracts manager for the programme, acting on her behalf. Each report underwent technical checks or peer review before being sent to Dr Williams or Dr Smith for approval.⁸⁴³
- 8.6** The department regarded the project as a means of providing robust evidence to ensure that the Building Regulations and Approved Documents were effective and continued to be fit for their purpose.⁸⁴⁴ It was seen as a means of enabling the department to take an active approach to ensuring that policies and guidance were proportionate to the risk and gain a greater understanding of industry practice.⁸⁴⁵ The information obtained from the project, together with the statistics it was receiving, led to a general understanding within the department that Approved Document B provided adequate guidance on the use of combustible materials.⁸⁴⁶

⁸³⁹ Crowder {BRE00047668/12} page 12, paragraph 51; Crowder {Day229/101:6-23}.

⁸⁴⁰ {HOM00046642/13} section 2.

⁸⁴¹ Shipp {BRE00047594/23} page 23, paragraph 117; Smith {MET00081237/45} page 45, paragraph 179; Smith {Day236/159:22-25}; Day236/160:24}-{Day236/161:5}.

⁸⁴² Crowder {Day229/98:18}-{Day229/99:20}; Smith {MET00081237/45} page 45, paragraph 179; Lennon {BRE00043688/9} page 9, paragraph 48.

⁸⁴³ Holland {BRE00043829/10} page 10, paragraph 33; Crowder {Day229/99:22}-{Day229/100:18}.

⁸⁴⁴ Martin {CLG00019469/27-28} pages 27-28, paragraph 86.

⁸⁴⁵ Martin {CLG00019469/28} page 28, paragraph 87(c) and (d).

⁸⁴⁶ Burd {CLG00019461/25} page 25, paragraph 64.

The operation of the project

- 8.7** In practice, the project involved monitoring news reports of fires, from which BRE selected incidents to include in its reports. Important sources of information were media reports or local fire and rescue service reports,⁸⁴⁷ both of which were monitored on line.⁸⁴⁸ A list of high – and low-priority considerations were agreed with the department at the beginning of each contract and was used by BRE to determine whether a more detailed examination of any particular incident was required.⁸⁴⁹ At the top of the high-priority list were fatal fires, but the list also included fires of relevance to the Building Regulations or Approved Document B and fires of particular scientific interest, including fires involving cladding.⁸⁵⁰ Included in the low-priority list were fires overseas, a subject to which we return below.⁸⁵¹ The list of priorities did not fundamentally change during the life of the project⁸⁵² and largely determined the way in which BRE responded to or investigated any particular incident.⁸⁵³
- 8.8** If a site inspection was considered necessary, BRE contacted the relevant fire and rescue service in order to gain access to the scene, assuming that the department was content for it to do so.⁸⁵⁴ Sometimes BRE was unable to obtain access to the scene of a fire, for example, if the premises were a crime scene.⁸⁵⁵
- 8.9** BRE produced a range of different reports for the department based on its investigations, including quarterly progress reports, year-end reports, research reports at the end of each two or three-year contract cycle and reports on fires of special interest if site investigations had been carried out.⁸⁵⁶ BRE also wrote articles for various publications based on its work.⁸⁵⁷ Some experimental fire testing was carried out under the project.⁸⁵⁸
- 8.10** BRE typically produced a few hundred reports on fires each year, although the number varied in accordance with the quality of the information available and the type of fires that had occurred. For example, in the year from July 2010 to July 2011 204 reports were produced, whereas 511 were produced in the year from July 2011 to July 2012. The budget for the project allowed for 28 days a year to be spent on preparing reports, which included monitoring news reports and sifting out fires that were not worth reporting. In practice three quarters of the time was spent on monitoring and one quarter on writing reports. That amounted to about 15 minutes a fire.⁸⁵⁹ The contract for the years 2012 to 2015 allowed for a maximum of eight site visits a year.⁸⁶⁰ The total budget for the project remained at around £100,000 per year between 2006 and 2017.⁸⁶¹

⁸⁴⁷ Shipp {BRE00047594/25} page 25, paragraph 123; Crowder {Day229/122:10}-{Day229/123:24}.

⁸⁴⁸ Crowder {Day229/121:7-23}.

⁸⁴⁹ Shipp {BRE00047594/25} page 25, paragraph 124.

⁸⁵⁰ Crowder {BRE00047668/41-43} pages 41-43, paragraph 171; Crowder {Day229/129:12}-{Day229/131:16}.

⁸⁵¹ Crowder {BRE00047668/41-43} pages 41-43, paragraph 171.

⁸⁵² Crowder {Day229/131:17-22}.

⁸⁵³ Crowder {Day229/124:18}-{Day229/126:3}; Williams {BRE00043695/10} page 10, paragraph 43; Shipp {BRE00047594/25} page 25, paragraphs 124-125.

⁸⁵⁴ Shipp {BRE00047594/25} page 25, paragraph 125.

⁸⁵⁵ Shipp {BRE00047594/25} page 25, paragraph 126.

⁸⁵⁶ Holland {BRE00043829/17-18} pages 17-18, paragraph 51 (category 1 fires being identified at Holland {BRE00043829/11} page 11, paragraph 37); Crowder {Day229/102:3}-{Day229/103:2}.

⁸⁵⁷ Holland {BRE00043829/17-18} pages 17-18, paragraph 51.

⁸⁵⁸ Martin {CLG00019469/27-28} pages 27-28, paragraph 86.

⁸⁵⁹ Crowder {BRE00047668/43} page 43, paragraph 173.

⁸⁶⁰ Holland {BRE00043829/14-15} pages 14-15, paragraph 42; {BRE00000951/21} under heading "Category 1 incidents".

⁸⁶¹ Crowder {BRE00047668/44-45} pages 44-45, paragraph 179; Crowder {Day229/145:16}-{Day229/146:3}.

8.11 At the start of each contract a letter was sent to all fire and rescue services asking for their co-operation with the project and describing the list of high and low priorities that had been agreed with the department so that they could understand which fires BRE was interested in.⁸⁶²

A change in the scope of the project: October 2012

8.12 The department changed the terms of the contract for the period November 2012 to March 2015, which was put out to tender on 3 September 2012.⁸⁶³ Those changes were reflected in BRE's proposal dated 1 October 2012.⁸⁶⁴ That proposal, which was prepared by Martin Shipp and approved by Dr Smith,⁸⁶⁵ was submitted to Brian Martin at the department.⁸⁶⁶ The overarching objectives of the project included the provision of unbiased, robust and independent evidence and information that would enable the department to ensure that the guidance in Approved Document B remained fit for purpose and to support the review of policy more generally.⁸⁶⁷ They also included identifying areas for research and for potential changes to Part B of Schedule 1 of the Building Regulations or Approved Document B arising from specific problems identified in investigations.⁸⁶⁸

8.13 The proposal also contained a section describing the way in which reports would be produced. It included the following provision, which reflected a requirement that had been introduced for the first time in the department's request for a proposal.⁸⁶⁹

"All reports will:

...

- Not contain any policy recommendations. All reports produced by BRE for this project will not contain any proposed text for a revision to an Approved Document or supporting guidance. With the agreement of, or at the request of, DCLG, such material will only be provided in a separate Policy Implications Report (as and when necessary...) as this will typically need to be published separately."⁸⁷⁰

8.14 The contract for the project was awarded to BRE on 8 November 2012.⁸⁷¹ At a meeting held at the start of the contract between Martin Shipp, Ciara Holland and Dr Crowder for BRE and Brian Martin and Steve Kelly for the department, the department made it clear that BRE should not volunteer policy recommendations but provide them only if asked to do so.⁸⁷² Dr Crowder regarded that as a fundamental change in the way in which the contract operated⁸⁷³ and thought it was a result of the government's deregulatory policies.⁸⁷⁴ That shift in approach was entirely consistent with the evidence we heard from senior civil

⁸⁶² Crowder {Day229/126:25}-{Day229/127:13}; {BRE00011186}.

⁸⁶³ {BRE00027677/1} paragraph 1(ii).

⁸⁶⁴ {BRE00000951/4}.

⁸⁶⁵ {BRE00000951/2}.

⁸⁶⁶ {BRE00000951/1}.

⁸⁶⁷ {BRE00000951/4}.

⁸⁶⁸ {BRE00000951/4}.

⁸⁶⁹ {BRE00000951/51}; Crowder {BRE00047668/12-13} pages 12-13, paragraph 53.

⁸⁷⁰ {BRE00000951/51} under heading "All reports will:".

⁸⁷¹ {BRE00027677}.

⁸⁷² Crowder {Day229/110:10-19}.

⁸⁷³ Crowder {Day229/113:14-15}.

⁸⁷⁴ Crowder {Day229/114:1-3}; {Day229/118:4-10}.

servants in the Department who explained to us the pressures they were under at the time due to the government's overarching desire to deregulate.⁸⁷⁵ As far as we know, the department did not ask BRE to produce any reports on policy implications.⁸⁷⁶

Findings in reports

- 8.15** Each of the final research reports produced by BRE for the department between 2001 and 2015 pursuant to the project, contained the following conclusion:

“The findings from this period have reaffirmed the overall effectiveness of the building regulations and ADB in providing for the safety of life in the event of fire and most of the significant issues that have been identified during this study fall outside the scope of these regulations.”⁸⁷⁷

- 8.16** Although Martin Shipp said that the paragraph correctly reflected the position, there were periods during which it self-evidently did not.⁸⁷⁸ One striking example is the report dated 31 March 2005,⁸⁷⁹ which included a summary of the fire at The Edge, Salford, on 6 January 2005.⁸⁸⁰ It contained the same standard paragraph.⁸⁸¹ However, the fire at The Edge had not only raised obvious questions within the department at the time, but had shown that the guidance in Approved Document B was not effective in restricting the use of external wall panels with combustible cores on high-rise buildings,⁸⁸² which had led in turn to a significant amendment. In those circumstances the inclusion of that paragraph is inexplicable.⁸⁸³

Sudbury House and Taplow House fires: 2010–2012

- 8.17** Two fires that featured in the reports prepared by BRE were those that occurred at Sudbury House in Wandsworth in August 2010 and Taplow House in Swiss Cottage in January 2012.
- 8.18** A report on the fire at Sudbury House was included in the report for the period July 2010 to July 2011 dated 27 July 2011.⁸⁸⁴ It contained the following account:

“Block of flats, London, 1st August 2010

Sudbury House, Wandsworth High Street, London. A fire occurred on the fifth floor of a 24-storey block of flats at around 11.00. A man, presumed by BRE Fire and Security fire investigators to have been in the flat of origin, was suffering from smoke inhalation and was rescued from the fifth floor and another person was rescued from the third floor. The cause of the fire was under investigation.”⁸⁸⁵

BRE did not carry out an investigation at the site of the fire,⁸⁸⁶ the summary was prepared solely on the basis of news reports.⁸⁸⁷ However photographs taken later showed that a fire in the compartment of origin had caused the building's cladding to catch fire. The fire had

⁸⁷⁵ As discussed in more detail in Chapter 10.

⁸⁷⁶ Crowder {Day229/119:3-13}; Smith {Day236/170:12-25}.

⁸⁷⁷ {BRE00000936/15} section 3.

⁸⁷⁸ Martin {Day251/174:1-8}; {Day251/174:20}-{Day251/175:1}.

⁸⁷⁹ {CLG00019455/1}.

⁸⁸⁰ {CLG00019455/76-79} paragraph 4.1.148.

⁸⁸¹ {CLG00019455/3}.

⁸⁸² Martin {Day251/175:2-9}; {Day251/176:1-5}.

⁸⁸³ Martin {Day251/175:10-16}; {Day251/175:21-25}.

⁸⁸⁴ {BRE00000945}.

⁸⁸⁵ {BRE00000945/33} paragraph 5.1.3.

⁸⁸⁶ Crowder {Day229/160:15-17}.

⁸⁸⁷ Crowder {Day229/160:18-20}.

spread vertically through the cladding and up a column and had clearly gone beyond the compartment of origin.⁸⁸⁸ The rainscreen at Sudbury House was replaced after the Grenfell Tower fire because it also consisted of Aluminium Composite Material (ACM) panels with a polyethylene core.⁸⁸⁹

- 8.19** The fire at Taplow House was included in the report for the period July 2011 to July 2012 dated 26 July 2012.⁸⁹⁰ It contained the following account:

“Block of flats, London, 16th January 2012

Swiss Cottage, London. The fire started at about 22:00 on the 17th floor of a 22-storey block of flats. 130 people were evacuated to a nearby community centre. The 17th floor was partially gutted, but fire fighters confined the fire to that floor and brought the fire under control in over three hours. The fire was caused by a candle setting fire to papers, prompting a warning by a London Fire Brigade spokesman on storing large amounts of papers, magazines and books in dwellings.”

Again, BRE did not visit the scene of the fire to carry out an investigation; the summary was based on media reports.⁸⁹¹ However, the fire spread both upwards and downwards over one column of the tower.⁸⁹² After the Grenfell Tower fire the cladding system at Taplow House was found to consist of Reynobond 55 ACM PE rainscreen panels with mineral wool insulation.⁸⁹³

- 8.20** Although the fire at Sudbury House had required the rescue of two people, which suggested that it was a high-priority for investigation,⁸⁹⁴ there was nothing in BRE’s summaries of either of those fires that suggested that they ought to be the subject of further investigation.⁸⁹⁵ It seems that BRE did not regard fires in high-rise buildings as in themselves requiring further investigation, because they were not expected to spread beyond the compartment of origin.⁸⁹⁶ The fire at Sudbury House was not regarded as a cladding fire comparable to Knowsley Heights, Garnock Court or Lakanal House, since it had been largely contained in the dwelling of origin.⁸⁹⁷
- 8.21** The approach to these two fires exposes a fundamental flaw in the way the Investigation of Real Fires project was conducted. BRE’s research was based on very limited information (mainly media reports), with the result that it had no reliable way of telling whether a particular fire required more detailed investigation. It may be that the quality of the information available to BRE was declining over time, either because of reduced funding by the department or because it was increasingly dependent on the media rather than information from fire and rescue services.⁸⁹⁸ In our view, however, it was unsatisfactory for the department and BRE to be pursuing a project of this kind on the basis of such superficial information. BRE ought to have told the department that its findings and advice were becoming increasingly unreliable and that unless the budget could be improved to

⁸⁸⁸ Crowder {Day229/161:18-20}.

⁸⁸⁹ Crowder {Day229/161:23}-{Day229/162:3}.

⁸⁹⁰ {BRE00000947/53} paragraph 5.1.64.

⁸⁹¹ Crowder {Day229/163:8-15}.

⁸⁹² Crowder {Day229/164:4-6}.

⁸⁹³ Crowder {Day229/163:16-19}.

⁸⁹⁴ The second category under the high-priority list was “Non-fatal fires with injury or rescue”: Crowder {BRE00047668/41-43} pages 41-43, paragraph 171.

⁸⁹⁵ Crowder {Day229/168:18-23}; {Day229/169:13-22}.

⁸⁹⁶ Crowder {Day229/170:2-22}.

⁸⁹⁷ Crowder {Day229/170:22}-{Day229/171:1}.

⁸⁹⁸ Crowder {Day229/171:3-20}.

maintain standards it could no longer provide information of the quality the department expected to receive. For its part, the department should have considered whether the project was any longer meeting its objectives, and if not, why not.

- 8.22** In fact, there was additional information available in the public domain about the fire at Sudbury House that would have made it clear to BRE that the incident involved a cladding fire that deserved further investigation.⁸⁹⁹ In a YouTube video posted online on 1 August 2010 (the same day as the fire) flames could be seen spreading up the column (and to a lesser extent down it) and it was clear that the fire had been extinguished only when firefighters had been able to bring water directly to bear on it.⁹⁰⁰
- 8.23** BRE ought to have found that video.⁹⁰¹ The incident looked like a cladding fire of the kind that the department would wish to have been aware of⁹⁰² and more should have been done by BRE by way of investigation.⁹⁰³ In our view BRE did not pursue the project with the vigour that was required, but the project itself was flawed in a number of respects,⁹⁰⁴ not least because the funding provided for the work did not increase between 2006 and 2017 to match the increased cost of carrying out the work.⁹⁰⁵

Identification of patterns and trends

- 8.24** Another weakness affecting the project was the existence of a belief on the part of the department and BRE that the findings from any particular investigation could not be of general significance⁹⁰⁶ and that it would therefore be necessary to identify patterns or trends before drawing the department's attention to developments that might call for action. Each annual report began with a table⁹⁰⁷ that identified aspects of interest from which BRE attempted to identify trends that required specific identification in the report.⁹⁰⁸ Individual incidents, however serious, did not influence the conclusions in the end of year reports because no pattern had been identified.⁹⁰⁹ BRE was interested in whether a problem had become endemic;⁹¹⁰ a single incident would need to be combined with information from other events to identify trends that satisfied the objectives of the project.⁹¹¹
- 8.25** That was a very naïve approach, both on the part of BRE and the department. Although the identification of patterns or common occurrences was no doubt an important part of BRE's work, it failed to accord sufficient recognition to the fact that a single rare but significant incident might well have important implications for the effectiveness of the regulatory regime. It might take only one serious fire to demonstrate that the guidance was inadequate. The fire at Grenfell Tower was but one example in a long line that included Knowsley Heights, Garnock Court and Lakanal House. The fundamental shortcoming of the Investigation of Real Fires project was that it concentrated on patterns based on the

⁸⁹⁹ Bisby, Phase 2 Report {LBYP20000001/213} paragraph 1210.

⁹⁰⁰ See stills from the video {INQ00015117/3-4}. The title of the video was "Fire on the 5th floor, Sudbury House, Wandsworth High Street" and includes a link to a BBC article about the fire.

⁹⁰¹ Crowder {Day229/178:15-25}.

⁹⁰² Crowder {Day229/179:4-9}.

⁹⁰³ Crowder {Day229/179:11-21}.

⁹⁰⁴ Crowder {Day229/180:25}-{Day229/181:2}.

⁹⁰⁵ Crowder {Day229/180:3-24}.

⁹⁰⁶ Shipp {BRE00047594/27-28} pages 27-28, paragraph 134.

⁹⁰⁷ {HOM00046642/16-29}; {BRE00000945/19-30}; {BRE00000947/25-43}.

⁹⁰⁸ Crowder {Day229/147:8-13}.

⁹⁰⁹ Crowder {Day229/147:25}-{Day229/149:9}.

⁹¹⁰ Crowder {Day229/149:25}-{Day229/150:20}.

⁹¹¹ Crowder {BRE00047668/44} page 44, paragraph 177.

frequency rather than the severity of incidents. In that way the project undermined rather than enhanced the ability of the government to make a proper assessment of fire risk in the built environment. BRE ought to have made that clear to the department.

Concerns about downward fire spread and flaming droplets

- 8.26** The narrowness of the approach taken to the identification of patterns or trends was particularly apparent in the way in which project reports addressed the subject of downward fire spread. Dr Crowder was concerned about the absence of any express provision in Approved Document B relating to downward fire spread.⁹¹² Between December 2007 and August 2016 there had been a number of incidents in which there had been downward spread of fire as a result of the building fabric, all of which had been individually reported to the department.⁹¹³ Materials that formed burning droplets were often fitted against other flammable materials, such as combustible insulation. Burning droplets would typically promote the rapid spread of fire by igniting other combustible materials more quickly than would otherwise have been the case.⁹¹⁴
- 8.27** Despite Dr Crowder's concerns, none of BRE's reports identified the creation of burning droplets or the downward spread of fire as matters that deserved to be brought to the department's attention as potential reasons for reviewing the statutory guidance. That appears to have been because the incidents had occurred sporadically over a 10-year period⁹¹⁵ and a trend had not been identified in any one report.⁹¹⁶ Dr Crowder thought that such incidents could have been attributable to other causes.⁹¹⁷ There was, therefore, little or no effort to identify trends that might extend across separate reporting periods. BRE made it clear to the government that it needed to look at innovative construction products and techniques from a fire safety perspective⁹¹⁸ but the government gave the impression that it was unwilling to make changes.⁹¹⁹
- 8.28** We accept that the government's enthusiasm for deregulation after 2010 made it reluctant to receive advice that the regulatory regime was inadequate, but it is regrettable that BRE did not give clear advice about what could be learnt from individual incidents or about trends that were evident over a number of years, such as with the danger posed by burning droplets and their contribution to the downward spread of fire. At no stage did BRE offer to report to the department on the policy implications of the downward spread of fire and the adequacy of Approved Document B to address it.⁹²⁰ Instead, BRE appears to have decided not to give advice to the government that it knew would be unwelcome.

International fires

- 8.29** Another area of importance that received limited attention from BRE was international fires, including international cladding fires. Overseas fires were identified by the department as a low priority for the project.⁹²¹ However, it would have been useful for BRE to obtain better information about international fires, such as the various fires involving ACM panels that occurred around the world and were prominently reported in the five or

⁹¹² Crowder {BRE00043716/25} page 25, paragraph 82.

⁹¹³ Crowder {BRE00043716/23-24} pages 23-24, paragraph 79 (a) to (g).

⁹¹⁴ Crowder {BRE00043716/25} page 25, paragraph 83.

⁹¹⁵ Crowder {Day229/214:13-23}.

⁹¹⁶ Crowder {Day229/217:7-11}.

⁹¹⁷ Crowder {BRE00043716/25} page 25, paragraph 82.

⁹¹⁸ Crowder {Day229/214:23}-{Day229:216:2}; {Day229:217:12-18}.

⁹¹⁹ Crowder {Day229/208:23}-{Day229/209:9}.

⁹²⁰ Crowder {Day229/209:1-9}.

⁹²¹ Crowder {BRE00047668/41-43} pages 41-43, paragraph 171.

so years before the fire at Grenfell Tower.⁹²² Dr Crowder had been able to attend the scene of only one overseas fire as part of his work on the project, a fire in Dublin in 2008 that was relevant to the spread of fire in car parks.⁹²³ Although some international fires were mentioned in BRE's reports, very little detail was given about their causes. For example, two cladding fires in Dubai that occurred in 2016 were referred to in the end of year report for the period April 2016 to March 2017.⁹²⁴ Although a brief description of each fire was provided, no information was given about what materials were thought to have been involved, even though reports available in the UK indicated that they had included ACM panels.⁹²⁵ Nor was there any discussion in the report about the spread of fire downward, which was a feature of both fires. Mr Martin said that he had asked BRE to use its contacts to obtain more information about some of the international cladding fires that were being reported, but that the Investigation of Real Fires project was limited by the resources allocated to it.⁹²⁶

8.30 At no stage during the time that Dr Crowder was involved in the project was any proposal, whether formal or informal, put to the department by BRE recommending that closer attention should be given to international cladding fires.⁹²⁷ The prevailing view was that the incidents had occurred as a result of inadequate regulation and that there was no cause for concern in the UK,⁹²⁸ which had higher regulatory standards. It was also thought within the department that ACM panels were not being installed in the UK.⁹²⁹ That was obviously wrong. The department could have discovered by July 2014 that ACM cladding panels with a polyethylene core were in widespread use and that many people in the industry thought that if a panel had a Class 0 surface it could be used at any height. After early 2016 Mr Martin could have been in no doubt about that.

8.31 Although we recognise the significance of hindsight, we find it surprising that more was not done to monitor international fires, particularly international cladding fires. A spate of such fires occurred in the UAE in 2012 and 2013 and a further spate in 2015 and 2016. It is a matter of concern that they do not appear to have prompted any serious consideration within BRE or the department of whether closer attention should be paid to them or to the lessons they might offer. Had they done so, there might have been a more thorough investigation of what had caused such a catastrophic spread of fire across the walls of the building in each case. That might in turn have shaken the department out of its complacent belief that it could not happen here. Both the department and BRE were warned on a number of occasions about the problems that could be caused by the use of combustible materials in the external walls of tall buildings with specific reference to cladding fires that had occurred abroad. Those warnings appear to have generated at best some informal conversations between BRE and the department, but more could and should have been done.

⁹²² Crowder {BRE00047668/47} page 47, paragraph 184.

⁹²³ Crowder {BRE00047668/47} page 47, paragraph 184.

⁹²⁴ {BRE00000959/111-113} paragraphs 6.14.6 and 6.14.17 – the two fires were the Sulafa Tower fire in Dubai on 20 July 2016 and the Palm Jumeriah fire in Dubai on 12 December 2016.

⁹²⁵ <https://www.dailymail.co.uk/news/article-3699272/Fire-breaks-luxury-75-storey-tower-Dubai.html> (20 July 2016).

⁹²⁶ Martin {Day252/118:2-6}.

⁹²⁷ Crowder {Day229/141:22-25}.

⁹²⁸ Crowder {Day229/141:4-21}.

⁹²⁹ Crowder {Day229/135:2-14}; Smith {MET00081237/21} page 21, paragraph 83; Martin {Day255/108:7-12}.

Conclusions

- 8.32** In a number of important respects the Investigation of Real Fires project was flawed. Most of the reporting amounted to little more than reciting information about fires obtained from news reports, followed by formulaic conclusions that assured the department that the regulations and guidance were effective, without their efficacy having been subjected to any proper scrutiny. There was no analysis of the lessons to be learnt from significant single incidents, from the identification of patterns across different reporting periods, or from significant fires overseas. The work was being carried out at such a high level of generality that it would have been difficult for BRE to identify any patterns indicating that changes to the statutory guidance were necessary to ensure that it remained relevant to the risks posed by the built environment. From 2012 the BRE was hobbled in its reporting by a prohibition on making policy recommendations involving changes to the regulations or guidance. It knew that the government had no appetite for further regulation and therefore decided not to offer unwelcome advice. In our assessment the operation of the project epitomised what had gone wrong in BRE's relationship with the government; what was needed was proper independent advice, which the department did not want to receive. The project thus helped to foster an attitude of complacency within both BRE and the government about the adequacy of Approved Document B. We are critical of both BRE and the department for allowing that state of affairs to persist for so many years.

Chapter 9

The government's response to the Lakanal House fire

Investigations immediately following the fire

- 9.1** Following the Lakanal House fire,⁹³⁰ BRE was asked by DCLG to investigate the incident under a standing contract known as the “Investigation of Real Fires” project.⁹³¹ It was to form part of BRE’s continuing project monitoring fires of special interest. Mr Martin Shipp and Dr David Crowder carried out the investigation. Initially, Mr Shipp led the investigation⁹³² and supervised Dr Crowder’s work,⁹³³ but later Dr Crowder took over as point of contact for the investigation.⁹³⁴ The police and LFB carried out their own investigations. They had statutory powers to control the scene of the fire and pursue relevant prosecutions and therefore BRE could examine the site only with their permission.⁹³⁵
- 9.2** The purpose of BRE’s investigation for DCLG was to establish whether the fire could be traced to a defect in the Building Regulations or the guidance in Approved Document B (and if so, whether there any changes to either of them should be recommended) or whether there had been a failure on the part of those carrying out the refurbishment to follow the guidance and comply with the regulations.⁹³⁶
- 9.3** The version of Approved Document B that applied to the refurbishment was the edition published in 2000 with amendments made in 2002.⁹³⁷ Unlike the 2006 version, which provided that all insulation material used in the external wall of a building over 18 metres in height should be of limited combustibility, the 2002 version of Approved Document B required only that insulation used in ventilated cavities in external walls should be of limited combustibility. Accordingly, the guidance did not advise that the insulation in composite panels of the kind used at Lakanal House should be of limited combustibility. It did, however, advise that if the building were over 18 metres in height the external surfaces of the walls should be classified Class 0.⁹³⁸
- 9.4** BRE first attended the scene at Lakanal House on 6 July 2009, three days after the fire.⁹³⁹ Dr Crowder said that he attended the site on about another six days that month.⁹⁴⁰ During that time BRE’s investigation included examining and removing one heavily damaged composite window panel and exploring the internal construction of the building. At a later stage, further composite panels were removed from the site for testing.⁹⁴¹ In the first week, contact between DCLG and BRE was mainly between Mr Shipp and Brian Martin, but thereafter Dr Crowder began to communicate directly with Mr Martin

⁹³⁰ Phase 1 Report chapter 8.1.

⁹³¹ Crowder {BRE00043716/2} paragraph 5(a).

⁹³² Martin {Day256/30:19-25}.

⁹³³ Shipp {BRE00047594/9} page 9, paragraph 54.

⁹³⁴ Martin {Day256/30:25}-{Day256/31:1}.

⁹³⁵ Martin {Day256/32:12}-{Day256/33:1}.

⁹³⁶ Crowder {BRE00043716/2} page 2, paragraph 5(a); Martin {Day256/26:5}-{Day256/27:15}.

⁹³⁷ Crowder {Day229/227:2-7}. See Chapter 6 for a summary of the requirements relating to the construction of external walls.

⁹³⁸ {CLG10000740/91}.

⁹³⁹ Crowder {BRE00047668/24} page 24, paragraph 89.

⁹⁴⁰ Crowder {BRE00043716/27} page 27, paragraph 88 (b); Crowder {Day229/229:17-24}.

⁹⁴¹ Crowder {Day229/230:11}-{Day229/231:15}.

about the investigation.⁹⁴² BRE reported regularly to Mr Martin about the progress of the investigation.⁹⁴³ Mr Martin also attended the site himself on one occasion to gain a better understanding of the building and what had happened.⁹⁴⁴

- 9.5** A Fire of Special Interest (FOSI) report was prepared by BRE, a draft of which was sent to Brian Martin on 16 July 2009. The final report was sent on 10 August 2009.⁹⁴⁵ In that report BRE identified the fact that the external wall had included “polymeric panels” in various locations,⁹⁴⁶ i.e. that the panels had been made of a type of plastic that was combustible. At that stage, however, their exact composition had not been determined.⁹⁴⁷ BRE also said that falling burning debris, probably from both the façade itself and the contents of Flat 79 on floors 11 and 12, had ignited fires lower down the building on floors 5 and 7. At that early stage it had not been possible to determine from the physical evidence precisely what was the source of the debris which had ignited the contents of each flat.⁹⁴⁸ Under the heading “Potential Implications for the Building Regulations” the report drew attention to the external spread of fire as a matter of potential importance.⁹⁴⁹ No explanation was offered, however, for the spread of fire and the report contained no information about the construction of the external wall. No conclusions were reached about whether it followed the guidance in Approved Document B or complied with the Building Regulations. At the time the report was prepared BRE had not tested any samples of the window panels.⁹⁵⁰ As Dr Crowder explained, BRE was unable to provide a more detailed report in the time available based on its initial investigation. Unfortunately, the investigation remained incomplete.⁹⁵¹
- 9.6** On 14 July 2009, just 11 days after the fire, Brian Martin told someone who had offered to help DCLG with its investigation into the fire that, based on the information he had received so far, he did not think there would be any need for changes to Approved Document B.⁹⁵² Mr Martin told us that his preliminary view, based on the reports he had received from BRE, was that the problem lay mainly with the original construction of Lakanal House. Although he recalled a discussion with BRE about external fire spread, he could not remember when it had occurred or what had been said.⁹⁵³
- 9.7** Although BRE’s investigation was then still at a very early stage, on 28 July 2009 Mr Martin sent an email to Mr Shipp stating that he was satisfied that there would be no need for BRE to visit Lakanal House again and that any further visits would have to be funded by someone else.⁹⁵⁴ Mr Martin told us that he had discussed the matter with his colleagues in the Fire Resilience directorate and that they were happy for BRE to drop the investigation.⁹⁵⁵ After it received Mr Martin’s email BRE produced its final report into the incident on 10 August 2009.

⁹⁴² Crowder {Day229/230:1-10}.

⁹⁴³ Crowder {BRE00043716/27} page 27, paragraph 88(b); Crowder {Day229/232:4-20}.

⁹⁴⁴ Martin {Day256/34:11-20}; Crowder {BRE00043716/22} page 22, paragraph 76; Crowder {Day229/233:9-18}.

⁹⁴⁵ Crowder {BRE00047668/24} page 24, paragraph 91. A draft of the 16 July 2009 report is at {BRE00036261/3}, another at {BRE00036265/5} and an earlier draft from 7 July 2009 at {CLG00001693/2}.

⁹⁴⁶ {BRE00032286/196}.

⁹⁴⁷ Crowder {Day230/6:19}–{Day230/7:4}.

⁹⁴⁸ {BRE00032286/202}; Crowder {Day230/10:17}–{Day230/11:4}.

⁹⁴⁹ {BRE00032286/203}.

⁹⁵⁰ Crowder {Day230/4:25}–{Day230/5:3}.

⁹⁵¹ Crowder {Day230/8:20-25}; Crowder {BRE00047668/36} page 36, paragraph 153; Crowder {Day230/10:11-14}.

⁹⁵² {CLG10003915} exchange between Brian Martin and Glenn Horton of Locke Carey, a firm of fire safety consultants.

⁹⁵³ Martin {Day256/38:8}–{Day256/41:14}.

⁹⁵⁴ {BRE00043742}.

⁹⁵⁵ {BRE00043742}.

- 9.8** Dr Crowder said that he had been disappointed⁹⁵⁶ by DCLG's decision to curtail BRE's investigation because he had thought it important⁹⁵⁷ and had wanted it to be completed.⁹⁵⁸ He had wanted to understand better what had happened and why,⁹⁵⁹ including the time at which the fire had spread vertically and the cause of the downward fire spread, which he said had not been common at the time.⁹⁶⁰ When the investigation was shut down Dr Crowder had not begun to review Approved Document B⁹⁶¹ and he did not know how Mr Martin had come to the conclusion that there was no need for any changes to it.⁹⁶²
- 9.9** According to Mr Martin, the decision to discontinue BRE's investigation was taken by officials in DCLG after discussion with Sir Ken Knight,⁹⁶³ then the Chief Fire and Rescue Adviser. The decision proceeded on the basis that since the police and the LFB were pursuing their investigations, it was better to leave it to them, given the nature of the incident and its seriousness.⁹⁶⁴ That was consistent with Dr Crowder's understanding of the position.⁹⁶⁵ Mr Martin also said he was concerned about whether the department's resources might be exhausted in the investigation of one incident if too much time was spent on the Lakanal House fire.⁹⁶⁶
- 9.10** Although we accept that those were some of the reasons for the decision to terminate BRE's investigation, we consider that the decision was premature and find it hard to understand, given that its fundamental objective had not been achieved. Although the police and the LFB might have been expected to find out whether the Building Regulations and Approved Documents had been complied with, DCLG could have had no confidence, based on what had been investigated thus far, that they would or could reach a conclusion about whether the regulations and guidance were themselves satisfactory. Indeed, we note that, when BRE's investigations were terminated, there had been no substantial dialogue between its investigators and the police.⁹⁶⁷ We also consider that conserving resources should not have been a priority in circumstances where six people had died and completion of BRE's investigation might prevent more deaths in the future.
- 9.11** Although Mr Martin told us that he thought that discussions about the downward fire spread at Lakanal House had taken place with BRE at an early stage, he also said that Sir Ken Knight had taken the view that it was not unusual for falling debris to result in secondary fires.⁹⁶⁸ The latter view seems to us to be consistent with DCLG's lack of interest in learning lessons from the incident, which is evident in Mr Martin's correspondence shortly after the fire⁹⁶⁹ and in his evidence to us.⁹⁷⁰ He was clearly of the view that the 2006 edition of Approved Document B had dealt with the combustibility of the façade more effectively than the 2002 version⁹⁷¹ and it is apparent that there was little appetite

⁹⁵⁶ Crowder {Day230/17:1-5}.

⁹⁵⁷ Crowder {Day230/16:12-19}.

⁹⁵⁸ Crowder {Day230/9:2-7}.

⁹⁵⁹ Crowder {Day230/10:21-22}.

⁹⁶⁰ Crowder {Day230/11:5-16}; {Day230/4:15-23}.

⁹⁶¹ Crowder {Day230/12:13-23}.

⁹⁶² Crowder {Day230/22:5-15}.

⁹⁶³ Martin {Day256/64:12-21}. Sir Ken Knight was the Department's Chief Fire and Rescue Adviser at the time.

⁹⁶⁴ Martin {Day256/58:8-21}; {Day256/59:3-24}.

⁹⁶⁵ Crowder {Day230/19:10-20}.

⁹⁶⁶ Martin {Day256/60:16-23}.

⁹⁶⁷ Crowder {Day230/16:20-25}.

⁹⁶⁸ Martin {Day256/45:1-12}.

⁹⁶⁹ {CLG10003915} on 14 July 2014 Mr Martin told a third party that "Based on the snippets of info I've had so far I don't think there's any need for changes to ADB."

⁹⁷⁰ Martin {Day256/47:10-22}; Martin {Day256/56:22}-{Day256/57:1}.

⁹⁷¹ Martin {Day256/49:7-18}.

on his part or that of the department for revisiting the guidance, despite the fact that it did not specifically refer to the danger of fire spreading downward or the creation of burning droplets.⁹⁷²

- 9.12** We accept that Dr Crowder and Mr Shipp⁹⁷³ were disappointed that their investigation was not able to reach a conclusion. However, it is a matter of some concern that there is no formal record of BRE's expressing that dismay to the government, let alone formally advising the government that it was important for more investigative work to be done. In circumstances where BRE thought that its investigation needed to be completed to understand the incident fully, it is surprising that it did not say so clearly in a letter to the department. Although in its report of 10 August 2009 BRE drew attention to some matters that called for further investigation,⁹⁷⁴ that did not include the spread of fire across external walls.⁹⁷⁵ While Dr Crowder explained that omission as a poor choice of language,⁹⁷⁶ that does not do justice to complete silence on the subject. The episode suggests a lack of independence on the part of BRE and a failure to provide robust advice to the government on reasonable steps necessary to ensure safety from fire.

Sir Ken Knight's report to the Secretary of State

- 9.13** On 30 July 2009 Sir Ken Knight submitted a report to the Secretary of State on the questions arising from the Lakanal House fire in which he said that the problem of fire spreading over external walls was not significant and that initial enquiries did not suggest that it had occurred in a new way.⁹⁷⁷ Sir Ken told us that at the time the Lakanal House fire was not seen as a fire in an external wall because the cladding system itself had not caused it.⁹⁷⁸ However he also accepted that the downwards spread of fire had been unusual⁹⁷⁹ and "very much a one-off".⁹⁸⁰ He also accepted in hindsight that it would have been helpful if, as the government's Chief Fire and Rescue Adviser, he had asked for an investigation to determine the extent to which the external window panels at Lakanal House had promoted the downward spread of fire.⁹⁸¹ We agree.

Further testing by the LFB of the external wall panels

- 9.14** Following the termination of its investigation for DCLG, BRE was engaged by the police and the LFB to assist them with their investigations into the fire.⁹⁸² That included carrying out reaction to fire tests on some of the external wall panels taken from the building after the fire. In particular, in November 2009, surface spread of flame tests were carried out on three types of the external wall panels with insulating cores in accordance with BS 476-7. Three different colours of insulating foam had been found on site and tests were carried out on all three.⁹⁸³

⁹⁷² Martin {Day256/51:15-19}.

⁹⁷³ Crowder {Day230/17:20-24}.

⁹⁷⁴ Including communications between the LFB and the occupants at Lakanal - see {BRE00032286/203}.

⁹⁷⁵ See {BRE00032286/203} and contrast the wording at penultimate and antepenultimate paragraphs.

⁹⁷⁶ Crowder {Day230/14:11-22}.

⁹⁷⁷ {HOM00045791/21} paragraph 39.

⁹⁷⁸ Knight {Day245/165:8-18}.

⁹⁷⁹ Knight {Day245/170:20-23}.

⁹⁸⁰ Knight {Day245/187:7-16}.

⁹⁸¹ Knight {Day245/172:18}-{Day245/173:14}.

⁹⁸² Crowder {BRE00043716/28} page 28, paragraph 88(d); Crowder {Day230/28:7-10}.

⁹⁸³ Crowder {Day230/24:19}-{Day230/25:15}.

- 9.15** The panels performed poorly in those tests, most of which were directly observed by Dr Crowder.⁹⁸⁴ They all achieved only Class 3, meaning that the flames spread a considerable distance across them.⁹⁸⁵ They were therefore incapable of achieving national Class 0, which requires Class 1 to be achieved in a test under BS 476-7. In addition, incandescent spalling was observed during all test runs and specimens were flaming strongly at the end of the tests. During some of the tests flaming debris was observed on the floor.⁹⁸⁶ Those observations were worrying because they showed that the combination of materials in the panels was dangerous.⁹⁸⁷ The material behaved so badly that BRE feared its equipment might be damaged if it carried out fire propagation tests in accordance with BS 476-6.⁹⁸⁸
- 9.16** Dr Crowder reported the results of the tests to Mr Martin in November 2009. Although contact between BRE and DCLG on the subject of the Lakanal House fire had diminished by this time, he recalled a telephone call on about 18 November 2009 with Brian Martin during which it was likely that they had discussed the results of the BS 476-7 tests.⁹⁸⁹ He said that he had told Mr Martin that during the tests the panels had produced burning embers which had fallen out of the test rig.⁹⁹⁰ Dr Crowder regarded the downward spread of fire as unusual.⁹⁹¹ That information was provided informally and was never committed to writing, despite the fact that it was important and BRE had a contract with DCLG to inform it of any failure in the regulations or in compliance with them.⁹⁹²
- 9.17** Although Dr Crowder did not recall the details of his telephone call with Mr Martin, he did recall having been told, either by Mr Martin or Mr Shipp, that the problem with the external wall panels at Lakanal House had been one of a failure to follow the guidance in Approved Document B or to comply with the Building Regulations. It was not that the panels had been compliant with the Building Regulations but had nevertheless produced burning debris.⁹⁹³ As far as he could recall, he had been told by Mr Martin or Mr Shipp that if the panels had been Class 0, they would not have produced burning debris during a BS 476-7 test, but his recollection of that was not very clear.⁹⁹⁴ Mr Martin could not remember having told Dr Crowder that the problem with the panels was one of non-compliance,⁹⁹⁵ although he agreed that it was something he was likely to have discussed with him. On the whole, we think it likely that Dr Crowder's recollection is reliable and it is consistent with an unwillingness within DCLG to accept that there was anything fundamentally wrong with the 2002 version of Approved Document B. It is troubling that the department should have reached a conclusion of any kind without having taken expert advice based on a full understanding of what had occurred.

⁹⁸⁴ Crowder {Day230/80:21}–{Day230/81:1}.

⁹⁸⁵ BRE's Investigation of Real Fires Report dated 17 November 2009 {BRE00032286/243}.

⁹⁸⁶ {BRE00032286/242} section 4.2.

⁹⁸⁷ Crowder {Day230/82:11-14}.

⁹⁸⁸ Crowder {BRE00043716/8} paragraph 18. It is to be noted that no further reaction to fire tests (including testing to BS 476-6) were ever carried out on the panels from Lakanal House.

⁹⁸⁹ Crowder {Day230/26:23-25}.

⁹⁹⁰ Crowder {Day230/30:20}–{Day230/31:1}.

⁹⁹¹ Crowder {Day230/34:24}–{Day230/35:1}.

⁹⁹² Crowder {Day230/32:12}–{Day230/33:6}.

⁹⁹³ Crowder {BRE00043716/22} page 22, paragraph 78.

⁹⁹⁴ Crowder {Day230/31:2-8}.

⁹⁹⁵ Martin {Day256/71:1-17}.

- 9.18** BRE was not asked to provide a report on the policy implications of the downward spread of fire at Lakanal House.⁹⁹⁶ It drew the department's attention informally to the problem of fire spreading downwards and debris falling from burning panels,⁹⁹⁷ but the department does not appear to have given any serious consideration to the implications that might have had for the regulatory regime. In the years before the investigation into the Lakanal House fire, fire safety staff at BRE were not allowed to hold direct conversations with the department's officials outside formal meetings attended by senior managers.⁹⁹⁸ However, there do not appear to have been any formal meetings to discuss the downward spread of fire or the danger posed by falling debris following the Lakanal House fire.
- 9.19** Brian Martin gave Dr Crowder the impression that since the external wall and other aspects of the construction of Lakanal House had not complied with the relevant regulations and guidance, he doubted that there was any problem with the guidance itself.⁹⁹⁹ Further, Dr Crowder's impression was that Mr Martin had decided that there were other explanations for the downwards fire spread at Lakanal House which did not point to any fundamental problem with the regulatory regime.¹⁰⁰⁰ We understood Dr Crowder to mean that because burning debris might have fallen from the flats that had caught fire, it could not be proved that falling debris from the exterior wall panels had caused the downward spread of fire. A number of times during their evidence both Dr Crowder and Mr Martin gave that as an explanation for the failure to investigate the downward spread of fire.¹⁰⁰¹ However, that overlooks the worrying behaviour displayed by the composite panels in the BS 476-7 tests. Once that evidence had become available, there was no reasonable excuse for the department's failure to obtain further advice on whether the Building Regulations and the guidance in the Approved Documents were sufficiently robust. Its failure to do so was a serious abdication of responsibility.

BRE's Investigation of Real Fires report: November 2009

- 9.20** BRE covered the Lakanal House fire in the Investigation of Real Fires Report which it produced on 17 November 2009 but it made no recommendations for changes to the Approved Documents or for further investigative work.¹⁰⁰² In addition, the report contained the familiar phrase that the findings from the project reaffirmed the overall effectiveness of the Building Regulations and Approved Document B in providing for the safety of life in the event of fire.¹⁰⁰³ Despite being one of the authors of the report,¹⁰⁰⁴ Dr Crowder could not explain why it did not refer to the downward spread of fire spread at Lakanal House or to the fact that Approved Document B gave no guidance on how that might be prevented.¹⁰⁰⁵ He did say, however, that Martin Shipp had decided what went into the the report.¹⁰⁰⁶

⁹⁹⁶ Crowder {Day230/51:3-6}.

⁹⁹⁷ Under the Investigation of Real Fires contract there was an obligation on the BRE to maintain informal, direct and regular contact with DCLG policy officers - see {BRE0000951/44} second paragraph.

⁹⁹⁸ Crowder {Day230/43:5-19}.

⁹⁹⁹ Crowder {Day230/87:19}-{Day230/88:7}; {Day230/89:11-15}.

¹⁰⁰⁰ Crowder {Day230/41:2}-{Day230/42:13}.

¹⁰⁰¹ Martin at {Day256/49:7}-{Day256/50:6}; Crowder {BRE00043716/22} paragraph 78; Crowder {Day230/39:14}-{Day230/41:11}. See also {CLG10005528/1} email dated 4 March 2013 from Brian Martin to Anthony Burd and others.

¹⁰⁰² {CLG00019142/9} item 23; {CLG00019142/16}.

¹⁰⁰³ {CLG00019142/3}.

¹⁰⁰⁴ Crowder {Day230/37:23}-{Day230/38:8}.

¹⁰⁰⁵ Crowder {Day230/38:17}-{Day230/39:12}.

¹⁰⁰⁶ Crowder {Day230/37:15}-{Day230/39:2}.

Failure to learn wider lessons from the Lakanal House fire

- 9.21** On 14 December 2009, five months after the Lakanal House fire, Commissioner Dobson wrote to Sir Ken Knight to express the LFB's concern about the panels forming part of the external walls of Lakanal House and the fact that similar panels on other buildings could present a risk of fire spreading across or through the walls. In his letter the Commissioner explained that BRE's tests had demonstrated that the composite panels used at Lakanal House did not comply with the requirements of the Building Regulations in relation to the spread of fire over external walls or the guidance in Approved Document B on how those requirements might be met.¹⁰⁰⁷ The tests to which he referred were the BS 476-7 surface spread of flame tests to which we have referred above. The Commissioner went on to say that it was the LFB's understanding that the type of panel tested had been supplied by more than one company. He suggested that either Sir Ken Knight or the department should write to housing providers across the country advising them to check that external wall panels in high-rise housing stock met the correct specification and to include such checks in fire risk assessments for the relevant properties. The LFB was concerned that a fire similar to that which had occurred at Lakanal House could occur at any number of buildings if similar panels had been used.¹⁰⁰⁸
- 9.22** Sir Ken responded on 22 December 2009 saying that the Metropolitan Police had recognised that the results of the tests carried out by BRE had tended to show that such panels did not comply with the requirements of the Building Regulations or the guidance in Approved Document B. However, he thought there was insufficient information at that time to warrant alerting housing authorities or property owners generally to the matters raised, in particular because it had not yet been determined whether the ability of the exterior panels at Lakanal House to resist the surface spread of flame had been specified by the housing authority and, if so, whether panels of the kind specified had been fitted.¹⁰⁰⁹
- 9.23** In a letter dated 22 December 2009 addressed to the chief executives of local housing authorities in England, Terrie Alafat, the Director of Housing Delivery and Homelessness at DCLG, said that the department had been made aware of concerns about window and cladding systems used on high-rise blocks and reminded them of what had become section 12 of Approved Document B. If they had any doubt about the application of, or compliance with, the regulations she advised them to seek the assistance of the local Building Control body.¹⁰¹⁰
- 9.24** In our view, that letter was an inadequate response to the problem exposed by the Lakanal House fire because it did not encourage local housing authorities to take active steps to ensure that their high-rise residential buildings complied with the Building Regulations. Sir Ken said that he would have expected them to carry out checks on receipt of that letter if they were not immediately aware of the materials used in the external walls of their high-rise buildings,¹⁰¹¹ but we regard that as unrealistic. When asked why the department had not adopted the approach advocated by Commissioner Dobson, Sir Ken initially said that it was not possible to refer specifically to defects at Lakanal House while a police investigation was continuing,¹⁰¹² but the contemporaneous correspondence between Sir Ken and the department shows that the Crown Prosecution Service was

¹⁰⁰⁷ {LFB00104291}.

¹⁰⁰⁸ Dobson {Day210/122:20}-{Day210/123:11}.

¹⁰⁰⁹ {HOM00046018}.

¹⁰¹⁰ {LFB00041215}.

¹⁰¹¹ Knight {Day246/4:5-19}.

¹⁰¹² Knight {Day245/199:2-4}.

willing to consider requests for disclosure in the interests of public safety.¹⁰¹³ In any event, it would have been possible for the department to ask housing authorities to carry out checks on the external walls of their high-rise buildings without referring specifically to Lakanal House. We think it should have done so and that the decision to send out a very broad message was a misjudgement.¹⁰¹⁴

- 9.25** There is no evidence that any further attempt was made by the department to understand the implications of the tests carried out by BRE in order to discover whether the risk posed by similar panels was likely to be repeated elsewhere.¹⁰¹⁵ Whether it should take a more active approach was therefore not considered at any stage, despite concerns raised by the LFB at a meeting on 21 April 2010, at which Mr Martin was present, about the quality of construction and checking of newly built and newly refurbished residential properties.¹⁰¹⁶ Following a significant number of fires during the previous two years that had exhibited an unusual spread of smoke or fire, the LFB had become worried that the regulations covering the construction and approval of building work were not being enforced with sufficient vigour to ensure that new residential buildings in London were fit for their purpose.
- 9.26** Mr Martin candidly accepted that the department had concentrated on the need for amendments to Approved Document B and had not concerned itself with whether there might be existing high-rise buildings with combustible insulation materials in their external walls.¹⁰¹⁷ Mr Martin's explanation was that the department had been concentrating on improving building standards for the future and did not consider examining the effect of previous standards to be part of its function.¹⁰¹⁸ In our view that was not a responsible approach to take to a fire in which six people had died.
- 9.27** A detailed investigation into the fire performance of composite panels with foam cores of the kind used at Lakanal House was never carried out,¹⁰¹⁹ primarily because BRE's investigation was terminated prematurely.¹⁰²⁰ Such an investigation might have been of benefit to the building industry,¹⁰²¹ although Dr Crowder did not think that high-pressure laminate panels with foam cores were widely used.¹⁰²² That view may have been based on the absence of other fires involving similar panels,¹⁰²³ but that was scarcely a sound basis for drawing a conclusion of that kind. At all events, BRE did not advise DCLG that it might be important to investigate the prevalence of that particular kind of panel.¹⁰²⁴

The inquests into the deaths at Lakanal House

- 9.28** The hearings at the inquests into the deaths at Lakanal House took place between 14 January and 28 March 2013. Both Dr Crowder and Brian Martin gave evidence. Before they did so, the coroner heard evidence from Mr David Walker, a chartered building surveyor who had been appointed as expert to the inquests. Mr Walker's initial view (which was wrong) was that the composite panels in the window sets on the external wall of the building had to satisfy certain requirements in relation to fire resistance (i.e. resistance to

¹⁰¹³ {CLG00019120/2}.

¹⁰¹⁴ {CLG10004194/3}.

¹⁰¹⁵ {CLG00019120/2}; Knight {Day245/207:18}-{Day245/208:3}.

¹⁰¹⁶ {LFB00025654/13}.

¹⁰¹⁷ Martin {Day256/78:11}-{Day256/79:9}.

¹⁰¹⁸ Martin {Day256/79:10-25}.

¹⁰¹⁹ Crowder {Day230/62:8-12}; {Day230/74:12}-{Day230/78:3}.

¹⁰²⁰ Crowder {Day230/79:19}-{Day230/80:13}.

¹⁰²¹ Crowder {Day230/78:4-11}.

¹⁰²² Crowder {Day230/78:15}-{Day230/79:18}.

¹⁰²³ Crowder {Day230/82:15}-{Day230/83:16}.

¹⁰²⁴ Crowder {Day230/79:19}-{Day230/80:13}.

the passage of heat and flame), as well as having surfaces classified Class 0 for reaction to fire. When seeking to apply the guidance in Approved Document B, Mr Walker initially told the coroner that the panels beneath the bedroom windows should have had 30 minutes' fire resistance,¹⁰²⁵ but he changed his opinion during cross-examination to say that the requirement was 120 minutes.¹⁰²⁶ Finally, after reflection overnight, he said that the panels were not actually required to be fire resistant at all.¹⁰²⁷ It seems that, when giving evidence to the inquests, Mr Walker struggled to interpret the provisions of the Building Regulations and Approved Document B. The coroner commented during Mr Walker's evidence that she found it extraordinary that a document intended to be used by contractors, subcontractors and others wanting to do building work was, in her words, "impenetrable".¹⁰²⁸

- 9.29** Although both Dr Crowder and Mr Martin quite properly sought to correct the misunderstandings which had arisen as a result of Mr Walker's evidence, aspects of their evidence relating to the external wall of Lakanal House were not as clear as they should have been, as we explain below. Mr Martin was defensive about the clarity of Approved Document B and dismissive of suggestions that it could be improved. Those are important matters because they are consistent with the longstanding pattern on the part of both the department and BRE of failing to grapple with problems relating to the guidance in Approved Document B on the construction of external walls. As a result, the coroner and the jury were not as well informed about the limitations of Approved Document B, and Class 0 in particular, as they should have been.

Class 0 and combustibility

- 9.30** There were a number of passages in Dr Crowder's evidence at the inquests in which he confused Class 0 with limited combustibility. In particular, when explaining the meaning of Class 0, he indicated that the surface of the material "should be of limited combustibility".¹⁰²⁹ That was fundamentally erroneous (and, to be fair, Dr Crowder admitted to us that it had been a mistake), because a material that was not of limited combustibility might still be able to satisfy Class 0 if it achieved the required results when tested in accordance with BS 476-6 and 476-7.¹⁰³⁰ In circumstances where the coroner was also told that a material of limited combustibility was capable of burning, but not liable to burn unless under an imposed heat source,¹⁰³¹ anyone listening to the evidence might well have obtained the impression that products with Class 0 surfaces normally perform adequately in fire so as to satisfy Regulation B4(1) of the Building Regulations. The fact that some products may perform very badly was never explained. Much of the confusion appears to have been due to a failure to distinguish clearly between the reaction of a *product* to fire and the ability of its *surface* to resist the spread of fire.
- 9.31** In addition, when Dr Crowder was asked what difference it would have made if the surfaces of the composite panels at Lakanal House had achieved Class 0, he said that he would not have expected them to ignite and burn on their own.¹⁰³² At a later stage he also said that if the panels had been Class 0 they should not have burned.¹⁰³³ Both of those

¹⁰²⁵ {INQ00015064/102} lines 4-6.

¹⁰²⁶ {INQ00015065/103} lines 13-16.

¹⁰²⁷ {INQ00015066/29} line 11.

¹⁰²⁸ {INQ00015065/120} lines 14-17.

¹⁰²⁹ {INQ00015064/8} lines 4-5; Crowder {Day230/116:16}-{Day230/17:23}.

¹⁰³⁰ Crowder {Day230/116:16}-{Day230/117:23}.

¹⁰³¹ {INQ00015064/7} lines 14-15; Crowder {Day230/110:3-13}.

¹⁰³² {INQ00015064/11} lines 11-12; Crowder {Day230/118:2-15}.

¹⁰³³ {INQ00015064/20} line 25; Crowder {Day230/121:7}-{Day230/122:7}.

statements failed to reflect the fact that both the department and BRE (including Dr Smith and Dr Colwell, though not Dr Crowder¹⁰³⁴) knew by that time that products with Class 0 surfaces could perform very poorly in fire, as the cc1924 tests had shown.

- 9.32** A similar confusion between Class 0 and limited combustibility was made in Dr Crowder’s written report to the Metropolitan Police on the Lakanal House fire, in which he said that the recommendation to use Class 0 materials meant that walls in common and circulation spaces should be of very limited combustibility.¹⁰³⁵ He admitted that that had been a poor choice of words.¹⁰³⁶ We think it was more than that. It was the perpetuation of a confusion that had bedevilled official thinking about Class 0 at least since the Knowsley Heights fire.
- 9.33** Misleading statements of a similar kind were also made by Mr Martin in the course of his evidence to the inquests. In his witness statement he said that the 2002 version of Approved Document B had introduced the principle of limiting the combustibility of external walls of tall buildings to reduce the danger of fire spreading up the face of the building, which was related to the need to use Class 0 products for walls above 18 metres in height.¹⁰³⁷ That implied that Class 0 limited the combustibility of materials used in external walls, although materials which have a Class 0 surface can be highly combustible, as demonstrated by the composite polyethylene cored panels used in the cc1924 test. Mr Martin told us that Class 0 was one of a range of classifications of combustibility,¹⁰³⁸ but that is technically incorrect. The main tests which are relevant to Class 0, including BS 476-6 and 476-7, are tests which measure fire propagation and surface spread of flame respectively. They are not tests which measure the combustibility of a material; those are BS 476-4 and BS 476-11.
- 9.34** In his evidence at the inquests Mr Martin said that if the panels caught fire they probably were not Class 0¹⁰³⁹ and that a Class 0 material would burn but not very much.¹⁰⁴⁰ He also said that the non-combustible classification was only slightly more stringent than Class 0.¹⁰⁴¹ When he gave evidence to us, Mr Martin accepted that some of those answers were imprecise, although he again referred to what he described as a “sliding scale of combustibility”¹⁰⁴² and explained that he might not have understood some of the limitations of Class 0 at the time.¹⁰⁴³ We do not accept that explanation, which is directly contradicted by what Mr Martin and those at BRE undoubtedly knew as a result of the cc1924 tests in 2001.¹⁰⁴⁴ Indeed, Mr Martin accepted that he probably should have made the connection between Class 0 products and the fires in the UAE the year before, in which composite materials had burned ferociously.¹⁰⁴⁵
- 9.35** Although neither Dr Crowder nor Mr Martin was asked in terms to comment on the suitability of Class 0 as the sole criterion adopted in Approved Document B for panels to be used in the external wall of Lakanal House and high-rise buildings generally, we find it surprising that neither of them thought it appropriate to draw the coroner’s attention to what they knew to be its limitations.

¹⁰³⁴ Crowder {Day230/183:2-14}.

¹⁰³⁵ {BRE00005881/18}; Crowder {Day230/122:24-25}.

¹⁰³⁶ Crowder {Day230/122:17}-{Day230/123:8}.

¹⁰³⁷ Martin {CLG00019202/2} page 2, paragraph 7.

¹⁰³⁸ Martin {Day256/125:19}-{Day256/127:1}.

¹⁰³⁹ {INQ00015070/51} lines 15-16.

¹⁰⁴⁰ {INQ00015070/72} line 25.

¹⁰⁴¹ {INQ00015070/57} lines 21-22.

¹⁰⁴² Martin {Day256/145:2-19}.

¹⁰⁴³ Martin {Day256/141:8}-{Day256/142:24}.

¹⁰⁴⁴ As to which see Chapter 7.

¹⁰⁴⁵ Martin {Day256/146:11-16}.

- 9.36** Nor did either of them draw attention to the way in which the fire had spread downwards, which in their experience had been an unusual feature of the incident.¹⁰⁴⁶ It is unfortunate, therefore, that the unusual way in which the fire had spread and the absence from Approved Document B of any guidance on how to prevent it was not considered during those proceedings.

Approved Document B

- 9.37** Although Mr Martin had been asked to include in his witness statement for the inquests a description of the extent to which requirements for the fire resistance of external walls and the use of Class 0 panels had been revised in the 2006 edition of Approved Document B,¹⁰⁴⁷ he did not include in his response any reference to the fact that the 2006 edition stated that *all* insulation materials in external walls should be of limited combustibility.¹⁰⁴⁸ Nor did he mention the addition of the word “filler” to what had become paragraph 12.7 or explain what that word had been intended to capture. Mr Martin accepted that in hindsight it would have been useful to identify the key textual changes to Approved Document B as well as changes in its structure and format.¹⁰⁴⁹
- 9.38** It was suggested to Mr Martin during questioning at the inquests that it might be desirable for Approved Document B to be revised so that it was clearer to those who had to use it. Mr Martin disagreed and said that enquiries he had received suggested that most professionals in the industry seemed capable of applying it without too much difficulty,¹⁰⁵⁰ and that, having not received any indication to the contrary, he did not think that any revision to Approved Document B was necessary.¹⁰⁵¹ As we see below, however, in fact Mr Martin did know that Approved Document B was not a model of clarity.
- 9.39** Although Mr Martin thought that Approved Document B was straightforward, the coroner, who was not unfamiliar with the construction industry, clearly found it difficult to understand. Despite what he told her, by March 2013 Mr Martin had become well aware that there was widespread confusion in the industry about the meaning of parts of Section 12 of Approved Document B dealing with the construction of external walls. In late 2010 he had been told that a former senior head of building control for several local authorities who was advising the LFB had misunderstood functional requirement B4 and the guidance in Approved Document B in a way that left him “horrified”.¹⁰⁵² In January 2013, just a few weeks before he gave evidence at the inquests, Mr Martin also told a colleague who had asked for his advice on the use of panels that were not made of materials of limited combustibility, that Approved Document B needed to be read two or three times to work out what it meant.¹⁰⁵³

The jury's verdicts

- 9.40** Verdicts were returned by the jury in the Lakanal House inquests on 28 March 2013. They included two important findings: first, that the composite panels beneath the bedroom windows were not Class 0, contrary to the requirements of Approved Document B; secondly, that even if they had been Class 0, that would not have

¹⁰⁴⁶ Crowder {Day230/4:15-21}.

¹⁰⁴⁷ Martin {CLG00019202/4} page 4, paragraph 17 (question (d)).

¹⁰⁴⁸ Martin {Day256/131:18}-{Day256/132:20}.

¹⁰⁴⁹ Martin {Day256/131:21}-{Day256/134:24}.

¹⁰⁵⁰ {INQ00015070/43} lines 22-24.

¹⁰⁵¹ {INQ00015070/43-44} lines 25-1.

¹⁰⁵² {LFB00052135/4}; {HOM00046917}; Martin {Day256/87:13}-{Day256/88:18}.

¹⁰⁵³ {CLG00019193/1}.

prevented the fire from spreading from Flat 65 to Flat 79, although the spread of fire within Flat 79 would have been slower.¹⁰⁵⁴ Those findings should have been a warning to the department that building professionals were not aware of, or were misinterpreting or ignoring, Approved Document B. They should also have served as a warning that the effectiveness of the Building Regulations and Approved Document B to protect life were in question. The department ought to have undertaken further investigations to find out whether the use of unsafe panels in the external wall of Lakanal House was an isolated incident or had been due to systemic ignorance or misunderstanding of the Regulations and Approved Document B. However, the department failed to undertake any such investigation.

The coroner's rule 43 letter

9.41 On 28 March 2013, the coroner wrote a letter to the Secretary of State for Housing, Communities, and Local Government, The Right Honourable Eric Pickles MP, now Lord Pickles, under rule 43 of the Coroners Rules.¹⁰⁵⁵ The letter addressed four separate matters: (1) fire safety, firefighting and search and rescue, (2) fire risk assessments pursuant to the Fire Safety Order, (3) retro-fitting sprinklers in high-rise residential buildings and (4) the Building Regulations and Approved Document B.

9.42 In relation to the last matter she said:

“During these inquests we examined Approved Document B (2000 edition incorporating 2000 and 2002 amendments) (“AD B”). I am aware that AD B has subsequently been amended, and believe that a further amendment is due to be published soon. The introduction to AD B states that it is “ ... intended to provide guidance for some of the more common building situations”. However, AD B is a most difficult document to use. Further, it is necessary to refer to additional documents in order to find an answer to relatively straightforward questions concerning the fire protection properties of materials to be incorporated into the fabric of a building.

It is recommended that your Department review AD B to ensure that it

- provides clear guidance in relation to Regulation B4 of the Building Regulations, with particular regard to the spread of fire over the external envelope of the building and the circumstances in which attention should be paid to whether proposed work might reduce existing fire protection
- is expressed in words and adopts a format which are intelligible to the wide range of people and bodies engaged in construction, maintenance and refurbishment of buildings, and not just to professionals who may already have a depth of knowledge of building regulations and building control matters
- provides guidance which is of assistance to those involved in maintenance or refurbishment of older housing stock, and not only those engaged in design and construction of new buildings.”

9.43 On receipt of that letter, and in the light of the observations of the coroner at the inquests and the jury's verdicts, the department could have been in no doubt that the guidance in Approved Document B, particularly on the construction of external walls, had been found to be lacking in clarity. Even though specific problems had been identified at the inquests, any official paying proper attention should have appreciated that the coroner's concerns

¹⁰⁵⁴ {INQ00015079/40} lines 14-18.

¹⁰⁵⁵ {CLG00001870}.

were not limited to matters of structure and language but extended to the substance of the guidance on the construction of external walls, which was regarded as inadequate. That should have prompted an immediate review of that part of the guidance, particularly since the department already knew that there were existing concerns about the suitability of Class 0 as an indicator of the suitability of materials for use in external walls and that some building control officers were having difficulty in interpreting the guidance.

Conclusions

- 9.44** In our view the department's response to the Lakanal House fire was inadequate. The BRE's investigation was prematurely and unreasonably curtailed and at every stage, even including the inquests, officials displayed a complacent and short-sighted attitude towards learning wider lessons from the fire. That included lessons about the adequacy of the regulatory regime itself. Although we recognise that the Lakanal House fire had particular features that were not directly relevant to what occurred later at Grenfell Tower, there were lessons that could and should have been learnt from it which might have improved the robustness and clarity of the regulatory regime before the Grenfell refurbishment took place.
- 9.45** In particular, we consider that more should have been done to investigate the propensity of composite panels to contribute to the downward spread of fire, the adequacy and clarity of the statutory guidance on the construction of external walls, including the suitability of Class 0 as a criterion and whether the use of materials liable to create flaming droplets when exposed to fire ought to be regulated. The Lakanal House fire also provided an opportunity to consider whether more general problems existed in the construction industry, including a failure within it to understand or apply the regulations and guidance and a resulting stock of tall buildings with external walls containing combustible materials.

Chapter 10

The Department for Communities and Local Government 2013–2017

Introduction

- 10.1** In his letter of 20 May 2013 responding to the coroner at the Lakanal House inquests the Secretary of State made a number of commitments which purported, for the most part, to address the coroner's concerns and recommendations.¹⁰⁵⁶ However, in the years that followed, the work that the department had undertaken to carry out in response to those recommendations was delayed and merged with other projects. As a result, by the time the Grenfell Tower refurbishment had been completed in mid-2016 very little progress had been made in reviewing Approved Document B, which had not been clarified in any significant respect.

The officials

- 10.2** In the period between 1 January 2013 and 31 December 2017 responsibility for the Building Regulations and the statutory guidance relating to them lay with the Department for Communities and Local Government (the department). Robert (Bob) Ledsome was the Deputy Director in charge of the Building Regulations and Standards Division, assisted by Anthony Burd¹⁰⁵⁷ until December 2013 and then by Richard Harral. Responsibility for the Building Regulations was entrusted mainly to Brian Martin, the principal construction professional. He reported to Anthony Burd and later Richard Harral and had a background in building control. He had taken primary responsibility for the Building Regulations and the Approved Documents since joining the department in September 2008.¹⁰⁵⁸ Within the department Mr Martin was the person with the most detailed knowledge of those parts of the Building Regulations that related to fire safety and others (including those senior to him) would turn to him for advice on that subject.¹⁰⁵⁹ Between 2010 and March 2015 the late Sir Bob (subsequently Lord) Kerslake was the permanent secretary; from March 2015 the post was held by Dame Melanie Dawes.

The ministers

- 10.3** Between 2013 and May 2015 the Rt Hon Eric Pickles MP (now the Rt Hon The Lord Pickles) was Secretary of State for Communities and Local Government. He was succeeded by the Rt Hon Greg Clark MP, who held office until July 2016, and subsequently by the Rt Hon Sajid Javid MP. Junior ministers with responsibility for the Building Regulations included the Rt Hon Don Foster MP, Stephen Williams MP, James Wharton MP (now the Rt Hon The Lord Wharton of Yarm) and Gavin Barwell MP (now the Rt Hon The Lord Barwell).

¹⁰⁵⁶ {CLG00002788}.

¹⁰⁵⁷ Head of Technical Policy.

¹⁰⁵⁸ Martin {Day250/29:23}-{Day250/30:5}; Martin {Day250/39:2-5}.

¹⁰⁵⁹ Martin {Day250/38:15-25}.

Deregulation

- 10.4** One of the principal policies of the government that came to power in May 2010 was deregulation. The idea was not new and indeed the Regulatory Reform (Fire Safety) Order 2005 is an example of an earlier initiative of a similar kind. The policy was based on the proposition that national productivity and economic growth were being held back by unnecessary regulation which needed to be swept away. The policy was best expressed in a letter dated 6 April 2011 from the Prime Minister, the Rt Hon David Cameron MP, to all government ministers, in which he described the government’s ambitious deregulation agenda which included a new “one in, one out” rule relating to new regulations and a drive to reduce the overall burden of regulation. Ministers were told they were personally accountable for the number of existing and new regulations for which their departments were responsible.¹⁰⁶⁰ Although Lord Pickles characterised that letter as “veneer”,¹⁰⁶¹ it was intended to send a serious message to ministers and we have no doubt that the Prime Minister intended it to be taken seriously.
- 10.5** The “one in, one out” rule was an administrative policy introduced within government in January 2011 under which no new regulation would be introduced without a compensating reduction in regulation being made.¹⁰⁶² For the purposes of the rule, a regulation was defined as
- “a rule or guidance with which failure to comply would result in the regulated entity or person coming into conflict with the law or being ineligible for continued funding, grants and other applied for schemes.”¹⁰⁶³
- The policy was extended to “one in, two out” in January 2013¹⁰⁶⁴ and to “one in, three out” in March 2016.¹⁰⁶⁵
- 10.6** The “Red Tape Challenge” was also launched in 2011 and ran until 2014. It was designed to obtain the views of business, other civil organisations and the public on whether existing regulations should be improved, kept or revoked. The main area of work resulting from that exercise so far as the department was concerned was the Housing Standards Review, which explicitly excluded standards relating to safety (including Approved Document B).¹⁰⁶⁶ A Red Tape Challenge for construction was launched in 2012.¹⁰⁶⁷ The Regulatory Reform (Fire Safety) Order 2005 was excluded from the Red Tape Challenge by ministers in 2012.¹⁰⁶⁸

The department’s response to the coroner’s rule 43 letter

- 10.7** In her rule 43 letter the coroner recommended that DCLG review Approved Document B to ensure

¹⁰⁶⁰ {HOM00018307}.

¹⁰⁶¹ Pickles {Day262/6:14-15}.

¹⁰⁶² “One-In, One-Out (OIOO) Methodology” {INQ00015131}; and “One-in, Two-out” in the “Better Regulation Framework Manual, Practical Guidance for UK Officials” dated March 2015 {INQ00015132}; Ledsome {CLG00019465/8} page 8, paragraph 29(a).

¹⁰⁶³ {INQ00015131/4} paragraph 13.

¹⁰⁶⁴ As set out in the “Better Regulation Framework Manual, Practical Guidance for UK Officials” dated March 2015 {INQ00015132}.

¹⁰⁶⁵ Ledsome {CLG00019465/8} page 8, paragraph 29(a).

¹⁰⁶⁶ Ledsome {Day241/81:12-22}; {Day241/83:25}–{Day241/84:11}; Harral {Day243/55:14-21}.

¹⁰⁶⁷ Ledsome {CLG00019465/9} page 9, paragraph 29(c); Harral {CLG00019487/10} page 10, paragraph 30.

¹⁰⁶⁸ {CLG00018638}; {CLG00018639}; {CLG00019597}.

- i. That it provided clear guidance on compliance with functional requirement B4, in particular in relation to the spread of fire over the external envelope of the building and the circumstances in which work might reduce existing fire protection.
- ii. That it was expressed in a way that was intelligible to the wide range of people engaged in the construction and maintenance of buildings.
- iii. That it provided guidance of assistance to those involved in the maintenance or refurbishment of older housing stock.

The response from the Secretary of State might therefore have been expected to deal directly with those three recommendations. Regrettably, however, that was not to be.

Submission to the junior minister

- 10.8** On 11 April 2013 a submission signed by Brian Martin¹⁰⁶⁹ was put up to the then junior Housing Minister, Don Foster, containing advice on how to respond to the coroner's letter in so far as it concerned the Building Regulations. It had been drafted primarily by Mr Martin with contributions from other officials, including Mr Burd and Mr Ledsome.¹⁰⁷⁰ Although her letter was annexed to it, the coroner's three recommendations were not summarised in the body of the submission itself. Mr Martin may have expected the minister to read the coroner's letter,¹⁰⁷¹ but in view of what transpired we are not sure that he did.
- 10.9** The submission recommended that the minister respond to the coroner's letter by
- i. Acknowledging that Approved Document B could be difficult for inexperienced people to apply.
 - ii. Commissioning a review of the guidance given to members of Competent Persons Schemes.¹⁰⁷²
 - iii. Setting out the government's intention to issue a revised version of Approved Document B in 2016 or 2017 following a full review of the fire safety aspects of the Building Regulations that would take into account current research which was due to be delivered in 2014.
- 10.10** If the minister had read the part of the coroner's letter that concerned the Building Regulations and Approved Document B he would have realised that the recommended response did not properly respond to her recommendations in some important respects. In particular, a review of the Competent Persons Scheme, which occupied a significant part of the submission¹⁰⁷³ and was said to have given rise to most of the problems relating to the Building Regulations,¹⁰⁷⁴ was not something she had called for, having concluded that there was no evidence that reliance on it had contributed in any way to the deaths at Lakanal House.¹⁰⁷⁵ The submission also sought to place the blame for the criticisms the coroner had made of Approved Document B on the legal process and the

¹⁰⁶⁹ {CLG00000461}.

¹⁰⁷⁰ Martin {Day256/177:9-11}.

¹⁰⁷¹ Martin {Day257/124:19-22}.

¹⁰⁷² Competent Persons Schemes are government-authorised schemes which monitor compliance with the building regulations of certain elements of construction, such as windows and doors. FENSA is the Fenestration Self-Assessment scheme. Certification of an installer of windows or doors under the FENSA scheme is intended to demonstrate that it is competent to carry out work which complies with the building regulations.

¹⁰⁷³ {CLG00000461/2-3} paragraphs 7-9 and 12.

¹⁰⁷⁴ {CLG00000461/3} paragraph 12.

¹⁰⁷⁵ Lakanal House Coroner's Inquest {INQ00015074/77} lines 16-21.

evidence of the expert, Mr David Walker, which was described, with some justification, as “confused and conflicting”. The submission suggested that, given the confusion in court, it was unsurprising that the coroner had criticised the clarity of the guidance given in Approved Document B.¹⁰⁷⁶

- 10.11** The submission was disingenuous in that it did not make it clear that the coroner had been concerned about the clarity of Approved Document B even after Mr Martin had explained it in the course of his evidence. We have been left with the clear impression that in drafting the submission Mr Martin set out to give the minister to understand that the coroner’s concerns were in fact groundless and that no criticism could be levelled at himself or the department for the structure or language of Approved Document B. In our view that was the result of a defensiveness born of a prolonged involvement in a technical field and an understandable, albeit misplaced, pride of authorship. He appears to have thought that, since the text was clear to him, it was clear enough for everyone.¹⁰⁷⁷
- 10.12** In the submission Mr Martin advised the minister that re-writing Approved Document B would be a significant project and recommended that it be undertaken as part of a fuller review leading to the publication of a revised document in 2016 or 2017. However, the coroner had not recommended a full review of Approved Document B, only that part which contained guidance on the construction of external walls. As Mr Martin accepted in his evidence to us, the coroner’s first recommendation was a narrow and focused one,¹⁰⁷⁸ and yet the option of carrying it out as a discrete piece of work was not canvassed.
- 10.13** Mr Martin told us that one reason why he did not recommend reviewing only those aspects of Approved Document B that related to functional requirement B4 of the Building Regulations was that he and others in the department had thought that the 2006 version had adequately addressed some of the coroner’s concern about its clarity¹⁰⁷⁹ and that as a result the work had not been urgent.¹⁰⁸⁰ However, if officials thought that the coroner’s concern was misplaced in the light of the 2006 revision to Approved Document B (of which she had been aware), they ought to have made that clear to the minister and given him an appropriate explanation. The failure to do so went on to shape the understanding of ministers (and later that of officials) both of the coroner’s concerns and of the work that might be needed to address them.
- 10.14** Mr Ledsome¹⁰⁸¹ and Mr Burd¹⁰⁸² agreed with the approach taken in the submission. We accept that, when dealing with matters requiring technical expertise, such as the Building Regulations and fire safety, it may be appropriate for senior officials to rely on the detailed knowledge and expertise of more junior officials. Mr Ledsome described himself as a “policy professional” and did not profess to have detailed knowledge of technical matters.¹⁰⁸³ As the senior official involved in the discussions Mr Ledsome should have ensured that the submission summarised the coroner’s recommendations accurately and offered suggestions for a response supported by appropriate explanations.

¹⁰⁷⁶ {CLG00000461/2} paragraphs 9 and 10.

¹⁰⁷⁷ Lakanal House Coroner’s Inquest {INQ00015070/80} lines 5-11 and line 25.

¹⁰⁷⁸ Martin {Day257/133:1-8}.

¹⁰⁷⁹ Martin {Day257/134:1-16}; Martin {Day256/189:16-22}; Martin {CLG00019469/13} page 13, paragraph 38.

¹⁰⁸⁰ Martin {Day257/154:20}-{Day257/155:1}; Martin {Day256/189:16-22}.

¹⁰⁸¹ Ledsome {Day241/110:24}-{Day241/111:7}; {Day241/116:2}-{Day241/117:10}.

¹⁰⁸² Burd {CLG00019461/18} page 18, paragraph 45; Burd {Day240/186:4}-{Day240/187:9}.

¹⁰⁸³ Ledsome {Day241/6:10-24}.

- 10.15** The minister, Mr Foster, was invited to approve the recommendations with a view to their being included in a submission for the Secretary of State.¹⁰⁸⁴ He approved the submission on 15 April 2013.¹⁰⁸⁵

Submission to the Secretary of State

- 10.16** A submission was subsequently sent to the Secretary of State on 13 May 2013.¹⁰⁸⁶ It included a brief description of the background to the Lakanal House inquests and the coroner’s rule 43 letter and the Secretary of State was informed that junior ministers, including Mr Foster, had already agreed recommendations for the response. The submissions to junior ministers were annexed to the submission.¹⁰⁸⁷ In the part dealing with the Building Regulations the evidence given by the expert witness and the nature of the legal process were said to have led to confusion and that it was therefore unsurprising that the coroner had criticised the clarity of the guidance in Approved Document B. In the final paragraph the Secretary of State was advised that a full review of Approved Document B would require significant resources and have a disruptive effect on the construction industry. Officials suggested that confirmation be sought from FENSA and other Competent Persons Scheme providers for replacement windows that their members were fully aware of the scope of the schemes and the requirements applicable to their work. That, it was said, could be completed by the end of the summer without the need for the department to divert significant resources away from other work. A new edition of Approved Document B was expected to be ready by 2016 or 2017.¹⁰⁸⁸
- 10.17** The submission was formally sent to the Secretary of State by Louise Upton, but Brian Martin accepted that he had been the author of the section on the Building Regulations, and although he could not be sure who had suggested the particular wording,¹⁰⁸⁹ it drew heavily on the submission previously made to Don Foster. Mr Martin was unable to explain why different language had been used from that found in the submission to Mr Foster and in particular he could not explain the reference to the disruptive effect a revision of Approved Document B would have on the construction industry.¹⁰⁹⁰ He accepted that it might have been included to ensure that the submission received a warm reception in a department committed to deregulation and reducing costs.¹⁰⁹¹ Both he and Mr Ledsome¹⁰⁹² told us that any change to guidance, even if it involved no more than a need for industry to familiarise itself with new language, would be considered as imposing a cost because of the disruptive effects of such a change.¹⁰⁹³ Construction was an area of the economy in which the government was trying to reduce the burden of regulation and stimulate growth.
- 10.18** Mr Martin accepted that the department did not consider a review of the guidance in Approved Document B on the construction of external walls to be essential in the interests of safety,¹⁰⁹⁴ but it is clear that its view had been influenced by his initial misrepresentation of the position and his decision not properly to inform ministers of the coroner’s concerns or the basis of them. He also accepted that the department had

¹⁰⁸⁴ {CLG00000461/3} paragraph 13; {CLG00000485}.

¹⁰⁸⁵ Martin {CLG00019469/9-10} pages 9-10, paragraph 26.

¹⁰⁸⁶ {CLG00002889}.

¹⁰⁸⁷ {CLG00002889/1} paragraph 5.

¹⁰⁸⁸ {CLG00002889/4} paragraph 17.

¹⁰⁸⁹ See draft of the submission {CLG00000559/4}; Martin {Day257/137:15}-{Day257/138:12}.

¹⁰⁹⁰ Martin {Day257/139:5-13}.

¹⁰⁹¹ Martin {Day257/139:14}-{Day257/141:2}.

¹⁰⁹² Ledsome {Day241/150:3-18}; {Day241/151:4-12}.

¹⁰⁹³ Martin {Day257/139:14}-{Day257/141:2}.

¹⁰⁹⁴ Martin {Day257/153:15}.

missed the opportunity to look beyond the coroner's recommendations to investigate the use of inappropriate materials on high-rise residential buildings generally and the fire risks associated with them.¹⁰⁹⁵

- 10.19** Lord Pickles gave evidence about what he had understood when he considered the submission, including discussions he had had with officials at the time. He said that his assessment of the need to clarify Approved Document B had been influenced by the suggestion that the coroner had been confused by the expert evidence.¹⁰⁹⁶ He said that he had been told that the windows at Lakanal House had not been installed in accordance with the Building Regulations.¹⁰⁹⁷ He had not been told that the officials in his department thought that the 2006 version of Approved Document B had cured the problems that had come to light at Lakanal House.¹⁰⁹⁸
- 10.20** Lord Pickles said that he had tried quite hard to bring forward the date of the review of Approved Document B but that the Permanent Secretary (Sir Bob Kerslake) had told him that it was not appropriate to do so and that the matter was complex.¹⁰⁹⁹ He also said that he had asked if part of the work on the Approved Document could be undertaken separately but had been told that the different parts of the document were interlinked and that it would cause difficulties if that were tried.¹¹⁰⁰ We understand that a Secretary of State has various conversations of an informal kind with the Permanent Secretary of his department which are not minuted. If he had voiced any significant objection to any aspect of the recommendations made to him, however, we think that that would have been recorded and would probably have led to a further submission. Since there was no record of any such objection, we conclude that he did not pursue one. Nor did any of the civil servants from whom we heard suggest that the Secretary of State had offered such resistance.¹¹⁰¹ Other aspects of Lord Pickles' evidence¹¹⁰² suggested that he accepted the estimate he had been given of how long the work would take.
- 10.21** Before us Lord Pickles expressed dismay at the suggestion that officials had included in the submission an assertion that a full review of the Approved Document would have had a disruptive effect on the construction industry in order to make it more appealing to him.¹¹⁰³ However, there was a wealth of material that showed both that he was personally an ardent supporter of the government's deregulation policy and that the pressure within the department to reduce red tape was so strong that civil servants felt the need to put it at the forefront of every decision.¹¹⁰⁴
- 10.22** Annexed to the submission was a draft letter of reply;¹¹⁰⁵ it was sent to the coroner on 20 May 2013.¹¹⁰⁶ In relation to the Building Regulations, the Secretary of State said that he was aware that some of those involved in the inquests had encountered difficulties in interpreting Approved Document B and that the department was committed to a programme of simplification, but that the design of fire protection in buildings was

¹⁰⁹⁵ Martin {Day256/184:6-21}.

¹⁰⁹⁶ Pickles {Day261/136:8-15}.

¹⁰⁹⁷ Pickles {Day261/142:5-6}.

¹⁰⁹⁸ Pickles {Day261/145:14-15}.

¹⁰⁹⁹ Pickles {Day261/137:4-10}; {Day261/177:3}-{Day261/178:1}; Pickles {CLG00019471/17} page 17, paragraph 56.

¹¹⁰⁰ Pickles {Day261/179:1-8}.

¹¹⁰¹ See, for example Martin {CLG00019469/10-11} pages 10-11, paragraph 28; Ledsome {CLG00019465/44-46} pages 44-46, paragraphs 173-177.

¹¹⁰² Pickles {Day261/178:2-8}.

¹¹⁰³ Pickles {Day261/192:2}.

¹¹⁰⁴ Martin {Day255/19:20-23}; {Day255/19:23}-{Day255/20:6}; {Day 255/19:25}; Harral {Day243/42:25}; Ledsome {Day241/80:11-12}; Pickles {Day262/8:14-17}.

¹¹⁰⁵ {CLG00002889}; {CLG00000589}.

¹¹⁰⁶ {CLG00002788}.

a complex subject and should remain, to some extent, in the realm of professionals. He said that research had been commissioned to contribute to a review of the part of the Building Regulations relating to fire safety and was expected to lead to the publication of a new edition of Approved Document B in 2016 or 2017. He aimed to ensure that the guidance was capable of being more easily understood and the need to cross-refer reduced.

- 10.23** As Mr Martin and Mr Ledsome accepted, the letter did not respond directly to the three recommendations made by the coroner in relation to Approved Document B nor even make it clear whether they had been accepted or rejected.¹¹⁰⁷ Indeed, there does not seem to have been a clear view within the department about whether it should review Approved Document B to ensure that it provided the clear guidance that the coroner had wished to see. Lord Pickles thought that he had accepted the first recommendation¹¹⁰⁸ and in a sense he had, because he told the coroner that the department would review the relevant part of the Building Regulations and expected to publish a new edition of Approved Document B in 2016 or 2017. Mr Martin’s initial response was that the first recommendation had been accepted, but then he was at a loss to explain how a ministerial submission he had sent to Don Foster’s successor, Stephen Williams in June 2014,¹¹⁰⁹ had stated in terms that the recommendation had been rejected.¹¹¹⁰ He put it down to a “bad choice of words”,¹¹¹¹ but that was not plausible because the words he used were clear. Mr Ledsome’s understanding was that the first recommendation “was not absolutely accepted or absolutely rejected” because, although the department had agreed to review Approved Document B, it would be a fuller review to be completed by 2016/17. In the event, the decision to conduct a complete rather than a partial review of Approved Document B combined with departmental inertia to cause significant delay to the work.
- 10.24** When Mr Ledsome approved the ministerial submissions and the draft letter to the coroner, he thought that the best way to deal with her recommendations was to include them in a fuller review of Approved Document B, rather than carry out a specific review of the guidance relating to functional requirement B4.¹¹¹² However, he accepted that a full review was not what the coroner had asked the department to undertake.¹¹¹³ He also accepted that the department should perhaps have been bolder and considered reviewing the guidance on the construction of external walls more quickly.¹¹¹⁴ He agreed that the Secretary of State should have been presented with two options: reviewing the guidance on the construction of external walls within a shorter time, or a wholesale review of Approved Document B by 2017.¹¹¹⁵ It is not clear whether anyone gave any thought to what would be involved in complying with the second part of the coroner’s first recommendation.

¹¹⁰⁷ Martin {Day257/135:11-20}; Martin {Day256/181:21-25}; {Day256/197:6-17}; Ledsome {Day241/109:4}-{Day241/110:19}.

¹¹⁰⁸ Pickles {Day261/138:13-16}.

¹¹⁰⁹ {CLG00011293} paragraph 3.

¹¹¹⁰ Martin {Day256/197:10}-{Day256/198:17}.

¹¹¹¹ Martin {Day256/198:11}.

¹¹¹² Ledsome {Day241/113:6-12}.

¹¹¹³ Ledsome {Day241/153:9-12}.

¹¹¹⁴ Ledsome {Day241/126:11-20}.

¹¹¹⁵ Ledsome {Day241/145:6}.

- 10.25** The department made a number of important admissions in its submissions to the Inquiry about the adequacy of its response to the coroner’s recommendations.¹¹¹⁶ In particular, it accepted that the advice given to ministers failed to make it clear that the work was not considered essential for safety or to explain how or why that view had been reached.¹¹¹⁷ The department accepted that the response to the coroner should have set out clearly in relation to each recommendation whether it had been accepted in whole or in part, together with any relevant reasons. It admitted that it had not done that. It also acknowledged that the Secretary of State’s letter in response had not been well structured and had been unclear and difficult to follow when read against the text of the coroner’s recommendations.¹¹¹⁸ It accepted that the department should not have worked on the basis that her first recommendation related to the 2000 rather than the 2006 version of Approved Document B; nor should it have concluded that the exercise to clarify and simplify the 2006 version of Approved Document B was not essential to safety, and therefore not urgent, without making its position clear in the response to the coroner.
- 10.26** Those admissions are justified as far as they go, but we do not think they go far enough. The department’s response to the Lakanal House fire in the four years leading up to the inquests was complacent and short-sighted. Regrettably, its approach to the coroner’s recommendations was little better. No one treated them with any sense of urgency, despite the fact that they had arisen out of an incident in which six people had died and the coroner had seen fit to make a number of recommendations with a view to preventing future deaths. Officials produced submissions to ministers which failed to describe accurately the points on which decisions were required or the courses of action open to them and significantly understated the importance of the criticisms of the existing guidance made by the coroner. Even worse, some officials within the department appeared to treat the coroner with disdain.¹¹¹⁹ In particular, Mr Martin displayed an arrogance and a lack of respect that was quite contrary to his assertion that recommendations from coroners were always treated seriously and accorded a high priority.¹¹²⁰ It was an attitude that should have had no place in any government department.

The appointment of Stephen Williams as Parliamentary Under Secretary of State for Communities and Local Government and Richard Harral as Head of Technical Policy: 2013–2014

- 10.27** Stephen Williams replaced Don Foster as the Minister with responsibility for, amongst other matters, the Building Regulations on 7 October 2013.¹¹²¹ He was in post until May 2015. On joining the department he was provided with a series of briefings and although they included a briefing on the Building Regulations in general, he did not recall having been told about the progress the department had made in responding to the coroner’s recommendations.¹¹²² He did not believe that he had ever read, or indeed that he had ever been shown, the coroner’s Rule 43 letter.¹¹²³ He had no detailed conversation

¹¹¹⁶ DLUHC Phase 2 opening submissions for Module 6 (Government, FRA, Testing and Certification) {CLG00036387/36} page 36, paragraph 112(a) to (e). The submissions were repeated in its closing statement for the module: DLUHC Phase 2 closing submissions for Module 6 (Government, Testing, FRA) {CLG00036422/23} page 23, paragraph 81.

¹¹¹⁷ DLUHC Phase 2 opening submissions for Module 6 (Government, FRA, Testing and Certification) {CLG00036387/32} page 32, paragraph 97.

¹¹¹⁸ DLUHC Phase 2 opening submissions for Module 6 (Government, FRA, Testing and Certification) {CLG00036387/32} page 32, paragraph 95.

¹¹¹⁹ {HOM00047478}.

¹¹²⁰ Martin {CLG00019469/8} page 8, paragraph 23.

¹¹²¹ Pickles {CLG00019471/4} page 4, paragraph 13(c).

¹¹²² Williams {Day259/58:5-23}.

¹¹²³ Williams {CLG00034291/3} page 3, paragraph 6; Williams {Day259/52:5-16}.

with any officials about the Lakanal House fire.¹¹²⁴ The impression he gained was that a contractor installing new windows had failed to comply with the Building Regulations and that the coroner had recommended that some action be taken in connection with the Competent Person's Scheme for window installers.¹¹²⁵

- 10.28** In January 2014 Richard Harral took over from Anthony Burd as Head of Technical Policy at DCLG. He was given to understand that the coroner's first recommendation relating to the clarity of the guidance on the construction of external walls had been covered by the amendments made to Approved Document B in 2006.¹¹²⁶ He also thought that the coroner's third recommendation, to provide guidance or assistance to those maintaining or refurbishing older housing stock, was never going to be addressed because it had been covered in 2011 by the LGA Guide on purpose-built blocks of flats.¹¹²⁷ As a result, he appeared to think, based on what he had been told by Mr Martin,¹¹²⁸ that the commitments made to the coroner following the Lakanal House inquests involved two things: the clarification and simplification of Approved Document B, and improving the Competent Person's Scheme.¹¹²⁹ Mr Harral could not recall whether he had gone back to the coroner's letter to check what recommendations she had made and what commitments had been given in response.¹¹³⁰ If he did not, plainly he should have done so.
- 10.29** Richard Harral never clearly understood what changes needed to be made to Approved Document B in order to implement the coroner's recommendations.¹¹³¹ He should have known what was required from the earliest days of his involvement. Part of the problem was that at no stage did Mr Martin or any other official prepare a proper briefing document identifying the criticisms expressed by the coroner in the course of the inquests so that they were clearly and consistently understood within the department.¹¹³² However, Mr Harral was also at fault in failing to find out exactly what the task of responding to her recommendations involved and in failing to ask Mr Martin to provide him with a detailed briefing.
- 10.30** The failure to make more rapid progress between 2014 and 2015 in responding to the coroner's recommendations was due in a large measure to a substantial piece of work that the department was doing on the Housing Standards Review. It was a large project that had absorbed much of the division's resources and delayed the work on Approved Document B.¹¹³³ The Housing Standards Review was due to be completed in October 2014 but it was delayed until March 2015 and in turn delayed planning the review of Approved Document B.¹¹³⁴
- 10.31** By 30 March 2015 research relating to Part B of Schedule 1 to the Building Regulations was expected to be completed by the end of the first quarter of 2017 and work on the review of Part B was due to continue throughout 2018.¹¹³⁵ The indication given to the coroner by the Secretary of State that a new edition of Approved Document B would be published by the end of 2017 was therefore not going to be met. Officials did not tell the minister at

¹¹²⁴ Williams {Day259/50:11-12}.

¹¹²⁵ Williams {Day259/51:2-5}.

¹¹²⁶ Harral {Day243/78:2-10}.

¹¹²⁷ Harral {Day243/108:15}-{Day243/109:12}.

¹¹²⁸ {CLG00018930/1}.

¹¹²⁹ Harral {Day243/91:18}-{Day243/92:14}.

¹¹³⁰ Harral {Day243/92:16-19}.

¹¹³¹ Harral {Day 243/83:5}-{Day 243/85:22}.

¹¹³² Harral {Day243/88:3-9}.

¹¹³³ Harral {Day243/89:7-16}.

¹¹³⁴ Harral {Day243/129:17}-{Day243/130:3}; {Day243/134:3-7}; {Day243/144:11-14}.

¹¹³⁵ {CLG10006856}.

that stage that his previous indication had been over-optimistic, as they expected to put further advice before him before mid-July 2015 explaining how matters had developed.¹¹³⁶ The general election due to take place in May 2015 was also liable to have an effect on the department's resources and new ministers might wish to determine priorities.¹¹³⁷

Lord Wharton becomes a junior minister: May 2015

- 10.32** The Conservative government came to power on 7 May 2015 and shortly thereafter Lord Wharton was appointed as a junior minister within DCLG¹¹³⁸ with responsibility for the Building Regulations.¹¹³⁹ There was no handover of any kind between ministers or any discussion between them about the work that was going on in the department.¹¹⁴⁰ On about 26 May 2015¹¹⁴¹ Lord Wharton received a briefing from Bob Ledsome on behalf of the Building Regulations team.¹¹⁴² It was a high-level briefing which included a one-page note and a pack of slides.¹¹⁴³ Although one slide contained a picture of the Lakanal House fire,¹¹⁴⁴ it does not appear that the briefing included any discussion of the fire or the coroner's recommendations.¹¹⁴⁵ That is surprising, as he agreed.¹¹⁴⁶ Mr Ledsome accepted that the minister may well have been told that the system of regulating building work was working well, that the number of fires had fallen substantially over the years and that that was attributable in part to the efficacy of the Building Regulations.¹¹⁴⁷
- 10.33** On 28 May 2015 officials sent the minister a note on Building Regulations identifying matters that were expected to arise in the future in relation to building regulation policy.¹¹⁴⁸ Attached to the submission was a table which included a reference to the publication of a discussion document on technical changes to the Building Regulations, particularly changes needed to follow up previous government commitments to the coroner following the Lakanal House fire. However, the minister was given no further information about the fire or any pending review of Approved Document B; nor at that time was he given a copy of the coroner's recommendations.¹¹⁴⁹ Despite Richard Harral's expectation that research into Part B of the Building Regulations would extend into 2017, the date of publication of the discussion document was said to be the end of June 2015. That was clearly over-optimistic, but Mr Ledsome said that he had hoped at the time that more detailed advice could be given to the minister before the summer recess, at which time more information would be provided.¹¹⁵⁰

¹¹³⁶ Ledsome {Day241/217:11-14}.

¹¹³⁷ Ledsome {Day241/205:4-13}.

¹¹³⁸ His ministerial role was Parliamentary Under Secretary of State for Local Growth and Northern Powerhouse.

¹¹³⁹ {CLG00019462}.

¹¹⁴⁰ Wharton {Day258/18:1-17}.

¹¹⁴¹ Wharton {CLG00034289/1-2} pages 1-2, paragraphs 3-4.

¹¹⁴² Wharton {CLG00030834/4} page 4, paragraph 13; Wharton {Day258/58:2-17}.

¹¹⁴³ Wharton {CLG00034289/2} page 2, paragraph 5.

¹¹⁴⁴ {CLG10007022/8}.

¹¹⁴⁵ Wharton {Day258/62:13-20}; Ledsome {Day241/211:21}-{Day241/212:24}.

¹¹⁴⁶ Wharton {Day258/62:21}-{Day258/63:1}.

¹¹⁴⁷ Ledsome {Day241/212:8-15}; Wharton {CLG00034289/12} page 12, paragraph 29.

¹¹⁴⁸ {CLG00019275}; Ledsome {CLG00019465/21} page 21, paragraph 75.

¹¹⁴⁹ Ledsome {Day241/214:20}-{Day241/215:24}.

¹¹⁵⁰ Ledsome {Day241/216:2}-{Day241/217:18}.

Merger of the review of Approved Document B with the review of Building Regulations policy and Building Control: summer 2015

- 10.34** In the summer of 2015 Bob Ledsoe and Richard Harral proposed that the review of Approved Document B should be merged into a wider review of Building Regulations policy.¹¹⁵¹ They thought that making changes to Approved Document B alone might impose significant costs on the construction industry and that any changes would be more likely to be favourably received if they formed part of a package of proposals which covered Building Regulations more broadly. They hoped that by doing so they would be able to reduce regulation in one area to balance any increase in regulation in another and thereby enhance the prospect of obtaining ministerial approval.¹¹⁵² According to Mr Harral, officials felt that they had no option but to proceed in that way because the prevailing policy on deregulation was designed to make it difficult to introduce new regulations, even where measures affecting the safety of life were involved.¹¹⁵³ They also felt that it was more coherent to carry out the work on Part B as part of a broader programme, rather than to make piecemeal changes.¹¹⁵⁴
- 10.35** On 15 September 2015 Richard Harral sent a submission to Lord Wharton and the then Secretary of State, the Rt Hon Greg Clark MP, in which he proposed to include the review of Approved Document B in a wider review and revision of the Building Regulations and statutory guidance expected to last over a period of four years.¹¹⁵⁵ The submission emphasised the government's commitment to deregulation and recommended that a broad based review of all aspects of building control should take place in order to deliver substantial savings to industry by way of reducing regulation and technical requirements.¹¹⁵⁶ Mr Harral recommended a two-stage programme of work in relation to the Building Regulations and Approved Documents, the detail of which was contained in Annex B to the submission.¹¹⁵⁷
- 10.36** Annex B proposed a two-stage process: a simplification of the Approved Documents, that was expected to take until October 2017, and a review of the technical requirements of the Building Regulations and Approved Documents, that was expected to take until October 2019.¹¹⁵⁸ Mr Harral could not recall why the submission had not made it clear to ministers that that represented a significant departure from what the coroner had been led to expect by the previous Secretary of State.¹¹⁵⁹ He said that he thought the reason why the submission did not make it clear that some of the matters to be reviewed affected the safety of life was because he thought that was implicit.¹¹⁶⁰ We nonetheless consider it a significant failure on the part of officials not to have drawn ministers' attention to those matters in clear terms.
- 10.37** On 19 October 2015 three of the most senior officials responsible for the Building Regulations and Standards Division, Peter Schofield (the Director General), Sally Randall (the Director) and Bob Ledsoe (the Deputy Director) attended a meeting

¹¹⁵¹ Harral {Day243/148:21}-{Day243/149:13}.

¹¹⁵² Harral {Day243/149:9}-{Day243/150:15}; Ledsoe {Day241/78:9-21}; Ledsoe {CLG00019465/22} page 22, paragraph 80.

¹¹⁵³ Harral {Day243/152:1-20}.

¹¹⁵⁴ Ledsoe {CLG00019465/21-22} pages 21-22, paragraph 77; Ledsoe {Day241/152:6}-{Day241/153:6}.

¹¹⁵⁵ {CLG00019302}; {CLG00019304}; Ledsoe {CLG00019465/22} page 22, paragraph 79.

¹¹⁵⁶ {CLG00019302/2} paragraphs 5-7.

¹¹⁵⁷ {CLG00019302/2-3} paragraph 10.

¹¹⁵⁸ {CLG00019304/7}.

¹¹⁵⁹ Harral {Day243/162:18-23}.

¹¹⁶⁰ Harral {Day243/165:3-5}; {Day243/165:24}-{Day243/166:3}.

with Lord Wharton to discuss the submission.¹¹⁶¹ Lord Wharton told us that he had been content to accept their advice that it was appropriate to proceed with a larger and more comprehensive piece of work.¹¹⁶² He thought he might have questioned the time it would require, but was told that it was a complex matter which could not be carried out in a short time.¹¹⁶³

- 10.38** Lord Wharton told us that he could not conceive that the deregulation policy had prevented or delayed the simplification or clarification of those aspects of the Building Regulations that had a bearing on fire safety.¹¹⁶⁴ However, the submission itself laid some emphasis on the opportunity that the review of the Building Regulations and Approved Documents provided for deregulation.¹¹⁶⁵
- 10.39** Dame Melanie Dawes, who had become the Permanent Secretary in March 2015, was not aware at the time of the decision to include the work on Approved Document B in a wider review, but defended it on the basis that it made for a larger, more coherent, and more visible piece of work that was easier to track.¹¹⁶⁶ However, despite those apparent merits, it appears that no one gave much thought to the countervailing disadvantages. Ministers were not presented with the option of carrying out some work more quickly; nor were they told that failing to respond promptly to the coroner’s recommendations might adversely affect the safety of life.

The effect of deregulation on ministers and officials

- 10.40** We heard detailed and consistent evidence from civil servants about the effect of the deregulatory policies on the department in the period 2010 to 2017. They had all clearly understood that the “one in, one out” policy and its successors applied to changes to the Building Regulations and the Approved Documents¹¹⁶⁷ and they all spoke about the effect that those policies had had on their approach to their work and on the culture within the department at the time.¹¹⁶⁸
- 10.41** Anthony Burd told us that the “one in, one out” policy meant that he and his team spent an inordinate amount of time looking at how they could deregulate.¹¹⁶⁹ He understood that the policy applied to the Approved Documents as well as to the Building Regulations.¹¹⁷⁰ He felt that, as time went on, it had become increasingly difficult to oversee the Building Regulations because of the reduction in the number of staff and the changes involved in deregulation.¹¹⁷¹

¹¹⁶¹ {CLG00019305}.

¹¹⁶² Wharton {Day258/90:2-18}; {Day258/95:14-20}.

¹¹⁶³ Wharton {CLG00030834/5-6} pages 5-6, paragraphs 15 and 17; Wharton {CLG00034289/7} page 7, paragraph 15; Wharton {Day258/114:15-18}.

¹¹⁶⁴ Wharton {CLG00030834/6} page 6, paragraph 18.

¹¹⁶⁵ See in particular {CLG00019302/2} paragraph 5.

¹¹⁶⁶ Dawes {Day249/48:3-25}.

¹¹⁶⁷ Ledsome {Day241/85:4-9}; Harral {Day243/47:6}–{Day243/48:3}.

¹¹⁶⁸ See for example {CLG10007289/2}. In his response to colleagues about a request in July 2015 that teams identify the cost per unit of individual regulations, Brian Martin commented “Ok ta. So let’s spend a couple of years working out what the unit cost of the building regulations is. It’s better than actually doing something I suppose...”.

¹¹⁶⁹ Burd {Day240/191:10-14}.

¹¹⁷⁰ Burd {Day240/191:15}–{Day240/192:7-10}.

¹¹⁷¹ Burd {Day240/195:8}–{Day240/196:4-5}.

- 10.42** Bob Ledsome also understood that neither the Building Regulations¹¹⁷² nor the Approved Documents¹¹⁷³ were exempt from the “one in, one out” policy, and no one considered seeking an exemption for them.¹¹⁷⁴ It was only after the loss of life at Grenfell Tower that regulations affecting fire safety were exempted from the policy.¹¹⁷⁵ Before that, he thought that the policy would have made any case for an exemption difficult.¹¹⁷⁶ He also told us that energy efficiency had been an important consideration¹¹⁷⁷ and that the department’s approach had been to look for areas where the regulations and guidance could be simplified in order to produce savings to offset the costs of introducing requirements for increased energy efficiency in Part L of the Building Regulations in 2013.¹¹⁷⁸
- 10.43** Richard Harral told us that under successive governments the approach to deregulation had become more rigorous, with increased scrutiny of regulatory proposals through various policies at different times.¹¹⁷⁹ He said that as a result officials had been working in a policy environment in which regulatory intervention was regarded as a last resort¹¹⁸⁰ and there had been a general view within government that regulation was bad.¹¹⁸¹ Mr Harral accepted that he had not considered seeking an exemption from the “one in, one out” policy for the parts of the Building Regulations or Approved Documents that had a bearing on the safety of life.¹¹⁸² He understood that the “one in, two out” policy applied to them, despite the fact that most of what they contained affected safety.¹¹⁸³ He also said that he had assumed that even a simplification or clarification of an Approved Document would be caught by the policy because there would be a cost to industry in familiarising itself with any new version and that would be captured by the relevant impact assessment.¹¹⁸⁴
- 10.44** Brian Martin’s evidence was to similar effect. He told us that there had been a great deal of pressure on the Building Regulations and Standards Division to reduce regulation.¹¹⁸⁵ He said that after the 2015 election, there had been an even greater drive for deregulation and that any document issued by the department, even an answer to a frequently asked question, needed to have political approval.¹¹⁸⁶ He said he had felt that committing more resources to fire protection or any other aspect of regulation was contrary to government policy and that strong evidence was required to justify any increase in regulatory requirements.¹¹⁸⁷
- 10.45** The evidence of these officials on the effect within DCLG of the government’s deregulatory policies was strikingly different from the evidence we heard from most of the former ministers.

¹¹⁷² Ledsome {CLG00019465/8} page 8, paragraph 29(a); Ledsome {Day241/73:14}.

¹¹⁷³ Ledsome {Day241/74:6}.

¹¹⁷⁴ Ledsome {Day241/76:11}.

¹¹⁷⁵ Ledsome {Day241/79:14-20}.

¹¹⁷⁶ Ledsome {Day241/80:11-12}.

¹¹⁷⁷ Ledsome {CLG00019465/9} page 9, paragraph 30.

¹¹⁷⁸ Ledsome {Day241/97:5-12}.

¹¹⁷⁹ Harral {CLG00019487/8-9} pages 8-9, paragraph 26.

¹¹⁸⁰ Harral {Day243/107:22-24}.

¹¹⁸¹ Harral {Day243/42:25}.

¹¹⁸² Harral {Day243/53:7-12}.

¹¹⁸³ Harral {Day243/44:22}; {Day243/53:13-24}.

¹¹⁸⁴ Harral {Day243/50:23}–{Day243/51:7}.

¹¹⁸⁵ Martin {Day255/19:20-23}.

¹¹⁸⁶ Martin {Day255/19:23}–{Day255/20:6}.

¹¹⁸⁷ Martin {Day255/37:9-14}.

- 10.46** Stephen Williams said that he had had an open and candid relationship with his officials and did not recall their saying that they felt under pressure to reduce regulation.¹¹⁸⁸ He thought that, if officials had felt that they were being put under pressure to weaken health and safety standards, they would have found a way of resisting it.¹¹⁸⁹
- 10.47** Lord Wharton said that he had not felt that deregulation had imposed a particular pressure on his decision-making or his role as minister at the time.¹¹⁹⁰ He felt that clarifying Approved Document B would involve a reduction in regulation rather than new or additional regulation.¹¹⁹¹ He was not aware that any officials in the Building Regulations and Standards Division had felt that their hands were tied by the “one in, two out” policy.¹¹⁹²
- 10.48** Lord Pickles told us that he had not thought that officials within the Building Regulations and Standards Division believed that deregulation applied to the Building Regulations, and that he would have regarded that as being “ludicrous” and “wholly disproportionate”.¹¹⁹³ He said that it was “utterly inexplicable” that officials in the division should have thought that Part B was subject to the deregulation policy and that he was “genuinely amazed” that that was the case.¹¹⁹⁴ Moreover, he rejected the suggestion that he might be out of touch with what was happening in the Building Regulations and Standards Division.¹¹⁹⁵ Lord Pickles also told us that he was dismayed to find that officials in the division felt under pressure because of the policy on deregulation.¹¹⁹⁶ He blamed the officials, in particular Mr Martin, for making what he called “political assumptions”¹¹⁹⁷ and the senior officials for not easing the pressure or bringing it to the attention of ministers, who could then raise the problem with the Permanent Secretary.¹¹⁹⁸
- 10.49** The differences of recollection between officials and successive ministers about the effect of the government’s deregulatory policies on the work of the department in the years after the Lakanal House inquests is striking, but the contemporaneous documents support the evidence of the officials from whom we heard that those policies were a dominant influence in the department at the time. We saw a significant number of documents that showed that DCLG saw itself as a deregulating department, and indeed it described itself in that way in a Star Chamber internal briefing pack in May 2012.¹¹⁹⁹ Deregulatory policies and considerations were also highlighted in numerous ministerial submissions, including some put up in May 2012,¹²⁰⁰ September 2015¹²⁰¹ and November 2015.¹²⁰² Dame Melanie’s evidence was that the deregulatory imperative had “cast quite a shadow” and by 2015 had become, as she put it, “almost quite an extreme set of policy demands”.¹²⁰³ From the documents we have seen and the evidence we have heard, we accept what she said.

¹¹⁸⁸ Williams {Day259/39:1-4}.

¹¹⁸⁹ Williams {Day259/42:20-23}.

¹¹⁹⁰ Wharton {Day258/27:5-8}.

¹¹⁹¹ Wharton {Day258/30:6-7}.

¹¹⁹² Wharton {Day258/41:7}.

¹¹⁹³ Pickles {Day261/85:10-12}.

¹¹⁹⁴ Pickles {Day262/100:2}.

¹¹⁹⁵ Pickles {Day262/101:4}.

¹¹⁹⁶ Pickles {Day262/96:18}.

¹¹⁹⁷ Pickles {Day262/96:19-20}.

¹¹⁹⁸ Pickles {Day262/97:17-23}.

¹¹⁹⁹ {HOM00002080}; Ledsome {Day241/88:8}-{Day241/89:4}; {HOM00018307}; {LABC0009720}.

¹²⁰⁰ {CLG10005222/1} paragraph 8; {CLG10005223/2}.

¹²⁰¹ {CLG00019302/2} paragraph 5.

¹²⁰² {CLG10007804}.

¹²⁰³ Dawes {Day249/49:12-16}.

- 10.50** A number of documents also illustrated the extent to which Lord Pickles was not only aware of, but supported, that approach, including the application of the policies to the Building Regulations.¹²⁰⁴ While he was Secretary of State deregulatory considerations appear to have permeated every aspect of the department’s development, assessment and implementation of policy. Far from its being inexplicable that officials were under the impression that the Building Regulations and Approved Document B were subject to the various demands of the policy, the documents demonstrated in clear terms that their understanding was correct. Those documents included letters sent to ministerial colleagues by Lord Pickles, in which he specifically sought clearance from deregulation committees and others for changes to various parts of the Building Regulations and Approved Documents.¹²⁰⁵ They also included a letter he wrote to the Welsh Government in May 2013¹²⁰⁶ admonishing it for introducing legislation¹²⁰⁷ requiring the installation of sprinklers in all newly built and newly converted homes¹²⁰⁸ on the basis that it was increasing the cumulative burden of regulation on the housing market in Wales. He also expressed fear that the burden of red tape would harm the Welsh housing market. It was not uncommon for those in the Building Regulations and Standards Division to receive emails thanking them for their support and for their efforts in meeting the Secretary of State’s ambitions on deregulation.¹²⁰⁹
- 10.51** Although Lord Pickles sought to distance himself from those documents and play down their significance,¹²¹⁰ there was nothing to suggest that they were inaccurate or incomplete or gave a misleading impression. Lord Pickles’ assertion that the exemption of the Regulatory Reform (Fire Safety) Order 2005 from the policy showed that the Building Regulations as a whole were exempt from the policy¹²¹¹ served only to reveal the limits of his understanding of the distinction between fire safety regulations on the one hand and the Building Regulations and Approved Documents as they related to fire safety on the other.
- 10.52** None of the documents or any of the witnesses, other than Lord Pickles, supported the conclusion that Part B of Schedule 1 to the Building Regulations or Approved Document B was exempt from the policy on deregulation. We have been unable to accept his evidence on that question, which was flatly contradicted by that of his officials and by the contemporaneous documents. Moreover, in its written closing statement the department accepted that the policy on deregulation being promoted across government since 2010 created an environment in which officials working on Building Regulations felt unable to propose regulatory interventions or refer their concerns to more senior managers.¹²¹² It is a matter of serious concern that officials in the Building Regulations and Standards Division were so affected by the deregulation policy that they were inhibited from giving candid and clear advice to ministers on the implications of not taking certain regulatory steps. It is impossible to know with certainty whether an exemption from the policy would have been

¹²⁰⁴ {CLG10004826}; {CLG00018639}; {CLG00018602}; {HOM00002080/3}; {CLG00030973}; {CLG10004742}; {CLG00014665/4}; {CLG00013957}; {CLG00014724}; {HOM00018307/3}; {CLG10007280/2} paragraph 1.

¹²⁰⁵ {CLG00014698}; {CLG00014462}; {CLG10005767}; {CLG10006068}; {CLG10006758}.

¹²⁰⁶ {CLG00019243/7-8}.

¹²⁰⁷ {CLG00020138}.

¹²⁰⁸ {CLG00019216}; {CLG00020138}.

¹²⁰⁹ {CLG10007394/2}. In this email from Justin Vetta of the Deregulation Team, templates capturing “ins and outs” were to be submitted by all policy teams, including the Building Regulations and Standards Division.

¹²¹⁰ Pickles {Day262/36:19}-{Day262/40:20}; {Day262/76:14}-{Day262/80:22}.

¹²¹¹ Pickles {Day262/63:5}-{Day262/66:5}. The submission dated 3 May 2012 {CLG10005222} and {CLG10005223} was clear that the Building Regulations were not receiving special treatment under the policy on deregulation.

¹²¹² DLUHC Phase 2 closing submissions for Module 6 (Government, Testing, FRA) {CLG00036422/3-4} page 3, paragraphs 6(h) and 10; DLUHC Phase 2 closing submissions for Module 6 (Government, Testing, FRA) {CLG00036422/35-38} pages 35-38, paragraphs 124-136.

granted, if it had it been sought, but it is clear that the limits of the deregulation policy and the process for seeking an exemption from it were not fully understood across government. Given the fact that many regulations affect public safety, that was a serious flaw.

- 10.53** However well-intentioned the government’s aim of reducing the burdens on industry may have been, it was not in the public interest to allow the policy on deregulation to impede the ability of officials to promote changes to regulations or statutory guidance that would improve public safety. If ministers were not fully aware of the extent to which officials felt constrained by the policy when giving advice, there was a serious failure of communication within the department. It is disappointing that when officials became aware of matters which posed serious risks to life, effective steps were not taken to draw those risks to the attention of ministers. The failure to foster a culture in which concerns could be raised and frank advice given represents a serious failure of leadership on the part of ministers and senior officials.

Ministerial submission: November 2015

- 10.54** On 10 November 2015, Alex Murphy, an official in what had become the Building Regulations and Energy Performance Division, sent a submission to Lord Wharton and the Secretary of State, Greg Clark, on the simplification of the Building Regulations, Approved Documents and the Building Control system.¹²¹³ The submission recommended the publication of a discussion paper setting out an ambitious programme of deregulation, including consolidating and simplifying the Building Regulations and Approved Documents, and proposals to improve the building control system. The submission had been approved by Bob Ledsome. The proposed programme was to start with the publication of a discussion document in early 2016 and culminate in new Building Regulations and Approved Documents coming into force in 2018.¹²¹⁴
- 10.55** On 7 December 2015 Lord Wharton’s private office sent an email to the Secretary of State’s private office stating that he agreed with the proposed programme and the next steps.¹²¹⁵

Further delays in 2016

- 10.56** On 1 April 2016, a submission written by Richard Harral and approved by Bob Ledsome was sent to Lord Wharton setting out the proposed next steps in the programme of simplifying the Building Regulations.¹²¹⁶ They recommended that officials should work with the Building Regulations Advisory Committee (BRAC) to develop a discussion paper for publication that would set out the government’s ambitions to simplify the statutory guidance and reform the building control system (including the possible expansion of the role of approved inspectors).¹²¹⁷ The date for publication of the discussion paper had now slipped to May 2016. Mr Harral explained that that had been caused by the need to give priority to other urgent matters.¹²¹⁸ The dates for completing the revision of the Approved Documents and Building Regulations had also moved back to mid-2018 and 2019 respectively.¹²¹⁹

¹²¹³ {CLG10007804}.

¹²¹⁴ {CLG10007804/3}.

¹²¹⁵ {CLG10007855}.

¹²¹⁶ {CLG00019344}.

¹²¹⁷ {CLG00019344/1} paragraph 3.

¹²¹⁸ Harral {Day243/176:5-19}.

¹²¹⁹ {CLG10008122}.

- 10.57** The submission did not refer to the Lakanal House fire, the inquests or the Secretary of State’s response to the coroner’s rule 43 letter. Lord Wharton accepted that that was important information which should have been included, preferably in bold at the beginning of the submission,¹²²⁰ since the minister could not reasonably have been expected to remember the contents of previous submissions.¹²²¹ He was unable to say whether he was, in fact, aware of what the Secretary of State had said to the coroner¹²²² and Richard Harral was unable to recall whether the slippage had been communicated to the minister,¹²²³ but Lord Wharton was doubtful whether anything would have been done differently if the change in timing had been drawn to his attention. He might have asked for an explanation, but in his experience everything happened slowly in the civil service and he thought it unlikely that he could have done anything to speed up the review.¹²²⁴
- 10.58** Mr Harral candidly accepted that the department should have been tracking the progress of the work far better and that he should have ensured that ministers were aware that the original expectation would not be met.¹²²⁵ One reason for having failed to do so was the absence of any procedure within the department for recording a coroner’s recommendations and the progress made in responding to them.¹²²⁶ It appears that at about that time officials had been instructed to limit the length of submissions to ministers to two pages,¹²²⁷ but even so, the key points about the response to the coroner could have been conveyed in a sentence. It is also notable that the submission did not indicate that any sense of urgency attached to the project, despite Mr Harral’s email to Mr Ledsome in January 2016 to that effect.¹²²⁸ Although officials were privately expressing frustration at the delay, they were not conveying that to ministers.
- 10.59** On 19 April 2016 Lord Wharton approved the submission.¹²²⁹ He said that he remembered having raised the delay with officials at around that time but had been persuaded that the work needed to be done comprehensively.¹²³⁰

Lord Barwell becomes a junior minister: July 2016

- 10.60** On 17 July 2016, Gavin Barwell MP, now Lord Barwell, took over ministerial responsibility for the Building Regulations and remained in post until a few days before the Grenfell Tower fire. He had introductory briefings with each of the teams in his policy areas, including an initial briefing on 21 July 2016 from Bob Ledsome on the work of the Building Regulations and Energy Performance Division.¹²³¹ The introductory slides¹²³² used by Mr Ledsome as part of the briefing did not refer to the coroner’s recommendations or the Secretary of State’s response and Mr Ledsome did not discuss any matters relating to fire safety with the minister at that time.¹²³³ The new minister gained the impression that fire safety policy was working and that the number of fatalities from fires was decreasing.¹²³⁴

¹²²⁰ Wharton {Day258/117:17-23}.

¹²²¹ Wharton {CLG00034289/5-6} pages 5-6, paragraph 13.

¹²²² Wharton {CLG00030834/17} page 17, paragraph 40(b).

¹²²³ Harral {Day243/170:18}–{Day243/171:2}.

¹²²⁴ Wharton {CLG00034289/6} page 6, paragraph 14.

¹²²⁵ Harral {Day243/180:6-19}.

¹²²⁶ Harral {Day243/102:6-8}.

¹²²⁷ Harral {Day243/181:5-16}.

¹²²⁸ {CLG10007954}.

¹²²⁹ Wharton {CLG00030834/17} page 17, paragraph 40(c).

¹²³⁰ Wharton {Day258/133:2-24}.

¹²³¹ Barwell {CLG00030960/3} page 3, paragraph 10; Ledsome {CLG00019465/26} page 26, paragraph 96.

¹²³² {CLG00019362}.

¹²³³ Ledsome {CLG00019465/26} page 26, paragraph 96.

¹²³⁴ Barwell {CLG00030960/4} page 4, paragraph 13.

- 10.61** In mid-July 2016 Richard Harral proposed that a submission should be put up to ministers attaching the proposed discussion document on the simplification of the Building Regulations and seeking their agreement to start research into the “simplification, deregulation and maintenance of the Building Regulations”.¹²³⁵ However, he was told on 14 July 2016 by Simon Gallagher, the planning director, that the department should not be rushing to put things to new ministers¹²³⁶ and in the event it was not until the autumn of 2016 that further submissions were put up to ministers on those subjects. By that time the delay was causing considerable frustration within the division, particularly for Richard Harral, who described himself as “pretty despondent”.¹²³⁷
- 10.62** On 15 September 2016, Andrew Newton, an official in the division, put up a submission to Gavin Barwell seeking the minister’s agreement to procuring research contracts to support the simplification and deregulation [sic] of the Building Regulations.¹²³⁸ It indicated a completion date for the project of 31 May 2019.¹²³⁹ Again, no mention was made in the submission of the correspondence with the coroner.
- 10.63** Lord Barwell became aware of the coroner’s rule 43 letter during an oral briefing in the autumn of 2016, probably given to him by Steve Quartermain, the director, on 18 October 2016¹²⁴⁰ to enable him to answer questions in the House of Commons on 24 October 2016.¹²⁴¹ As part of that briefing Lord Barwell was given a note which said that in 2013 the coroner had recommended that the guidance in Approved Document B should be simplified.¹²⁴² The briefing note went on to state that Lord Pickles had said that the government would review Part B “during this parliament” and that that would include simplification where possible.¹²⁴³ As a comprehensive summary of the coroner’s recommendations and the department’s response it was clearly inadequate, but it had been produced for a limited purpose. Lord Barwell said that one or other of two briefings he had received from Mr Quartermain had led him to understand that three out of four of the coroner’s recommendations had been implemented by Lord Pickles when Secretary of State and that only the one relating to Part B of the Building Regulations remained outstanding.¹²⁴⁴ He understood that the three recommendations that had been implemented had been the most urgent¹²⁴⁵ and said it had been implicit in what he had been told that the remaining work was not urgent.¹²⁴⁶
- 10.64** Lord Barwell told us that if the briefing document had said that the review of Approved Document B had been promised to the coroner by March 2017, he would have realised the urgency of it. However, he had understood the reference to “this parliament” to mean the current parliament and that the deadline was therefore 2020.¹²⁴⁷ He said that he had accepted the advice he was given by officials that the outstanding matter would be

¹²³⁵ {CLG00019359/1}.

¹²³⁶ {CLG00019359/1}.

¹²³⁷ Harral {Day243/198:11-13}.

¹²³⁸ {CLG00019370}.

¹²³⁹ {CLG00019370/8-9}.

¹²⁴⁰ Barwell {CLG00030960/4} page 4, paragraph 11; Barwell {Day260/58:1-13}.

¹²⁴¹ Barwell {Day260/58:1-20}; Barwell {CLG00030960/4-5} pages 4-5, paragraphs 11 and 12.

¹²⁴² {CLG10008654/3}.

¹²⁴³ {CLG10008654/3}.

¹²⁴⁴ Barwell {CLG00030960/4} page 4, paragraph 12.

¹²⁴⁵ Barwell {CLG00034283/5} page 5, paragraph 11.

¹²⁴⁶ Barwell {Day260/116:22}-{Day260/117:11}.

¹²⁴⁷ Barwell {Day260/105:15}-{Day260/106:14}.

dealt with as part of a broader review of Building Regulations as soon as the Housing White Paper had been published.¹²⁴⁸ Apparently, he did not see the coroner’s letter or the Secretary of State’s response.¹²⁴⁹

- 10.65** However, on 15 November 2016 Lord Barwell did receive a letter from the Minister of State for Policing and the Fire Service, Brandon Lewis MP, which referred to the government’s longstanding commitment to review Approved Document B and reported that the Fire Sector Federation was concerned about a number of developments, including the increased use of combustible materials.¹²⁵⁰ Since that letter referred to a commitment on the part of Lord Pickles to the coroner, it should at the very least have prompted Lord Barwell to ask to see the coroner’s rule 43 letter and the Secretary of State’s response and that in turn should have prompted him to ask for an explanation for the delays which had occurred. Apparently, it did not.

Further delay in the publication of the discussion document

- 10.66** Obtaining ministerial approval for the discussion document was an important milestone because it effectively established the scope of the review of Approved Document B.¹²⁵¹ Brian Martin’s plan had been to publish the discussion document immediately after the new government had come into power, but he was not allowed to do that and the timetable drifted.¹²⁵² Richard Harral thought that the discussion document had been ready for publication in early October 2016, but he was told by Lord Barwell’s private office that the minister would not be looking at anything other than the highest priority submissions until the Housing and Planning White paper had been published. That White Paper had been originally scheduled for publication in late October or early November 2016 but in the event it was delayed and was not published until the middle of February 2017.¹²⁵³
- 10.67** On 23 March 2017, Richard Harral sent a final draft of the discussion document, and a submission seeking approval of the proposed scope of work,¹²⁵⁴ to Lord Barwell and the Secretary of State, Sajid Javid MP.¹²⁵⁵ The submission had been cleared by Bob Ledsome. Under the heading “Key risks and Issues” it said that in 2013 the coroner had criticised the guidance in Approved Document B and that in response Lord Pickles had committed the government to reviewing it. The submission sought approval for officials to publish the discussion document which would enable them to engage with industry representatives, including by convening working groups under the aegis of BRAC.¹²⁵⁶ Thereafter proposals would be provided to ministers with recommendations on what work to take forward.
- 10.68** Lord Barwell told us that the discussion document had not been published before the Grenfell Tower fire because the day after he approved the submission in the spring of 2017 a general election had been called.¹²⁵⁷ He explained that the department did not have sufficient capacity to deal with the Housing White Paper and the publication of the discussion document at the same time. He had not been told that the discussion document had originally been due to be published before the end of 2015, or that there

¹²⁴⁸ Barwell {CLG00030960/4} page 4, paragraph 13.

¹²⁴⁹ Barwell {Day260/111:2}.

¹²⁵⁰ {CLG00019380}.

¹²⁵¹ Harral {Day243/143:6-9}.

¹²⁵² Martin {Day255/104:15-18}.

¹²⁵³ Harral {Day244/19:20}-{Day244/20:15}.

¹²⁵⁴ {CLG00019391}.

¹²⁵⁵ {CLG00019392}.

¹²⁵⁶ {CLG00019392/5} paragraph 15.

¹²⁵⁷ Barwell {Day260/112:1-3}.

had been several delays before he had taken office.¹²⁵⁸ It is clear that by that time the department had lost sight of the urgency of the commitment made to the coroner and that everyone, including himself and the Secretary of State, had failed to appreciate how critical the work was.¹²⁵⁹

- 10.69** On 18 April 2017, Lord Barwell told his private office that the submission had been approved,¹²⁶⁰ but there is no record of that having been communicated to Bob Ledsome and his team. Both he and Richard Harral told us that they had not received approval of the proposal from Lord Barwell’s office.¹²⁶¹ Lord Barwell could not explain why the submission had not reached him in February 2017 as soon as the White Paper had been completed¹²⁶² and candidly accepted that the delay in publication of the discussion document had been wholly unsatisfactory.¹²⁶³
- 10.70** The policy of deregulation underwent a change in emphasis when the Rt Hon Theresa May MP became Prime Minister,¹²⁶⁴ but it was not abandoned and officials were not told that it had been relaxed.¹²⁶⁵ Although the Housing White Paper indicated a willingness in principle to impose new regulations where there was a case for making changes,¹²⁶⁶ by that time four years had passed since the coroner’s recommendations and little had been done in response.

Other work on fire safety

The seven workstreams

- 10.71** At the time of the Grenfell Tower fire in June 2017, not only had the discussion document on reform of the Building Regulations and building control system (including a review of Approved Document B) not been published, but the department had carried out very little other work in relation to fire safety, despite officials’ being aware that the guidance in the Approved Documents was somewhat incoherent¹²⁶⁷ and that there had been a lack of investment in them over a very extended period.¹²⁶⁸
- 10.72** A series of research papers (referred to as “the seven workstreams”) had been commissioned by Brian Martin for the department in 2012 to support a review of Approved Document B.¹²⁶⁹ They related to
1. Periods of fire resistance.
 2. Maximum fire compartment sizes.
 3. Construction details, roof voids, cavity barriers and fire and smoke dampers.
 4. Fire protection of basements and basement car parks.
 5. Sprinkler provisions.

¹²⁵⁸ Barwell {Day260/157:8-16}.

¹²⁵⁹ Barwell {Day260/130:14-19}.

¹²⁶⁰ {CLG00030961}; Barwell {Day260/214:16-17}.

¹²⁶¹ Ledsome {Day242/88:10-17}; Harral {Day244/22:3}-{Day244/23:4}.

¹²⁶² Barwell {Day 260/220:10-20}.

¹²⁶³ Barwell {Day 260/220:22}.

¹²⁶⁴ Barwell {Day260/81:14-24}.

¹²⁶⁵ Barwell {Day260/145:21-24}; {Day260/84:2-10}.

¹²⁶⁶ Barwell {Day260/87:22}-{Day260/89:1}.

¹²⁶⁷ Harral {Day243/99:15-23}.

¹²⁶⁸ Harral {Day244/37:16}-{Day244/38:1}.

¹²⁶⁹ Harral {CLG00019487/19-20} pages 19-20, paragraph 65; Martin {CLG00019469/15} page 15, paragraph 45.

6. Space separation.
7. Means of escape for disabled people.¹²⁷⁰

None of them specifically related to the spread of fire over external walls or the dangers posed by the use of combustible materials.

- 10.73** The research was delivered to the department in February 2015, but although ministers' approval for publication was sought in December 2015,¹²⁷¹ the research was not published until February 2019.¹²⁷²
- 10.74** It was important that the work was carried out and published before the technical review of the Building Regulations and Approved Document B was launched so that the department could engage properly with industry.¹²⁷³ Until officials had clearance to share it, the review could not begin.¹²⁷⁴ A number of those reports, including the report on means of escape for disabled people, had implications for the safety of life and the team was therefore anxious to put them in the public realm where they could start to have an effect.¹²⁷⁵ However, none of them was directed to the problem of fire spreading over external walls or the dangers posed by the use of combustible materials.¹²⁷⁶
- 10.75** Despite frustration on the part of officials at the delays in obtaining ministers' approval for the publication of the reports, none of the ministerial submissions put up by the officials emphasised the urgency. On the contrary, in each case the timing was marked "routine". None of the later submissions explained that approval had been outstanding for a long time.¹²⁷⁷ Nor did they make it clear that without the publication of the research the review of Approved Document B promised to the coroner could not be undertaken. Again, there were serious failures in communication between officials and ministers. Lord Barwell told us that it was "absurd" that it had taken four years for the research to be published after it had been provided to the department.¹²⁷⁸ We can only agree.
- 10.76** In addition, some ministers appeared to be under a misapprehension about the nature of the reports. Lord Pickles did not know that none of them related to the spread of fire over external walls. He merely assumed that, because the coroner had recommended it, the research would cover it, since he had accepted the coroner's recommendations.¹²⁷⁹ Stephen Williams was under the impression that the seven workstreams had been commissioned in response to the coroner's recommendations.¹²⁸⁰ He too was unaware that none of the workstreams dealt with the spread of fire over external walls or the refurbishment of older housing stock.¹²⁸¹

¹²⁷⁰ Harral {Day243/121:19}.

¹²⁷¹ Martin {CLG00019469/15} page 15, paragraph 45.

¹²⁷² Harral {Day243/126:20-22}.

¹²⁷³ Harral {CLG00019487/20-21} pages 20-21, paragraph 70.

¹²⁷⁴ Harral {Day243/120:6-12}.

¹²⁷⁵ Harral {Day244/186:23}–{Day244/187:14}. The report on means of escape for the disabled included a survey which was highly critical of the adequacy of means of escape guidance for disabled people: {CLG00006270/17}; Martin {Day257/156:8-12}.

¹²⁷⁶ Ledsome {Day241/192:3-4}.

¹²⁷⁷ {CLG10008140}; {CLG00019392}.

¹²⁷⁸ Barwell {Day260/137:22-23}.

¹²⁷⁹ Pickles {Day261/171:3-8}.

¹²⁸⁰ Williams {Day259/84:7}.

¹²⁸¹ Williams {Day259/138:21}.

Research on the spread of fire over external walls

- 10.77** In 2014, Brian Martin instructed BRE to carry out research on the spread of fire across the external walls of multi-storey buildings.¹²⁸² That was in addition to the work being done on the seven workstreams. The experimental research, managed principally by Dr Crowder and approved by Dr Smith, was completed in January 2015.¹²⁸³ It made its way into the public domain in a shorter form in April 2016 in the form of an article¹²⁸⁴ on the BRE website¹²⁸⁵ and in an industry journal.¹²⁸⁶ The article was less detailed than the research report itself but the findings remained.¹²⁸⁷ Published alongside the article was a second article covering background research into external fire spread with accompanying case studies.¹²⁸⁸
- 10.78** The experimental research purported to assess the performance of three different types of external spandrel panels (with glazing) in fire (“fire-resisting” panels, “Class 3” panels and “Class B-s2 d0” panels) using a test method similar to BS 8414 on a specially modified test rig.¹²⁸⁹ In fact, both the fire-resisting panels and the Class B-s2 d0 panels used in the tests had achieved those classifications as part of systems¹²⁹⁰ that were not used in BRE’s experiments, making the classifications meaningless. The panel referred to as national Class 3 was simply assumed to be Class 3.¹²⁹¹ In all three experiments, the glazing failed, the fire-resisting and Class B panels behaved in a similar manner and remained intact for the duration of the test and the Class 3 panels burned through.¹²⁹²
- 10.79** Even on the basis that it was a simple scoping study,¹²⁹³ as both Dr Crowder and Mr Martin told us,¹²⁹⁴ Dr Crowder accepted that the research had been flawed.¹²⁹⁵ He told us, however, that it had been carried out under difficult circumstances¹²⁹⁶ and would have been improved if greater resources and more time had been available.¹²⁹⁷ That was an understatement. In truth, both the research and the articles based on it were fundamentally flawed in almost every respect. The experiments had no properly defined purpose, did not test the materials they purported to test, were not carried out within proper parameters or in accordance with an approved method and were not subjected to any meaningful analysis. The background article was superficial at best and both the research and the articles were riddled with errors.¹²⁹⁸ In summarising the relevant provisions of the Building Regulations and Approved Document B, the background article repeated the technically incorrect language used by Dr Crowder and Mr Martin

¹²⁸² Crowder {Day230/129:1-10}; Martin {CLG00019469/30} page 30, paragraphs 88-89; Martin {CLG00019469/50} page 50, paragraph 141.

¹²⁸³ {BRE00043751}. Note that the report is dated January 2014 in error; Crowder {Day230/129:20}-{Day230/130:8}.

¹²⁸⁴ {CLG00019444}.

¹²⁸⁵ Martin {CLG00019469/30} page 30, paragraph 89.

¹²⁸⁶ Building Engineer magazine {CLG00031088}; Martin {CLG00019469/50} page 50, paragraph 142.

¹²⁸⁷ Crowder {Day230/133:3-9}.

¹²⁸⁸ {CLG00019445}.

¹²⁸⁹ {BRE00043751/3} paragraph 4.

¹²⁹⁰ {BRE00043751/10} paragraph 2.2; Crowder {Day230/200:7-20}; {Day230/202:21}-{Day230/203:14}.

¹²⁹¹ {BRE00043751/10} paragraph 2.2; Crowder {Day230/205:7}-{Day230/206:1}.

¹²⁹² {BRE00043751/35-36} paragraph 5.

¹²⁹³ {BRE00043751/3}; {BRE00043751/6} paragraph 1.2.

¹²⁹⁴ Crowder {BRE00043716/33-24} page 33, paragraph 105; Crowder {Day230/215:21}-{Day230/216:15}; Martin {Day257/162:16}-{Day257/163:7}; {Day257/164:6-23}.

¹²⁹⁵ Crowder {BRE00047668/47} page 47, paragraph 186; Crowder {Day230/147:19}-{Day230/148:14}.

¹²⁹⁶ Crowder {BRE00043716/74} page 74, paragraph 278; Crowder {Day230/220:9-22}.

¹²⁹⁷ Crowder {Day230/148:7}-{Day230/149:18}.

¹²⁹⁸ See for example {BRE00043751/35} paragraph 5, where the Class B panels were described as Class 0 panels; Crowder {Day230/209:11}-{Day230/210:13}; {CLG00019445/5} Case Study 3, where an acrylic render system was described as non-combustible; Crowder {Day230/174:18}-{Day230/175:9}; {Day230:181/5}-{Day230/182:1}; {CLG00019445/6}; Crowder {Day230/190:14-25}, where Dr Crowder accepted that none of the “potential risks” referred to are identified anywhere within the work.

at the Lakanal House inquests which confused the concepts of Class 0 classification and combustibility.¹²⁹⁹ Most significantly, it purported to reach the conclusion that there was adequate guidance available in the public domain to ensure that buildings were designed and constructed so that the spread of fire across the external surface and within the external façade was inhibited, as required by the Building Regulations.¹³⁰⁰ That conclusion could not, on any view, sensibly be drawn from any of the work that had been undertaken. We do not agree with Dr Crowder’s view that that conclusion (which, although he was listed as one of the article’s authors,¹³⁰¹ he told us he had not written)¹³⁰² was simply “too broad”.¹³⁰³ In fact, the work as a whole had no scientific or other value. The conclusion bore no relation to the work the BRE had actually carried out; it was unfounded and misleading. There was no basis on which Mr Martin could reasonably have regarded that research as supporting the view that the Building Regulations and statutory guidance were sufficient to minimise the danger of the spread of fire over external walls,¹³⁰⁴ even if, as he later explained, he had been really concerned only with matters of fire resistance.¹³⁰⁵

Usability study

- 10.80** The only other research carried out for the department during the period 2013 to 2017 was a usability study commissioned by Mr Martin in 2015 from RIBA Enterprises,¹³⁰⁶ the publishers of the Approved Documents.¹³⁰⁷ The objective of the project was to carry out a review of a number of the Approved Documents, including Approved Document B. However, it was not technical research or a review of the substantive content of the Approved Document.¹³⁰⁸ The study, which was carried out in various stages and included interviews with users of the document, was specifically limited to the way in which the content could best be delivered to users considering matters such as style, internal consistency, plain English and the development of a digital version.¹³⁰⁹

Engagement with the All-Party Parliamentary Group on Fire Safety

- 10.81** In the years before the Grenfell Tower fire the All-Party Parliamentary Group on Fire Safety had regular correspondence with the various ministers responsible for fire safety. In particular, following the Lakanal House inquests and between March 2014 and April 2017, the Group wrote to the department at least 14 times, raising concerns over the need to review Approved Document B and important matters affecting the safety of life.¹³¹⁰

¹²⁹⁹ {CLG00019445/3}; Crowder {Day230/160:22}-{Day230/162:21}.

¹³⁰⁰ {CLG00019444/9}.

¹³⁰¹ {CLG00019445/1}.

¹³⁰² Crowder {Day230/160:15-16}; {Day230/189:7-9}.

¹³⁰³ Crowder {Day230/214:3-19}.

¹³⁰⁴ Martin {CLG00019469/50} page 50, paragraph 142.

¹³⁰⁵ Martin {Day257/167:16}-{Day257/168:19}.

¹³⁰⁶ {CLG10006615/1}; Martin {Day255/24:20}-{Day255/25:8}.

¹³⁰⁷ Herral {Day243/92:25}-{Day243/93:1}.

¹³⁰⁸ Martin {Day255/25:9-12}; Ledsoe {Day241/130:8-10}; {Day241/195:8}-{Day241/196/10}.

¹³⁰⁹ {CLG10006383}; {CLG10006616/2}; {CLG10007016/1}; {CLG10007686/1}; {CLG00002962/1} an email from the afternoon of 14 June 2017 in which Brian Martin noted his concern about the use of the word “research” to describe the user survey in a draft press statement about the Grenfell Tower fire, commenting that this “may be overplaying it”.

¹³¹⁰ {CLG00019243}; {CLG00019248}; {CLG00011290}; {CLG00030867}; {CLG00019411}; {HOM00043035}; {CLG00019298}; {CLG10007860}; {CLG10008064}; {CLG00019334}; {CLG00019398}; {HOM00002220}; {CLG10009024}.

- 10.82** Throughout the correspondence some of the concerns raised by the Group displayed a prescience about what was later to occur at Grenfell Tower. They included the danger posed by the use of Class 0 as the sole criterion of suitability for external wall coverings,¹³¹¹ research that showed that Approved Document B was out of date,¹³¹² aspects of the guidance in Approved Document B that required immediate attention,¹³¹³ significant consequences for the safety of life if Approved Document B were not reviewed more quickly,¹³¹⁴ the increased use of combustible material,¹³¹⁵ the risk to life caused by the use of combustible materials,¹³¹⁶ the dangers created by the use of modern materials and methods of construction,¹³¹⁷ and the need to review Approved Document B in a timely manner.¹³¹⁸
- 10.83** The Group sent at least five letters to Stephen Williams between March 2014 and March 2015. He told us that he thought that the problem at Lakanal House had been that the windows had not been installed in compliance with the regulations and therefore the plastic had melted and run down the building.¹³¹⁹ It is possible that his misunderstanding of what had occurred influenced his approach to the matters being raised by the Group. Mr Williams could not be sure that he had read all the letters from the Group to which replies went out in his name because it was not his practice to do so in every case.¹³²⁰ Brian Martin told us that in each case he had provided the minister with a copy of the Group's letter and a draft reply and we have no reason to think otherwise.¹³²¹
- 10.84** Mr Williams told us that he thought that the All-Party Parliamentary Group had raised some reasonable points about the time for the review of Approved Document B and that he therefore wanted to meet them.¹³²² Brian Martin prepared a briefing note¹³²³ for the meeting, which took place on 17 June 2014.¹³²⁴ The correspondence reveals that before the meeting officials had been dismissive of the Group's concerns.¹³²⁵
- 10.85** On 5 August 2014, the Group sent a detailed letter to Stephen Williams identifying three ways in which they thought Approved Document B needed to be amended. The letter contained a long history of Class 0 and what they thought was wrong with it.¹³²⁶ However, Mr Williams' letter of reply was curt and dismissive. In essence it simply said that he had neither seen nor heard anything to suggest that consideration of specific potential changes to Approved Document B was urgent.¹³²⁷ That was despite the fact that he had never been given any advice on changes to Approved Document B which went beyond simplification of the wording.¹³²⁸ The response had been drafted by Brian Martin. His explanation was that none of the changes suggested by the Group had been consistent with government

¹³¹¹ {CLG00019243}.

¹³¹² {CLG00019248}.

¹³¹³ {CLG00011290}.

¹³¹⁴ {CLG00019298}.

¹³¹⁵ {CLG10007860}.

¹³¹⁶ {CLG10008064}.

¹³¹⁷ {CLG00019398}.

¹³¹⁸ {CLG10009024}.

¹³¹⁹ Williams {Day259/161:13-25}.

¹³²⁰ Williams {Day259/100:23}-{Day259/101:4}.

¹³²¹ Martin {CLG00019469/60} page 60, paragraph 173.

¹³²² Williams {Day259/114:11-22}.

¹³²³ Martin {CLG00019469/62-63} pages 62-63, paragraph 174(f).

¹³²⁴ All Party Parliamentary (Fire Safety & Rescue) Group Meeting Minutes dated 17 June 2014 {RKI00000012/3}.

¹³²⁵ {HOM00048451}.

¹³²⁶ {CLG00011290}.

¹³²⁷ {CLG00019439}.

¹³²⁸ Williams {CLG00034291/10} page 10, paragraph 19.

policy.¹³²⁹ Mr Williams told us that he regretted having sent that letter.¹³³⁰ He said that he had tried to soften its effect by adding a handwritten note to Sir David Amess that read “Happy to have a chat in the lobby, as always”.¹³³¹

- 10.86** Lord Wharton received at least four letters from the Group between September 2015 and February 2016. The first, from the late Sir David Amess MP, referred to the previous correspondence with Stephen Williams and pointed out that three matters of particular concern to the Group had been raised which it thought deserved immediate attention.¹³³² Lord Wharton replied on 23 October 2015 and agreed to meet the Group.¹³³³ Brian Martin briefed him before the meeting¹³³⁴ and provided him with a note of the meeting when it was over.¹³³⁵ Lord Wharton confirmed that at the meeting he had understood clearly that the Group considered that the guidance in Approved Document B was out of date and required revision, that the regulations themselves were incoherent and in places outmoded, and that a unified and all-encompassing system of regulation was required.¹³³⁶ Lord Wharton recalled raising the flammability of materials with officials but was told that the matter would be considered as part of the review of Approved Document B.¹³³⁷
- 10.87** Lord Wharton responded to the Group in writing on 6 January 2016 saying that he hoped to set out the government’s intentions regarding the Building Regulations in the next year.¹³³⁸ He agreed that his letter could have been more fulsome.¹³³⁹ Following another letter from the Group on 1 February 2016,¹³⁴⁰ he wrote again on 14 February 2016,¹³⁴¹ saying merely that he was sorry that the Group was unhappy and hoped that the department could continue to work closely with it. That was not a satisfactory response. Lord Wharton accepted that it had been curt, but said that it reflected his frustration, since he had instructed his officials to involve the Group in the review process and felt that its concerns were premature.¹³⁴²
- 10.88** However, the defensive and dismissive attitude of the department’s officials towards the All-Party Parliamentary Group was evident from their internal communications.¹³⁴³ In an email to Richard Harral on 16 March 2016 Brian Martin referred to the Group’s correspondence as “increasingly tetchy”¹³⁴⁴ but failed to acknowledge that it might have some justification in wanting to see progress with the review of Approved Document B. The internal communications at that time reveal that the department’s officials, particularly Brian Martin, were becoming tired of dealing with the constant stream of letters from the Group and as a result had become increasingly defensive and personal in their reactions. Unfortunately, that was not picked up by any of the more senior officials in the department.

¹³²⁹ Martin {CLG00019469/64} page 64, paragraph 174(h).

¹³³⁰ Williams {Day259/178:14}-{Day259/179:7}.

¹³³¹ Williams {Day259/178:22}-{Day259/179:3}.

¹³³² {CLG00019298}.

¹³³³ {CLG00019454}.

¹³³⁴ {CLG10007718}.

¹³³⁵ {CLG10008066}.

¹³³⁶ Wharton {CLG00034289/10} page 10, paragraph 23.

¹³³⁷ Wharton {CLG00034289/10} page 10, paragraph 24.

¹³³⁸ {CLG10007862}.

¹³³⁹ Wharton {Day258/181:11-15}.

¹³⁴⁰ {CLG10008064}.

¹³⁴¹ {CLG10008061}.

¹³⁴² Wharton {Day258/188:15-25}.

¹³⁴³ See Brian Martin’s comments on Ronnie King of the APPG in emails dated 8 December 2010 {CLG10004547}

“Bob Neill signed a slightly toned down version of my letter to Ronnie. Still quite funny though....”; Email dated 10 November 2014 {CLG00002824} “Ronnie will not listen to reason so I just ignore him”.

¹³⁴⁴ {CLG10008060}.

- 10.89** For his part, Lord Barwell received at least four letters from the Group between October 2016 and April 2017.¹³⁴⁵ Although he was aware that it had previously written to Lord Wharton, he was unaware that the correspondence had a much longer history.¹³⁴⁶ He ought to have been told about it by his officials. He also ought to have asked to see the earlier correspondence, or asked that someone review it to enable him to obtain a better appreciation of the strength of the Group’s concerns.¹³⁴⁷ He initially rejected a meeting with it¹³⁴⁸ on the advice of Brian Martin, on the basis that the discussion document was still outstanding at that time (as it was).¹³⁴⁹ Lord Barwell assumed that the Group’s concerns were being taken into account in formulating the discussion document and accepted the advice of his officials that it was better to have a meeting once that document had been drafted.¹³⁵⁰
- 10.90** Lord Barwell wrote to the Group again on 5 April 2017.¹³⁵¹ He went as far as to provide his telephone number so that it could arrange a meeting with him without further delay. In the event, no meeting occurred because a general election was called before it could take place.¹³⁵²
- 10.91** In the days immediately after the Grenfell Tower fire, Simon Ridley, the department’s Director General for Decentralisation and Growth, was instructed by Helen MacNamara to review the correspondence between the department and the All-Party Parliamentary Group. At her request, he provided her with his immediate impressions.¹³⁵³ He concluded that the Group had warned ministers about cladding and combustibility and about more general problems with modern construction materials, none of which had been acknowledged or addressed in the department’s responses.¹³⁵⁴ He was scathing in his criticism of the department, describing the correspondence as “appalling – delayed, partial and ... chaotic”.¹³⁵⁵ Having reviewed the correspondence, we agree with his assessment, even though it was made in haste and with a degree of hindsight after the fire.
- 10.92** The way in which the department dealt with the All-Party Parliamentary Group was unacceptable. Correspondence was lost, important matters were ignored, ministers either refused, or at any rate failed, to engage with the material or understand the serious issues being raised. They relied entirely on officials, who appeared to have been given almost free rein to decide on timing and policy, were dismissive both of the coroner and the MPs on the Group and displayed a marked lack of appetite to embark on a review of Approved Document B within a reasonable time. Mr Martin’s attitude is epitomised by his email to Anthony Maude¹³⁵⁶ in November 2014, commenting on the repeated requests for amendments to Approved Document B by Ronnie King, the Secretary to the All-Party Parliamentary Group, as follows: “Yes, he’s very annoying. Basically, we will not be changing the AD [Approved Document] as and when Ronnie asks – we’ll do it when we’re ready”.¹³⁵⁷ The department never did do it and was never ready. Its failure was profound.

¹³⁴⁵ Barwell {CLG00030960/11-12} pages 11-12, paragraphs 27-32. Gavin Barwell thought that the first letter did not arrive and therefore it was re-sent on 17 October 2016.

¹³⁴⁶ Barwell {CLG00030960/11} page 11, paragraph 27.

¹³⁴⁷ Barwell {Day260/182:4-10}.

¹³⁴⁸ {CLG10008717}.

¹³⁴⁹ Martin {CLG00019469/67-68} pages 67-68, paragraph 174(t).

¹³⁵⁰ Barwell {Day260/188:9}; {Day260/189:2-7}.

¹³⁵¹ {CLG00020106}.

¹³⁵² Barwell {CLG00030960/12} page 12, paragraph 32.

¹³⁵³ Ridley {CLG00034719/2-3} pages 2 and 3, paragraphs 5 and 10. Simon Ridley confirms in the latter paragraph of his statement that the work was carried out before 19 June 2017.

¹³⁵⁴ {CLG00030840/7}.

¹³⁵⁵ {CLG00030840/7}.

¹³⁵⁶ Maude {CLG00034279/1-2} pages 1-2, paragraphs 5-6, an official in the Fire and Resilience Directorate.

¹³⁵⁷ {CLG00002824}.

The management of the department

- 10.93** Between 2006 and 2015 the number of staff within the Building Regulations Division had been significantly reduced. In 2006 there had been 14 construction professionals and three Grade 6 civil servants in a division whose responsibilities were narrower than they later became. By 2015 that had fallen to five technical specialists and one Grade 6 official.¹³⁵⁸ As a result the department's capacity was significantly below that which some officials thought was really required.¹³⁵⁹ A ban on instructing consultants meant that it was no longer possible to engage experts to carry out key work, including the management of research programmes.¹³⁶⁰ Mr Harral did not feel able to raise the constraints on resources with senior management because the department's policy was to concentrate on manifesto commitments and legal requirements. He did not think that he would be able to obtain more staff until ministers had committed themselves to a plan of work for a review of the Building Regulations.¹³⁶¹ A shortage of staff also made it difficult for the department to engage with industry in a way that enabled it to develop the Building Regulations and the Approved Documents.¹³⁶² The department had neither the ability nor the capacity to issue practical guidance to industry because its systems for reviewing guidance had become obsolete.¹³⁶³
- 10.94** The Division's ability to recruit and retain qualified technical staff was significantly hampered both by insufficient salary levels and by the lengthy process involved in taking on new staff.¹³⁶⁴ One result of the increase in work and reduction in staff numbers was that the Building Regulations and Energy Performance Division felt itself to be something of a Cinderella. By 2015 and following further cuts to staff,¹³⁶⁵ the team was seriously overworked,¹³⁶⁶ and struggled to meet the demands of its very broad workload.¹³⁶⁷ It was under-valued and no longer able to be forward-looking.¹³⁶⁸ The team's sense that it was always at the back of the queue¹³⁶⁹ for submissions to be put up to ministers¹³⁷⁰ was acknowledged by Mr Ledsome, who recognised that it had been his responsibility to press for a fair allocation of the resources available to the department. Mr Ledsome accepted that in that respect he had failed to discharge his responsibilities as well as he would have wished.¹³⁷¹
- 10.95** Following the Lakanal House inquests, the engagement of the members of the Building Regulations and Energy Performance team with officials at director level was sporadic and with more senior officials virtually non-existent.¹³⁷² Before the Grenfell Tower fire, Dame Melanie Dawes, Permanent Secretary from March 2015 to 2020, had not met

¹³⁵⁸ Harral {Day243/144:17}-{Day243/145:4}. Richard Harral explained that the numbers of personnel had increased again since the Grenfell fire: Harral {Day243/145:4-7}.

¹³⁵⁹ Harral {Day243/145:8-15}; Ledsome {Day245/122:11}-{Day245/123:9}; Burd {Day240/195:8}-{Day240/196:4-5}.

¹³⁶⁰ Harral {Day243/145:16}-{Day243/146:5}.

¹³⁶¹ Harral {Day243/147:9}-{Day243/148:1}.

¹³⁶² Harral {Day243/124:18}-{Day243/125:3}; Ledsome {Day245/114:14-25}.

¹³⁶³ Harral {Day243/60:11}-{Day243/61:4}; {Day243/137:19-22}.

¹³⁶⁴ Ledsome {Day245/114:18-25}; {Day245/122:17}-{Day245/123:9}; Harral {Day243/17:4}-{Day245/18:16}; {Day243/191:24}-{Day243/192:8}.

¹³⁶⁵ Harral {Day243/17:4-16}; {Day243/143:15}-{Day243/147:7}.

¹³⁶⁶ Harral {Day243/172:10-22}.

¹³⁶⁷ Harral {Day243/102:21}-{Day243/103:4}; {Day243/20:24}-{Day243/21:13}; {Day243/64:21}-{Day243/65:6}; {Day243/91:4-11}; {Day243/101:25}-{Day243/103:4}; {Day243/144:17}-{Day243/147:7}; {Day244/55:16-23}.

¹³⁶⁸ Harral {Day243/11:23}-{Day243/12:1}; {Day244/144:5-9}.

¹³⁶⁹ Harral {Day243/11:11}; {Day243/12:25}.

¹³⁷⁰ Harral {Day243/11:12-14}.

¹³⁷¹ Ledsome {Day245/116:21}-{Day245/117/14}.

¹³⁷² Harral {Day243/12:18-22}.

any members of the team and had very little knowledge of its work.¹³⁷³ She had not heard of Lakanal House or the coroner's recommendations.¹³⁷⁴ Dame Melanie confirmed that both she and Helen MacNamara, Director General from September 2016 to 2018, should have been made aware of the coroner's recommendations.¹³⁷⁵ She put the omission down to the fact that somehow their importance had not been appreciated by the team and to the fact that the department did not have a system for monitoring recommendations. She said that as a result, the team had lost sight of how important they were.¹³⁷⁶

10.96 All that strongly suggests a failure of leadership within the department at the highest levels stretching back over some years. Dame Melanie said that she had been struck by the fact that her predecessors appeared to have had no inkling of the problems that had started to appear when she was in post.¹³⁷⁷ The fact that some of the most senior officials were not aware how demoralised and demotivated the Building Regulations team were is indicative of serious structural defects. Although Mr Ledsome must bear considerable responsibility for failing to communicate effectively with those above him, the most senior officials in the department ought to have been aware of the failure of the more junior officials to take effective action in response to the coroner's recommendations within the time indicated by the Secretary of State in May 2013. They ought also to have realised that the deference paid to Brian Martin by those around him in relation to technical aspects of the Approved Documents, his sense of ownership of Approved Document B and the absence of any proper peer review of his work all stood in the way of critical thinking and were obstacles to progress. Senior officials should have taken a closer interest in the working of a small, but important, part of the department that was responsible for significant matters affecting the safety of life.

¹³⁷³ Dawes {Day249/30:7}-{Day249/31:19}.

¹³⁷⁴ Dawes {Day249/69:13-17}.

¹³⁷⁵ Dawes {Day249/73:1-4}.

¹³⁷⁶ Dawes {Day249/73:7-14}.

¹³⁷⁷ Dawes {CLG00030839/6-7} pages 6-7, paragraph 18.

Chapter 11

Combustible cladding: warnings to government

11.1 Between 2012 and 2017 the government received warnings from many sources about the use of combustible materials in the construction of the external walls of high-rise buildings. They included specific warnings about the risks posed by polymeric insulation products and aluminium composite cladding products with unmodified polyethylene cores. However, the government failed to provide guidance on how to avoid the dangers posed by the use of combustible materials or to take any other action in response to the warnings it had received. As a result an increasing number of high-rise buildings were constructed using dangerous materials.

2012–2013: international cladding fires

11.2 Throughout the period from 2012 to 2017 Brian Martin was the department’s principal construction professional¹³⁷⁸ and primary custodian of Approved Document B.¹³⁷⁹ On 17 and 18 May 2012, he received emails from Dr David Crowder of the BRE attaching links to news reports, including video footage, of a fatal cladding fire that had occurred on 14 May 2012 at Mermoz Tower, an 18-storey block of flats in Roubaix, France.¹³⁸⁰ In his response to that email, sent to Sir Ken Knight, Louise Upton and Anthony Burd, Mr Martin described the video as “pretty alarming” and expressed the view that a construction of that kind would probably not be in accordance with the Building Regulations.¹³⁸¹ Mr Martin said “probably”, because he did not have enough information at the time to determine whether the building’s façade would have complied with functional requirement B4(1) of the Building Regulations.¹³⁸² He said that he had had a limited amount of time to look into the fire and that he did not think he had discovered until after the fire at Grenfell Tower that Mermoz Tower had been clad in aluminium composite panels with polyethylene cores.¹³⁸³ Anthony Burd did not consider carrying out a review to find out whether any buildings in this country had been constructed using similar materials.¹³⁸⁴ He said that he had not had the time or the information necessary to do so.¹³⁸⁵

11.3 On 5 December 2012, following another cladding fire on 18 November 2012 at Tamweel Tower, a residential high-rise building in Dubai, Mr Martin and Mr Burd received an email from Sam Greenwood at BRE,¹³⁸⁶ in which he compared the fire at Tamweel Tower to the fire at The Edge in Salford in January 2005.¹³⁸⁷ Mr Martin may already have been aware at that time of the Tamweel Tower fire and of the fact that it had involved aluminium composite cladding with a polyethylene core.¹³⁸⁸ When responding to Mr Greenwood’s

¹³⁷⁸ Martin {CLG00019469/1} page 1, paragraph 2.

¹³⁷⁹ Martin {Day252/206:3-7}.

¹³⁸⁰ {CLG00019178}; {CLG00019179}; Martin {CLG00019469/36-37} pages 36-37, paragraph 109.

¹³⁸¹ {CLG00019179}.

¹³⁸² Martin {CLG00019469/36-37} pages 36-37, paragraph 109.

¹³⁸³ Martin {Day252/107:16-25}.

¹³⁸⁴ Burd {Day240/151:1-6}.

¹³⁸⁵ Burd {Day240/153:2-7}; {Day240/152:6-17}.

¹³⁸⁶ Sam Greenwood was a consultant at BRE, reporting to Martin Shipp, and had investigated the fire at the Edge in January 2005 alongside Dr Colwell: Shipp {BRE00047594/82} page 82, paragraph 461; Colwell {BRE00047571/44} page 44, paragraph 270.

¹³⁸⁷ {CLG00019192}. For the details of that fire see Chapter 8.

¹³⁸⁸ Martin {Day252/111:12-16}.

email he remarked on what he described as the “awesome” power of the fire in the videos he had seen of the event.¹³⁸⁹ However, it was his view that such a fire could not occur in this country¹³⁹⁰ because he understood that people were following the guidance in paragraphs 12.5 and 12.7 of the 2006 version of Approved Document B.¹³⁹¹ The purpose of paragraphs 12.5 and 12.7 had been to encourage people to think beyond insulation¹³⁹² and he had thought that the guidance they contained was both adequate and sufficiently well understood to prevent a fire of that kind occurring here.¹³⁹³

November 2013 to January 2014: questions from BRE

- 11.4** Brian Martin did not become aware that the application of section 12 of Approved Document B was causing difficulties in practice until late 2013.¹³⁹⁴ The construction of external walls had not been a prominent feature of his work before that.¹³⁹⁵ The first time he was asked about the meaning of paragraph 12.7 was on 25 November 2013,¹³⁹⁶ when he received an email from Tony Baker of BRE,¹³⁹⁷ who told him that BRE was receiving an increasing number of inquiries about the interpretation of Diagram 40 and paragraphs 12.6 and 12.7 of Approved Document B. Mr Baker hoped to reach a general understanding with the department so that BRE could give consistent advice to those who contacted it. Mr Baker referred to a debate that had arisen within the construction industry about how paragraph 12.7 and Diagram 40 were intended to apply to boards used as the outer layer of an external wall. He suggested that a definition of the words “finish” (paragraph 12.6) and “filler” (paragraph 12.7) would help to clarify the matter.¹³⁹⁸
- 11.5** In response Mr Martin said that he thought it was reasonable¹³⁹⁹ to interpret those paragraphs as meaning that a homogenous¹⁴⁰⁰ board that was Euroclass B would be fine,¹⁴⁰¹ in that all of it could be classed as a “surface” and therefore need not be of limited combustibility, but that a composite board was subject to the guidance on limited combustibility in paragraph 12.7.¹⁴⁰²
- 11.6** Mr Martin told us that the question Mr Baker had raised was not one that he and Mr Burd had considered in 2006 when drafting the amendment to paragraph 12.7 of Approved Document B,¹⁴⁰³ but that in his view, Mr Baker’s assessment of the relevant provisions¹⁴⁰⁴ was accurate,¹⁴⁰⁵ in that paragraph 12.6 directed readers to consider the surface of a wall while paragraph 12.7 directed readers to consider materials below the surface.¹⁴⁰⁶ The obvious difficulty with that explanation, however, is that paragraph 12.7 did

¹³⁸⁹ {CLG00019192}; Martin {CLG00019469/37} paragraph 110; Martin {Day252/110:1}-{Day252/111:3}.

¹³⁹⁰ Martin {CLG00019469/37} page 37, paragraph 110; Martin {Day252/110:20}-{Day252/112:1}.

¹³⁹¹ Martin {Day252/111:4-10}.

¹³⁹² Martin {Day252/112:5-7}.

¹³⁹³ Martin {Day252/112:17}-{Day252/113:13}.

¹³⁹⁴ Martin {Day252/158:12-14}.

¹³⁹⁵ Martin {Day252/159:9-11}.

¹³⁹⁶ Martin {Day252/184:3-6}; Martin {Day253/23:6-10}.

¹³⁹⁷ {CLG10005895}.

¹³⁹⁸ {CLG10005895/2-3}.

¹³⁹⁹ Martin {Day252/188:21-23}.

¹⁴⁰⁰ Defined in EN 13501 as “a product consisting of a single material, having uniform density and composition throughout the product”: {BSI00001738/10} paragraph 3.1.3.

¹⁴⁰¹ {CLG10005895/2}.

¹⁴⁰² Martin {Day252/188:15-20}; {CLG10005895/2}.

¹⁴⁰³ Martin {Day252/190:1-15}.

¹⁴⁰⁴ {CLG10005895/1}.

¹⁴⁰⁵ Martin {CLG00019469/39-40} pages 39-40, paragraph 116; Martin {Day253/5:4-19}.

¹⁴⁰⁶ Martin {Day252/198:7-17}; Martin {Day253/6:14-15}; {Day253/7:10-15}.

no such thing.¹⁴⁰⁷ Instead, it directed readers in clear terms, both by the heading and the text, to consider insulation materials. Perhaps unsurprisingly, Mr Baker was not satisfied with Mr Martin's responses¹⁴⁰⁸ and asked for a meeting in order to resolve the matter.¹⁴⁰⁹

- 11.7** A meeting subsequently took place between Mr Baker, Dr Colwell and Mr Martin on 30 January 2014.¹⁴¹⁰ Neither Mr Baker¹⁴¹¹ nor Mr Martin could remember much, if anything, about it¹⁴¹² but Dr Colwell recalled that Mr Martin had accepted that paragraph 12.7 could have been written more clearly.¹⁴¹³
- 11.8** Despite having been made aware that there was uncertainty in the construction industry about the meaning and effect of paragraphs 12.6 and 12.7 of Approved Document B, Mr Martin took no steps to provide clarification. Mr Martin does not appear to have been troubled by the fact that the provisions were not well understood¹⁴¹⁴ and did not ask BRE who had been raising questions.¹⁴¹⁵ Nor did he ask how many there were or how often they were received. In short, he made no attempt to understand how those paragraphs of the guidance were being understood by those who had to use it.
- 11.9** Mr Martin saw no need to tell his managers that there was a problem that required attention in one form or another,¹⁴¹⁶ apparently because he did not consider it to be urgent¹⁴¹⁷ or particularly significant. He did not, therefore, raise it with Richard Harral, who by January 2014 had replaced Anthony Burd as Head of Technical Policy,¹⁴¹⁸ or with his Deputy Director, Mr Ledsome.¹⁴¹⁹ Both told us that they would have expected him to draw to their attention matters of the kind that were being raised by BRE.¹⁴²⁰ Instead, Mr Martin proceeded on the basis that the questions that BRE was receiving showed that the guidance was making people think broadly.¹⁴²¹ In any event, he did not consider himself to be the ultimate arbiter of the meaning of any particular part of the guidance,¹⁴²² the function of which, in his view, was to help people to make their own judgments about what was required to comply with the functional requirements of the Building Regulations.¹⁴²³ He also thought that industry was producing its own guidance on how to comply with functional requirement B4.¹⁴²⁴
- 11.10** Although Dr Colwell thought that Mr Martin had taken BRE's concerns seriously,¹⁴²⁵ neither she nor Mr Baker thought that the question they had raised had received a definitive answer.¹⁴²⁶ He told them that the matter would be picked up in the next review

¹⁴⁰⁷ Martin {Day253/7:16-25}.

¹⁴⁰⁸ Baker {BRE00043700/8-9} pages 8-9, paragraph 45.

¹⁴⁰⁹ {CLG10005895/1}; Martin {Day253/15:14-19}.

¹⁴¹⁰ {CLG10005953}; Baker {BRE00043700/14} page 14, paragraphs 72-75; Colwell {Day233/160:9-13}.

¹⁴¹¹ Baker {BRE00043700/15} page 15, paragraphs 78-82.

¹⁴¹² Martin {CLG00019469/39-40} pages 39-40, paragraph 116; Martin {Day253/24:21-23}.

¹⁴¹³ Colwell {Day233/164:25}-{Day233/165:4}.

¹⁴¹⁴ Martin {Day252/191:6-12}.

¹⁴¹⁵ Martin {Day252/182:24}-{Day252/183:2}.

¹⁴¹⁶ Martin {Day253/29:8-14}; {Day253/30:20-23}.

¹⁴¹⁷ Martin {Day253/20:20}-{Day253/21:3}.

¹⁴¹⁸ Harral {CLG00019487/1} page 1, paragraph 3.

¹⁴¹⁹ Martin {Day252/185:22-24}; Martin {Day253/29:8-14}; Harral {Day244/72:15-19}; Ledsome {Day242/190:19-23}.

¹⁴²⁰ Harral {Day244/74:23}; {Day244/74:14-15}; Ledsome {Day242/194:8-12}.

¹⁴²¹ Martin {Day252/193:18}-{Day252/194:10}.

¹⁴²² Martin {Day252/200:7}-{Day252/201:3}.

¹⁴²³ Martin {Day252/194:11-18}.

¹⁴²⁴ Martin {CLG00019469/54} page 54, paragraph 155; Martin {Day252/166:10-22}.

¹⁴²⁵ Colwell {Day233/162:2-6}.

¹⁴²⁶ Baker {BRE00043700/15} page 15, paragraph 83; Colwell {Day233/165:10-14}.

of Approved Document B,¹⁴²⁷ which he envisaged would start a year later, when the department's work on the Housing Standards Review had been completed.¹⁴²⁸ In the event, however, that did not happen.

An FAQ?

- 11.11** From time to time the department published on its website answers to “Frequently Asked Questions”, which themselves became known as “FAQs”.¹⁴²⁹ It seems likely that the possibility of clarifying the meaning and scope of paragraph 12.7 by publishing an FAQ had been raised at the meeting.¹⁴³⁰ Under certain circumstances that could be done without the need for any formal process of review.¹⁴³¹

More international cladding fires

- 11.12** Following the fires in the United Arab Emirates in 2012 and 2013, Dr Colwell had travelled to Dubai several times to work with the authorities there on revising their fire safety codes¹⁴³² and was aware that those fires had involved aluminium composite cladding panels with polyethylene cores.¹⁴³³ She said that she had discussed some of them with Mr Martin during the meeting in January 2014. He did not recall that but we think it likely the subject was raised on that occasion.¹⁴³⁴
- 11.13** Mr Martin could remember being aware in 2014 of some, but not all, of the fires involving aluminium composite material with a polyethylene core that had occurred abroad between 2012 and 2014.¹⁴³⁵ For example, he did recall the fire at the Lacrosse building in Melbourne in November 2014, but said that he had only limited information about it at the time.¹⁴³⁶ None of those fires appears to have led to anything more than brief conversations with his former colleagues at BRE,¹⁴³⁷ though he appears to have had no discussions about them at all with Mr Harral, to whom by January 2014 he reported within the department.¹⁴³⁸ His knowledge of the use of aluminium composite panels with polyethylene cores in other countries and the fires associated with them did not cause Mr Martin to ask himself whether similar materials might be in use in this country.¹⁴³⁹ It did not occur to him that uncertainty about the meaning of paragraph 12.7 of Approved Document B might have led some designers, contractors and building control officers to accept the use of materials that were dangerous and did not consider that to be a major problem.¹⁴⁴⁰
- 11.14** Equally, Mr Martin had made no connection at the time between the use of aluminium composite panels with polyethylene cores and the large-scale test carried out on a system incorporating similar material under contract cc1924 in 2001,¹⁴⁴¹ even though Mr Baker had referred to those tests in the email he had sent to him asking about the meaning of

¹⁴²⁷ Colwell {Day233/160:19-25}; {Day233/164:17-19}; Baker {BRE00043700/15} page 15, paragraph 83.

¹⁴²⁸ Martin {Day253/25:25}-{Day253/26:4}.

¹⁴²⁹ Harral {Day243/60:24}-{Day243/61:7}; {Day244/46:25}-{Day244/47:4}; Ledsome {Day241/181:15-21}. For an example of an FAQ in relation to Approved Document B {CLG10000003}.

¹⁴³⁰ Baker {BRE00043700/15} page 15, paragraphs 82-83.

¹⁴³¹ Harral {Day244/41:14-20}; Ledsome {Day242/158:2-16}.

¹⁴³² Colwell {Day233/208:18}-{Day233/210:10}.

¹⁴³³ Colwell {Day233/54:23}-{Day233/55:3}; {Day233/208:14-16}.

¹⁴³⁴ Martin {Day252/118:7-11}.

¹⁴³⁵ Martin {Day252/114:6}-{Day252/115:4}.

¹⁴³⁶ Martin {Day252/114:9-14}; {Day252/115:10-14}.

¹⁴³⁷ Martin {Day252/117:21}-{Day252/118:6}.

¹⁴³⁸ Harral {Day244/79:12}-{Day244/80:25}.

¹⁴³⁹ Martin {Day252/118:22-24}.

¹⁴⁴⁰ Martin {Day252/193:11-18}.

¹⁴⁴¹ Martin {Day252/118:25}-{Day252/119:24}. See Chapter 7.

paragraph 12.7 on 3 December 2013.¹⁴⁴² Mr Martin said that he had thought that at the time of the 2001 tests aluminium composite panels with polyethylene cores were new products, not generally in use in the UK construction industry, and that if they had been in widespread use at the time of the test they would not have continued to be used following it.¹⁴⁴³ However, it is difficult to understand how he could have thought that, given that the results of those tests were not published until many years later.

February 2014: Wintech's intervention

- 11.15** On 7 February 2014, Chris Macey, a director¹⁴⁴⁴ of Wintech Ltd, a façade and engineering consultancy,¹⁴⁴⁵ contacted the department by email to express concern about the use of combustible insulation in high-rise buildings. He also drew attention to what he saw as a conflict between the guidance in Approved Document B on the use of insulation materials in the external walls of high-rise buildings and the requirement in Part L of Schedule 1 to the Building Regulations¹⁴⁴⁶ to make reasonable provision for the conservation of fuel and power by limiting heat loss through the fabric of buildings.¹⁴⁴⁷ In an email to Paul Decort, an official in the Building Regulations Division leading on sustainability,¹⁴⁴⁸ that was sent on to Brian Martin on 10 February 2014 Mr Macey warned that a number of major developers, contractors and manufacturers were ignoring the requirements of Part B¹⁴⁴⁹ and asked for a meeting with officials to discuss the matter.¹⁴⁵⁰ Within twenty minutes of receiving the email, however, Mr Martin had decided that there was no need to pursue the matter.¹⁴⁵¹
- 11.16** Mr Martin said that the department had neither the resources nor the authority to carry out an investigation of the kind suggested by Mr Macey.¹⁴⁵² At any rate, he did not give any consideration to a potential conflict between the provisions of Parts B and L of Schedule 1 to the Building Regulations¹⁴⁵³ and did not ask Mr Macey for further information about the practices he had referred to.¹⁴⁵⁴ Indeed, it appears that he did not respond in any way to Mr Macey's message.¹⁴⁵⁵

April 2014: discussions with BRE

- 11.17** On 24 April 2014 Mr Martin received an invitation by email¹⁴⁵⁶ from Brenda Apted¹⁴⁵⁷ of the Centre for Window and Cladding Technology (CWCT)¹⁴⁵⁸ to attend a meeting to discuss various aspects of fire and facades. In her message, she explained that the CWCT had recently received a number of inquiries, including about the use of combustible insulation

¹⁴⁴² {CLG10005895/1}.

¹⁴⁴³ Martin {Day252/120:14-18}.

¹⁴⁴⁴ Macey {WIN00000005/1} page 1, paragraph 1.

¹⁴⁴⁵ Taylor {WIN00000002/1} page 1, paragraph 1.

¹⁴⁴⁶ Part L and Approved Document L, Conservation of Fuel and Power, set standards for energy efficiency in new and existing buildings.

¹⁴⁴⁷ {CLG10006010/2-3}.

¹⁴⁴⁸ Martin {Day253/31:24}-{Day253/32:4}.

¹⁴⁴⁹ {CLG10006010/3}.

¹⁴⁵⁰ {CLG10006010/3}.

¹⁴⁵¹ {CLG10006010/2}.

¹⁴⁵² Martin {Day253/42:12-15}; {Day253/44:9-11}.

¹⁴⁵³ Martin {Day253/41:13-16}.

¹⁴⁵⁴ Martin {Day253/42:16-24}.

¹⁴⁵⁵ Macey {WIN00000005/35} page 35, paragraph 111.

¹⁴⁵⁶ {CLG00031072}.

¹⁴⁵⁷ Brenda Apted was the Centre for Window and Cladding Technology's office manager: Metcalfe {Day228/47:17-18}.

¹⁴⁵⁸ The Centre for Window and Cladding Technology is a not-for-profit research and technical organisation formed in the 1980s. The organisation produces guidance and training materials on various aspects of facades with the aim of improving standards in the façade industry: Metcalfe {Day228/4:4-24}; Metcalfe {CWCT0000115/2} page 2, paragraphs 6-8.

in rainscreen facades and the fire performance of aluminium composite rainscreen materials. One of the topics for discussion at the meeting was to be the adequacy of the existing regulations. Mr Martin suggested that Dr Colwell might be interested and said he would assist where he could. He copied her into his reply.¹⁴⁵⁹

- 11.18** On 24 April 2014¹⁴⁶⁰ Brenda Apted sent an email to Dr Colwell inviting her to the meeting. Dr Colwell sent it on to Dr Debbie Smith and others in BRE, including Mr Baker and Stephen Howard.¹⁴⁶¹ Dr Smith was clearly alarmed at the CWCT's involvement, which she saw as threatening BRE's pre-eminence in the field of fire safety.¹⁴⁶² Indeed, she referred in the same internal email chain to the CWCT as a potential threat.¹⁴⁶³ Dr Smith said she could not remember why she had reacted in that way,¹⁴⁶⁴ but it is clear that her primary concern at the time was a desire to protect BRE's commercial position. It is equally clear both from that internal BRE email correspondence¹⁴⁶⁵ and from Dr Colwell's evidence,¹⁴⁶⁶ that BRE was continuing to receive questions from industry about the meaning and scope of paragraph 12.7 of Approved Document B.

2 July 2014: the CWCT meeting

- 11.19** The meeting of the CWCT's Fire Group took place on 2 July 2014. Dr Colwell attended, as did Brian Martin, David Metcalfe and Alan Keiller of the CWCT, Chris Mort of Siderise, Ivor Meredith of Kingspan and others from across the industry and various interested associations.¹⁴⁶⁷ Mr Martin was present for only part of the meeting,¹⁴⁶⁸ but he did receive the minutes¹⁴⁶⁹ and read them.¹⁴⁷⁰ They recorded discussions about two important matters: the use of aluminium composite material on high-rise buildings and the relationship between limited combustibility and Class 0.
- 11.20** At the meeting discussions proceeded on the common understanding that aluminium composite material normally consisted of two skins of aluminium separated by a polyethylene core and generally obtained a national Class 0 or Euroclass B classification. That was referred to as "the normal material". It was recognised that there had been several cladding fires in various countries where such material had been responsible for external fire spread.¹⁴⁷¹ Someone appears to have said that paragraph 12.7 of Approved Document B was intended to prohibit the use of such material in buildings over 18 metres in height because it was not of limited combustibility, but that the wording did not make that clear, particularly because the heading referred to insulation materials and products. It was accepted that the expression "filler materials" could refer to the core but it was thought that that was not clear either.¹⁴⁷²

¹⁴⁵⁹ {CLG00031072/1}.

¹⁴⁶⁰ {BRE00047459/2}.

¹⁴⁶¹ In April 2014 Stephen Howard was business group manager for the BRE's Passive Fire Group: Howard {BRE00005771/2} page 2, paragraph 6.

¹⁴⁶² {BRE00047459/1}.

¹⁴⁶³ {BRE00047459/1}.

¹⁴⁶⁴ Smith {Day237/50:3-4}; {Day237/50:22}-{Day237/51:3}; {Day237/56:15}; {Day237/58:8-21}.

¹⁴⁶⁵ {BRE00047459/2} "This is something we need to be aware of and should consider being involved with because of the increasing number issues (sic), similar to those identified below, which we are being asked by industry"; {BRE00047459/1} "The problem is now the issues we are seeing in the industry..."

¹⁴⁶⁶ Colwell {Day233/172:19}-{Day233/173:13}.

¹⁴⁶⁷ For a full list of those who attended, see {CLG00019336/1}.

¹⁴⁶⁸ CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/4} third paragraph.

¹⁴⁶⁹ Martin {CLG00019469/41} page 41, paragraph 119.

¹⁴⁷⁰ Martin {Day253/51:7-14}.

¹⁴⁷¹ CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/3} under the heading "Use of ACM on high rise buildings".

¹⁴⁷² CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/4} second paragraph.

- 11.21** Mr Martin was not present for that part of the meeting.¹⁴⁷³ When he read the minutes, it did not occur to him that the reference to “the normal material”¹⁴⁷⁴ might indicate that it was being used widely in this country,¹⁴⁷⁵ or, for that matter, in any other part of the world.¹⁴⁷⁶ All he understood from that part of the minutes was that different types of aluminium composite panels were available in this country.¹⁴⁷⁷ Despite the heading of that paragraph (“Use of ACM on high rise buildings”),¹⁴⁷⁸ Mr Martin said that he had not realised that aluminium cladding panels with combustible cores might be in use on high-rise buildings in this country.¹⁴⁷⁹
- 11.22** Mr Martin noted that at least one person present had, in his view, correctly understood that the word “filler” had been intended to prohibit the use of aluminium composite panels with polyethylene cores on high-rise buildings,¹⁴⁸⁰ but that was to ignore both the fact that wording of paragraph 12.7 was not thought to be clear¹⁴⁸¹ and also the fact that the minutes referred to another possible interpretation of the clause, namely, that the word “filler” applied to *all* materials other than those specifically excluded, i.e. gaskets and sealants, and therefore included breather membranes.¹⁴⁸²
- 11.23** Mr Martin did not know who had put forward what he regarded as the correct interpretation of the expression “filler material” and did not take any steps to find out.¹⁴⁸³ It did not occur to him that others at the meeting might have disagreed with that interpretation or that it might have been new to them¹⁴⁸⁴ and was not concerned by the fact that the matter was being debated by a group of professionals seven years after the publication of the text.¹⁴⁸⁵ He said that until he read the minutes of the meeting in July 2014 it had not crossed his mind that the use of the word “insulation” in the heading of paragraph 12.7¹⁴⁸⁶ might lead readers to think that the paragraph was directed specifically to insulation.¹⁴⁸⁷ We find that hard to believe.
- 11.24** A number of building professionals who had attended the meeting said that they had been surprised by the suggestion that the word “filler” in paragraph 12.7 had been intended to apply to the core of a composite cladding panel,¹⁴⁸⁸ which did not accord with their own understandings of the provision.¹⁴⁸⁹ David Metcalfe could not recall anyone else at the meeting agreeing¹⁴⁹⁰ with what Mr Martin considered to be the correct interpretation

¹⁴⁷³ Martin {CLG00019469/41-42} pages 41-42, paragraph 119(c); Martin {Day253/63:6-8}; Metcalfe {Day228/81:12-18}.

¹⁴⁷⁴ CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/3} penultimate paragraph.

¹⁴⁷⁵ Martin {Day253/54:6-16}; Metcalfe {Day228/82:2-18}.

¹⁴⁷⁶ Martin {Day253/54:17-22}.

¹⁴⁷⁷ Martin {Day253/55:9-10}.

¹⁴⁷⁸ CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/3}.

¹⁴⁷⁹ Martin {Day253/55:24}-{Day253/56:1}.

¹⁴⁸⁰ CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/4} second paragraph.

¹⁴⁸¹ CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/4} second paragraph.

¹⁴⁸² CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/4} first paragraph under the heading “Breather membranes”; Martin {Day253/78:12}-{Day253/79:16}.

¹⁴⁸³ Martin {Day253/100:9-21}.

¹⁴⁸⁴ Martin {Day253/102:21}-{Day253/103:11}.

¹⁴⁸⁵ Martin {Day253/102:13-20}.

¹⁴⁸⁶ {CLG10000005/99}.

¹⁴⁸⁷ Martin {Day253/104:1-12}.

¹⁴⁸⁸ Taylor {WIN00000002/56} page 56, paragraphs 126-127. We note that Stuart Taylor, Technical Director at Wintech, having read paragraph 12.7 and been unsure of its intended meaning, had checked the matter with Dr Colwell shortly after the publication of the 2007 edition of Approved Document B and that it was her advice that formed the basis of his understanding of the meaning and scope of the paragraph.

¹⁴⁸⁹ Metcalfe {CWCT0000115/10-12} pages 10-12, paragraphs 36, 40 and 41; Metcalfe {Day228/90:1-5}; {Day228/91:3-12}; Hepworth {LMD00000001/1} page 1, paragraph 2(b); Rowan {AFP00000002/4-16} pages 4-16 and page 16, paragraphs 2(b)-(d) and paragraph 7(d).

¹⁴⁹⁰ Metcalfe {Day228/91:13-15}.

of paragraph 12.7,¹⁴⁹¹ which he and others said had been put forward by Dr Colwell.¹⁴⁹² Mr Metcalfe also said that he could not recall having spoken to any construction professional who thought that paragraph 12.7 applied to anything other than insulation.¹⁴⁹³ Mr Martin made no attempt following the meeting to find out whether aluminium composite panels with combustible cores had been or were currently being installed on high-rise buildings in this country.¹⁴⁹⁴ It seems that he did not pay a great deal of attention to the minutes at the time.¹⁴⁹⁵

- 11.25** During the discussion someone suggested that the meaning and scope of paragraph 12.7 of Approved Document B could be clarified by the publication of an FAQ on the department’s website and Dr Colwell agreed to raise the matter with Mr Martin.¹⁴⁹⁶ In the event, she failed to do so in circumstances we describe below. Nonetheless, when no draft arrived, Mr Martin did not take the matter up with her.¹⁴⁹⁷ In effect, he forgot about it¹⁴⁹⁸ and as a result the department did not consider publishing any clarification of paragraph 12.7 before the fire at Grenfell Tower.¹⁴⁹⁹

Brian Martin’s reaction

- 11.26** Brian Martin told us that he had not deliberately ignored the significance or seriousness of the possible use of ACM panels on the external walls of high-rise buildings or the uncertainty within some sections of the construction industry about the meaning of paragraph 12.7,¹⁵⁰⁰ but that he had underestimated their importance.¹⁵⁰¹ He also failed to make a connection between the matters under discussion and the test that had been carried out some years earlier using aluminium composite panels under contract cc1924. He did not discuss what had been said at the CWCT meeting or the contents of the minutes with Mr Harral or Mr Ledsome¹⁵⁰² because he saw no need to do so.¹⁵⁰³ Neither of them was made aware, therefore, that members of the CWCT’s fire group were all of the view that the meaning of paragraph 12.7 of Approved Document B was unclear.¹⁵⁰⁴ In our view Mr Martin should have taken the matter more seriously and should at least have informed his immediate superiors that there was a problem that required attention.
- 11.27** We find it difficult to understand why Mr Martin did not appreciate the significance of the discussions or the potential consequences of the use of ACM panels for the safety of those living in high-rise buildings. If he saw the discussion as an opportunity to improve compliance,¹⁵⁰⁵ it is surprising that he took no steps to clarify the guidance. His failure

¹⁴⁹¹ Metcalfe {CWCT0000115/11} page 11, paragraph 40.

¹⁴⁹² Metcalfe {CWCT0000115/10} page 10, paragraph 36; Hepworth {LMD00000001/5} page 5, paragraph 7(a); Taylor {WIN00000002/73} page 73, paragraph 175. See also Colwell {Day233/199:16}-{Day233/200:5}; Martin {Day253/101:21}-{Day253/102:7}.

¹⁴⁹³ Metcalfe {CWCT0000115/11} page 11, paragraph 40.

¹⁴⁹⁴ Martin {Day253/54:23}-{Day253/55:2}; {Day253/67:19-24}.

¹⁴⁹⁵ Martin {Day253/59:19-20}.

¹⁴⁹⁶ CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/4} third paragraph.

¹⁴⁹⁷ Martin {Day253/121:21}-{Day253/122:3}.

¹⁴⁹⁸ Martin {Day253/121:24}-{Day253/122:3}; {Day253/126:7-16}.

¹⁴⁹⁹ Martin {Day253/120:22}-{Day253/121:2}.

¹⁵⁰⁰ Martin {Day253/58:22-23}; {Day253/59:3-6}; {Day253/59:10-20}; {Day253/62:11-12}; {Day253/65:7-12}; {Day253/64:3-8}; {Day253/65:8-12}; {Day253/66:20-25}; {Day253/68:7-9}; {Day253/104:21}-{Day253/105:4}; {Day253/132:9-21}.

¹⁵⁰¹ Martin {Day253/112:9-17}.

¹⁵⁰² Martin {Day253/62:8-12}; {Day253/116:16-19}; Harral {Day244/77:8-13}; {Day244/84:21-23}; Ledsome {Day241/208:1-7}; {Day242/195:10-12}; {Day242/198:11-15}; {Day242/200:14}-{Day242/201:1}.

¹⁵⁰³ Martin {Day253/116:24}.

¹⁵⁰⁴ Ledsome {Day242/200:14-18}; Harral {Day244/81:23}-{Day244/82:13}; Martin {Day253/131:20}-{Day253/132:7}.

¹⁵⁰⁵ Martin {Day253/68:7-9}.

to alert more senior officials in the department to the discussions fell short of the response that could be expected of the person with day-to-day responsibility for the Building Regulations and Approved Document B.

Dr Colwell and the FAQ

- 11.28** Although at the CWCT meeting on 2 July 2014 Dr Colwell had said that she would speak to Brian Martin about the publication of an FAQ to clarify the meaning of paragraph 12.7, in the event she failed to do so.¹⁵⁰⁶ After the meeting she tried to draft something suitable¹⁵⁰⁷ but in discussions with her colleagues, including Dr Smith,¹⁵⁰⁸ she formed the view that, if there was going to be a review of Approved Document B in the near future, it would be better to deal with the matter as part of that review.¹⁵⁰⁹ By August or September 2014¹⁵¹⁰ Dr Colwell and Dr Smith had reached a decision not to produce a draft FAQ for consideration by Mr Martin,¹⁵¹¹ but Dr Colwell did not tell him of that. She and her colleagues knew that he had received the minutes of the meeting and knew that he was aware that the work needed to be done, so they decided not to pursue it.¹⁵¹² None of the others who had attended the meeting on 2 July 2014 were told about the decision not to draft an FAQ.¹⁵¹³ The CWCT had thought that a draft would be produced quickly¹⁵¹⁴ and was waiting for Dr Colwell to provide it, while growing increasingly frustrated as the months passed.¹⁵¹⁵ It seems that she did not regard it as a matter of much importance, either.
- 11.29** That is perhaps surprising, because Dr Colwell had been well aware of the startling results of the test carried out on aluminium composite panels under contract cc1924.¹⁵¹⁶ The product had been offered to BRE for testing under that programme because the extent of its use made testing of interest to the construction industry.¹⁵¹⁷ In addition, she had been engaged in recent work on cladding fires with authorities in the United Arab Emirates following fires involving the same kind of material.¹⁵¹⁸ She could therefore not have been unaware of the risk to life its use on high-rise buildings presented in the event of fire. Having said that she would produce a draft FAQ, it is therefore hard to see why she did nothing at all, even if she and others at BRE had not realised at the time that aluminium composite panels were already being used on high-rise buildings in this country.¹⁵¹⁹ Dr Colwell had a longstanding professional relationship with Brian Martin and could have pursued the matter with him at any time. She could at least have told him that BRE would not be providing a draft.
- 11.30** In fact, Dr Colwell misled the CWCT about the preparation of a draft FAQ. She did not respond¹⁵²⁰ to an email from Stuart Taylor of Wintech on 7 July 2014 which referred to “great confusion” about the meaning of paragraph 12.7 and to her agreement to draft an

¹⁵⁰⁶ Colwell {Day233/204:3-8}.

¹⁵⁰⁷ Colwell {Day233/205:13-15}; {Day233/218:13-19}; {Day233/219:17}-{Day233/220:7}.

¹⁵⁰⁸ Colwell {Day233/205:21}-{Day233/206:4}.

¹⁵⁰⁹ Colwell {Day233/204:9-18}.

¹⁵¹⁰ Colwell {Day233/206:23}-{Day233/207:7}.

¹⁵¹¹ Colwell {Day234/27:21}-{Day234/28:5}.

¹⁵¹² Colwell {Day233/221:25}-{Day233/222:12}.

¹⁵¹³ Colwell {Day233/206:18-21}; {Day234/13:9-19}.

¹⁵¹⁴ Metcalfe {Day228/115:17-18}; {Day228/116:6-7}; {Day228/116:19-23}; {Day228/117:24}-{Day228/118:2}; {Day228/137:1-5}; {CWCT0000040/2}.

¹⁵¹⁵ Metcalfe {Day228/120:12}-{Day228/121:2}; {Day228/121:9-13}; {Day228/141:11-12}; {Day228/142:11}-{Day228/143:3}; {Day228/148:6-18}.

¹⁵¹⁶ Colwell {Day232/97:21-23}.

¹⁵¹⁷ Colwell {Day232/95:14}-{Day232/96:11}.

¹⁵¹⁸ Colwell {Day233/208:18}-{Day233/210:10}.

¹⁵¹⁹ Colwell {Day233/213:5-10}.

¹⁵²⁰ Colwell {Day234/7:9-13}.

FAQ to clarify it.¹⁵²¹ Dr Colwell, together with Stephen Howard and possibly Mr Baker,¹⁵²² met Mr Taylor and Alan Keiller of the CWCT on 8 September 2014 to discuss the matter.¹⁵²³ Inexplicably, although by the date of that meeting BRE was having second thoughts about producing a draft,¹⁵²⁴ she did not tell anyone else that. Mr Keiller’s recollection was that it had been agreed that the matter would be dealt with by way of an FAQ.¹⁵²⁵ Mr Taylor recalled the same outcome, specifically that BRE had confirmed that it would prepare some draft wording.¹⁵²⁶

- 11.31** However, after the meeting Dr Colwell simply did nothing. As late as 13 March 2015, five months after she and Dr Smith had decided that BRE would not produce a draft FAQ, she sent a brief response to an email from David Metcalfe asking about progress,¹⁵²⁷ in which she referred to a note that she said would be finished soon and circulated so that others could comment on it.¹⁵²⁸ Dr Colwell told us that that was a reference to some draft wording for a revised version of Approved Document B, not for an FAQ,¹⁵²⁹ but we are not convinced that that was how it was intended to be understood. After that exchange, Dr Colwell failed to reply to five further emails from Mr Metcalfe.¹⁵³⁰ She had no real explanation for that¹⁵³¹ and accepted that she should have responded to them.¹⁵³²

A missed opportunity to clarify Approved Document B

- 11.32** In our view, in the absence of any draft from Dr Colwell Mr Martin could and should have taken action himself. If, as he told us, the words “filler material” had been added to paragraph 12.7 to restrict the use of cladding panels with combustible cores on buildings over 18 metres in height,¹⁵³³ that was a good reason for him to take careful note and at the very least to have reported to Mr Harral the fact that there was disagreement about its meaning. The CWCT meeting on 2 July 2014 should have prompted him to find out how paragraph 12.7 was understood. He told us that he wished he had done that but that he had not thought of it at the time.¹⁵³⁴
- 11.33** The discussion at the CWCT meeting had produced some important information,¹⁵³⁵ both because it showed that the meaning of paragraph 12.7 was unclear to many and because the material being discussed had been linked to a series of major fires.¹⁵³⁶ Mr Martin should have reported the problem to Mr Harral,¹⁵³⁷ which would have prompted a serious discussion about whether to refer it to more senior officials or the minister.¹⁵³⁸ Mr Martin, Mr Harral and Mr Ledsome all thought that an FAQ could have been published without

¹⁵²¹ {BRE00016101/2}.

¹⁵²² Colwell {Day234/10:6-10}; Taylor {WIN00000002/84} page 84, paragraph 203; Colwell {Day234/10:24}-{Day234/11:1}.

¹⁵²³ Keiller {CWCT0000119/7} page 7, paragraph 25; Colwell {Day234/10:3-5}; Taylor {WIN00000002/84} page 84, paragraph 203.

¹⁵²⁴ Colwell {Day234/12:16}-{Day234/13:2}.

¹⁵²⁵ Keiller {CWCT0000119/7} page 7, paragraph 26.

¹⁵²⁶ Taylor {WIN00000002/84} page 84, paragraph 204(10).

¹⁵²⁷ {CWCT0000040/2}.

¹⁵²⁸ {CWCT0000040/1}.

¹⁵²⁹ Colwell {Day234/18:16-20}; {Day234/19:8-10}.

¹⁵³⁰ {CWCT0000116}; Metcalfe {CWCT0000115/14} page 14, paragraph 48; Metcalfe {Day228/146:16-19}; Colwell {Day234/22:9}-{Day234/23:2}.

¹⁵³¹ Colwell {Day234/19:12-15}; {Day234/22:6-8}.

¹⁵³² Colwell {Day234/23:9-14}.

¹⁵³³ See Chapter 7.

¹⁵³⁴ Martin {Day253/84:13-21}.

¹⁵³⁵ Harral {Day244/82:19-23}.

¹⁵³⁶ Harral {Day244/84:8-12}.

¹⁵³⁷ Harral {Day244/82:14-18}; {Day244/84:18-20}.

¹⁵³⁸ Harral {Day244/84:24}-{Day244/85:6}.

any particular difficulty,¹⁵³⁹ although it would have to be approved by the department’s lawyers and political advisers. Mr Ledsome also said that in an appropriate case a definition could be added to the glossary attached to Approved Document B.¹⁵⁴⁰ It was the task of Mr Martin, as the official with primary responsibility for that area of policy, to assess the nature and urgency of the problem and decide whether an FAQ was justified.¹⁵⁴¹ If he thought it was, he should have raised it with Mr Harral or Mr Ledsome.¹⁵⁴² There was no formal process for doing that, even if he considered the matter to be urgent.¹⁵⁴³ In the event, however, the question of producing an FAQ did not arise because Dr Colwell failed to provide a draft for Mr Martin’s consideration and Mr Martin did not act on his own initiative.

- 11.34** Neither Mr Harral nor Mr Ledsome was aware of questions or concerns raised with Mr Martin unless he chose to tell them,¹⁵⁴⁴ which, since he was responsible for matters affecting the safety of life, was unsatisfactory and potentially dangerous. In our view a more senior official, probably Mr Ledsome, should have obtained regular reports from Mr Martin about current developments in the construction industry and the way in which the Building Regulations and guidance were operating. The absence of a reporting system created an obvious risk that a single busy official might either overlook the importance of something or simply fail to act on it. Although we think that in July 2014 Mr Martin should have drawn the minutes of the meeting on 2 July 2014 to the attention of Mr Harral and Mr Ledsome, the department’s awareness or otherwise of a serious risk to public safety should not have depended on whether one official recognised it and acted appropriately upon it.

The confusion between Class 0 and limited combustibility

- 11.35** The second important subject of discussion at the CWCT meeting on 2 July 2014 was the relationship between limited combustibility and Class 0. Paragraph 12.7 of Approved Document B said that only insulation materials of limited combustibility should be used in the external walls of buildings over 18 metres in height, but some of those present said that other materials, principally foil-faced phenolic foam, were often used in rainscreen constructions. It seems to have been accepted that in some cases, probably through ignorance, some people were confusing Class 0 with limited combustibility. In other cases, building control officers were permitting the use of Class 0 materials, making it difficult for cladding consultants to insist on the use of insulation of limited combustibility.¹⁵⁴⁵ Mr Martin was present during that discussion¹⁵⁴⁶ and had sent an email to NHBC on that very subject earlier that day.¹⁵⁴⁷

¹⁵³⁹ Martin {Day253/125:9}-{Day253/126:6}; Harral {Day244/43:3-18}; {Day244/86:4}-{Day244/87:3}; Ledsome {Day242/204:14-25}.

¹⁵⁴⁰ Ledsome {Day242/191:11-25}.

¹⁵⁴¹ Harral {Day244/42:19}-{Day244/43:7}; {Day244/45:2-8}; Ledsome {Day242/159:3-11}; {Day242/160:8-14}.

¹⁵⁴² Ledsome {Day245/30:2-4}; Ledsome {Day242/196:3-5}; Harral {Day244/87:12-15}.

¹⁵⁴³ Harral {Day244/44:25}-{Day244/45:8}; {Day244/54:11}-{Day244/55:14}; {Day244/111:7-23}; Ledsome {Day242/195:22}-{Day242/196:5}.

¹⁵⁴⁴ Martin {Day253/132:22}-{Day253/133:3}.

¹⁵⁴⁵ CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/3} under the heading “Combustibility of insulation”.

¹⁵⁴⁶ Martin {Day253/134:4-6}; Martin {CLG00019469/42} page 42, paragraph 120.

¹⁵⁴⁷ {NHBC00000712/3}.

11.36 That appears to have been the first time that Mr Martin had become aware of any confusion between limited combustibility and national Class 0¹⁵⁴⁸ or that anyone could consider that polymer foam was a material of limited combustibility,¹⁵⁴⁹ which he regarded as implausible.¹⁵⁵⁰ He was surprised¹⁵⁵¹ and concerned¹⁵⁵² by both, but he did not ask any of those who attended the meeting for further information.¹⁵⁵³ Mr Martin had recently attended a meeting at Arup Fire on 25 June 2014 to discuss fire and facades, including the use of combustible materials.¹⁵⁵⁴ The discussion had touched on the definitions of non-combustibility and limited combustibility¹⁵⁵⁵ and there may also have been some discussion about the use of combustible insulation in the external walls of buildings over 18 metres in height.¹⁵⁵⁶

2 July 2014: Brian Martin’s friendly warning

11.37 The matters discussed at that meeting may have been the catalyst for the email Brian Martin sent to Neil Smith of NHBC on 2 July 2014.¹⁵⁵⁷ He described the purpose of the email as a “friendly warning” and told Mr Smith that he had heard from relatively reliable sources that buildings over 18 metres in height, including blocks of flats, had been clad in PIR (polyisocyanurate) insulation on the basis of an erroneous view that such insulation was a material of limited combustibility. He asked Mr Smith to check the matter with his inspectors.¹⁵⁵⁸ Mr Martin told us that in sending that message he had been fishing for information;¹⁵⁵⁹ he had not known at the time whether combustible insulation was being widely used in a way that did not comply with Approved Document B.¹⁵⁶⁰ NHBC’s carefully considered response, which was sent by Steve Evans on 11 July 2014,¹⁵⁶¹ confirmed that that was the case and that NHBC had been in discussion with industry, in particular Kingspan, about the use of Kooltherm K15 on high-rise buildings for some time.¹⁵⁶² That came as a surprise to Mr Martin.¹⁵⁶³

NHBC’s response

11.38 When he responded, Mr Evans informed Brian Martin of a number of important matters. First, he told him that Kingspan was asserting that K15, a combustible phenolic foam insulation material,¹⁵⁶⁴ was suitable for use on buildings over 18 metres in height. Secondly, he said that since 27 October 2008, K15 had held a BBA certificate stating that it was acceptable for use in accordance with paragraph 12.7 of Approved Document B, subject only to advice being sought from Kingspan for use on buildings over 18 metres in

¹⁵⁴⁸ Martin {Day253/135:15}-{Day253/136:1}.

¹⁵⁴⁹ Martin {Day253/136:25}-{Day253/137:9}.

¹⁵⁵⁰ Martin {Day253/136:22-24}.

¹⁵⁵¹ Martin {Day253/136:2-3}.

¹⁵⁵² Martin {Day253/136:22}.

¹⁵⁵³ Martin {Day253/138:16-22}.

¹⁵⁵⁴ {CLG00031777}.

¹⁵⁵⁵ Smith {Day237/74:7-10}.

¹⁵⁵⁶ Smith {Day237/76:21-25}.

¹⁵⁵⁷ Martin {Day253/147:2-10}; {Day253/147:24}-{Day253/148:4}.

¹⁵⁵⁸ {NHB00000712/3}.

¹⁵⁵⁹ Martin {Day253/150:16-19}.

¹⁵⁶⁰ Martin {Day253/156:20}-{Day253/157:1}.

¹⁵⁶¹ As to which, see Chapter 26.

¹⁵⁶² {CLG00000686}.

¹⁵⁶³ Martin {Day253/157:7-8}.

¹⁵⁶⁴ See Chapter 26.

height.¹⁵⁶⁵ It was on the basis of that BBA certificate, he said, that NHBC inspectors had been accepting K15 for use on high-rise buildings, including blocks of flats. Mr Evans also mentioned in his email that there existed an LABC Registered Details Certificate for K15 approving the material for use in the external walls of buildings over 18 metres in height.¹⁵⁶⁶

- 11.39** Mr Evans also said that a revised BBA certificate for K15 dated 17 December 2013 did not refer to paragraph 12.7 of Approved Document B. Instead, it stated that K15 had been tested for use in the external walls of buildings over 18 metres in height only in one particular construction on masonry walls.¹⁵⁶⁷ Mr Evans attached both the previous¹⁵⁶⁸ and the (then) current BBA certificates to his email.¹⁵⁶⁹ He said that NHBC had approached Kingspan which was in the process of carrying out further tests, the results of which were expected at the beginning of August 2014.¹⁵⁷⁰ Mr Evans also said that if those tests did not prove that K15 was suitable for use on buildings over 18 metres in height on anything other than the one masonry system tested to BS 8414, NHBC planned to tell the industry and others who were interested that it was no longer suitable for use on high-rise buildings.
- 11.40** Thirdly, Mr Evans assured Mr Martin that there was no reason to suspect that buildings that had been built with Kingspan K15 were at risk at that time.¹⁵⁷¹ That statement was clearly wrong, as Mr Martin, Mr Harral and Mr Ledsome should have realised immediately. It betrayed a fundamental misunderstanding of the purpose and nature of the regulations and guidance. It was quite wrong to suggest that a widespread failure to comply with the guidance on fire safety created no risk simply because future tests *might* show that none existed. On the contrary, without test evidence to show that K15 could be used safely in the external walls of high-rise buildings, there was every reason to suspect the existence of a real and immediate risk and every reason to take action.

The department's reaction

- 11.41** Concerned that there might be a significant problem,¹⁵⁷² Mr Martin sent the email from Mr Evans on to Richard Harral and Bob Ledsome on the same day with the comment that “If it is a problem, some blocks may need to have their cladding replaced. (possibly a lot of them)”.¹⁵⁷³ Having discussed the matter, they decided that the best course was to wait and see what NHBC found out.¹⁵⁷⁴ They did not decide how long they should wait,¹⁵⁷⁵ it seems that all three of them took some comfort from the assertion by NHBC that there was probably no real risk¹⁵⁷⁶ and that Kingspan’s testing would resolve the problem.¹⁵⁷⁷ Mr Martin thought it possible that the question might be academic rather than represent a genuine safety problem.¹⁵⁷⁸

¹⁵⁶⁵ That was not correct. The original BBA certificate, issued on 27 October 2008 {BBA00000038}, contained no reference to the use of K15 in accordance with paragraph 12.7 of Approved Document B. That wording was first introduced in Amended Issue 1, dated 6 April 2010 {BBA00000037}.

¹⁵⁶⁶ {CLG00000686/1}.

¹⁵⁶⁷ {CLG00000686/1}.

¹⁵⁶⁸ {CLG00000688}.

¹⁵⁶⁹ {CLG00000687}.

¹⁵⁷⁰ {CLG00000686/1}.

¹⁵⁷¹ {CLG00000686/2}.

¹⁵⁷² Martin {Day253/167:24}-{Day253/168:1}; Martin {CLG00019469/43} page 43, paragraph 124.

¹⁵⁷³ {CLG00000686/1}.

¹⁵⁷⁴ Martin {Day253/187:12-15}; {Day253/188:10-12}; {Day253/190:22}-{Day253/191:6}; {Day253/192:23}; {Day253/193:5-6}; {Day254/14:13-18}; {Day254/16:12-25}; {Day253/213:11-12}; Martin {CLG00019469/43} page 43, paragraph 124; Ledsome {CLG00019465/57} page 57, paragraph 220; Ledsome {Day242/211:22}-{Day242/212:7}; Harral {Day244/93:4-11}.

¹⁵⁷⁵ Martin {Day253/191:7-10}; {Day253/193:7-11}.

¹⁵⁷⁶ Martin {Day253/179:11-17}; {Day253/189:20-21}.

¹⁵⁷⁷ Martin {Day253/173:19-21}; {Day253/180:1-3}.

¹⁵⁷⁸ Martin {Day253/190:4-10}.

Contact with the BBA

- 11.42** The only action the department itself took in relation to the matter was to contact John Albon at the BBA. In an email to Mr Albon, sent on the day he received the message from Mr Evans, Mr Martin asked him to find out how the previous BBA certificate had stated that K15 satisfied paragraph 12.7 of Approved Document B, which he described as a “serious safety matter”.¹⁵⁷⁹ When Mr Albon responded on 16 July 2014, he told Mr Martin that the reference to paragraph 12.7 had been an unfortunate and rare oversight that had not been repeated in any other certificates.¹⁵⁸⁰ In response Mr Martin asked Mr Albon to summarise the systems the BBA had put in place to ensure that the error would not be repeated and to confirm whether or not the BBA had notified Kingspan of it.¹⁵⁸¹
- 11.43** Mr Albon’s response on 23 July 2014 evaded the latter question, saying only that he expected that Kingspan would have been made aware of the matter. Mr Martin did not press for an answer, as he should have.¹⁵⁸² Mr Albon went on to say that it was extremely unlikely that anyone had inferred from the wording of the 2010 revision of the certificate that K15 was a material of limited combustibility.¹⁵⁸³ As Mr Martin agreed, that was nonsense.¹⁵⁸⁴ It could not reasonably have meant anything else.¹⁵⁸⁵ Nonetheless, the department did not pursue the matter with the BBA.¹⁵⁸⁶ Both Mr Martin and Mr Ledsome were satisfied with its assurances that the error had been an isolated occurrence.¹⁵⁸⁷ It did not occur to Mr Martin to ask how such a fundamental error in a BBA certificate had come about.¹⁵⁸⁸ In our view he should have pursued the matter.
- 11.44** Mr Martin read the BBA certificates for K15 that Mr Evans had attached to his email on 11 July 2014,¹⁵⁸⁹ as did Mr Harral and Mr Ledsome.¹⁵⁹⁰ Mr Martin was concerned by the reference to paragraph 12.7 in the earlier certificate dated 6 April 2010.¹⁵⁹¹ He accepted that he had realised immediately that the assertion that a combustible foam could be used in accordance with paragraph 12.7 was a fundamental error.¹⁵⁹² However, he did not appear to be particularly alarmed, as we think he plainly should have been, by the fact that NHBC had not spotted that error and had considered itself to be bound by the contents of the certificate¹⁵⁹³ over the course of several years.

The department’s omissions: K15

- 11.45** However many BS 8414 tests Kingspan planned to carry out in the future, they could never have established that K15 was generally suitable for use in the external walls of buildings over 18 metres in height, as Mr Martin accepted.¹⁵⁹⁴ Moreover, they could not establish that it was suitable for use on buildings already completed unless a replica of each

¹⁵⁷⁹ {BBA00000178/3}.

¹⁵⁸⁰ {BBA00000178/2}.

¹⁵⁸¹ {BBA00000178/2}.

¹⁵⁸² Martin {Day253/208:18}-{Day253/209:3}.

¹⁵⁸³ {BBA00000178/1}.

¹⁵⁸⁴ Martin {Day253/211:4-21}.

¹⁵⁸⁵ See Chapter 22.

¹⁵⁸⁶ Martin {Day253/209:24}.

¹⁵⁸⁷ Martin {CLG00019469/44} page 44, paragraph 126; Ledsome {CLG00019465/57-58} pages 57-58, paragraphs 221-222; Ledsome {Day242/219:4-25}.

¹⁵⁸⁸ Martin {Day253/206:22}-{Day253/207:20}.

¹⁵⁸⁹ Martin {Day253/166:2-8}.

¹⁵⁹⁰ Harral {Day244/89:10-15}; Ledsome {Day242/206:25}-{Day242/207:9}; Ledsome {Day245/3:21}-{Day245/4:6}.

¹⁵⁹¹ Martin {Day253/167:22-24}.

¹⁵⁹² Martin {Day253/167:9-21}; {Day253/168:11-21}.

¹⁵⁹³ Marshall {Day225/101:25}-{Day225/102:14}; Evans {NHBC00003020/17} page 17, paragraph 52; Martin {Day253/196:13-20}.

¹⁵⁹⁴ Martin {Day253/177:11-15}.

system were subjected to large-scale testing. The department did not know how many of those buildings there were, because it did not ask and it did not occur to it to do so.¹⁵⁹⁵ Mr Martin presumed that there were a significant number of buildings affected, possibly about one hundred.¹⁵⁹⁶

- 11.46** Mr Ledsome’s confidence that the NHBC had got a grip on the issue¹⁵⁹⁷ was wholly unjustified and we cannot accept that Mr Harral was right in thinking that the department had done all it could.¹⁵⁹⁸ Despite the fact that all three of them appeared to acknowledge that the matter was, at least potentially, a serious safety issue,¹⁵⁹⁹ none of them referred it to anyone more senior.¹⁶⁰⁰ They did not ask for advice or speak to anyone else about it.¹⁶⁰¹ They took no steps to alert the industry to what they had learnt.¹⁶⁰² Mr Ledsome, who also managed a separate policy team that had oversight of the building control system,¹⁶⁰³ did not notify it that building control officers had been accepting a combustible insulation material as generally suitable for use on buildings over 18 metres in height for some considerable time.¹⁶⁰⁴
- 11.47** Their omissions did not end there. They neither sought to obtain a copy of the LABC certificate to which Mr Evans had referred in his email nor contacted the LABC to find out how it had been possible to issue a certificate approving the use of a combustible insulation material in the external walls of buildings over 18 metres in height.¹⁶⁰⁵ That was despite the fact that in late 2009 Mr Martin had received two letters from Larry Cody of Rockwool alerting the department to that claim and to the fact that the certificate stated that K15 could be considered a material of limited combustibility.¹⁶⁰⁶ Mr Martin could not recall having received those letters¹⁶⁰⁷ but said that, if he had read them, he would have considered the matter to be one for the LABC, Rockwool and Kingspan to deal with. In his view it was not the function of the department to police the system.¹⁶⁰⁸
- 11.48** None of the officials warned any building control organisation, other than NHBC, against approving the use of K15 on high-rise buildings, even when it became clear from Mr Evans’ response that other bodies had also been accepting it.¹⁶⁰⁹ Mr Martin thought that, as the largest building control organisation, NHBC was well-resourced¹⁶¹⁰ and had taken the lead by talking to others, including the Building Control Alliance (BCA)¹⁶¹¹ about it.¹⁶¹² However,

¹⁵⁹⁵ Martin {Day253/184:16-21}; {Day253/187:25}-{Day253/188:6}; Ledsome {Day245/10:24}-{Day245/11:4}; Martin {Day254/16:5-14}.

¹⁵⁹⁶ Martin {Day253/187:16-24}; {Day253/189:7-13}.

¹⁵⁹⁷ Ledsome {Day245/7:20-25}.

¹⁵⁹⁸ Harral {Day244/100:5-9}.

¹⁵⁹⁹ Harral {Day244/92:14-16}; {Day244/137:13-16}; Ledsome {Day242/211:4-6}; {BBA00000178/3}; Martin {Day253/167:24}-{Day253/168:1}; {Day253/198:24}-{Day253/199:11}.

¹⁶⁰⁰ Harral {Day244/92:17-19}; Ledsome {Day242/211:7-8}.

¹⁶⁰¹ Harral {Day244/100:14-22}; {Day244/138:22}-{Day244/139:2}.

¹⁶⁰² Ledsome {Day242/216:23}; Martin {Day253/153:1-18}.

¹⁶⁰³ Ledsome {Day245/20:19}-{Day245/21:3}.

¹⁶⁰⁴ Ledsome {Day245/21:25}-{Day245/22:5}.

¹⁶⁰⁵ Martin {Day253/191:11}-{Day253/192:15}; {Day253/160:23}-{Day253/161:9}; Ledsome {Day245/14:6-14}; Harral {Day244/105:17-22}.

¹⁶⁰⁶ {LABC0000924}; {LABC0000853}.

¹⁶⁰⁷ Martin {Day253/159:5-8}; {Day253/160:6}; {Day253/163:3}.

¹⁶⁰⁸ Martin {Day253/160:6}-{Day253/161:7}.

¹⁶⁰⁹ Harral {Day244/104:16-22}; Ledsome {Day242/209:24}-{Day242/211:3}; Martin {Day253/151:22}-{Day253/152:25}; {Day253/170:15-25}.

¹⁶¹⁰ Martin {Day253/152:8-13}.

¹⁶¹¹ The BCA is a voluntary membership organisation, later incorporated as a limited company, established in 2008 to promote the role of building control organisations and to publish guidance: Evans {NHBC00003020/59-60} pages 59-60, paragraph 164.

¹⁶¹² Martin {Day253/170:21}-{Day253/171:14}.

he accepted that he should have contacted the LABC himself.¹⁶¹³ Mr Harral had been under the impression that the problem was limited to NHBC,¹⁶¹⁴ but that was plainly not the case. None of the three officials did anything to establish the location of the buildings affected or how many there were.¹⁶¹⁵ They did not alert the Advertising Standards Agency or Trading Standards.¹⁶¹⁶ They did not contact Kingspan¹⁶¹⁷ or examine its marketing literature.¹⁶¹⁸ The department had assumed that Kingspan would act responsibly, but, as Mr Ledsome accepted, that had been rather naïve. Faced with evidence that a commercial organisation was relying on false statements to market its products, we think that the department should have taken steps to draw its activities to the appropriate authorities.

11.49 None of the officials involved thought it necessary to alert the United Kingdom Accreditation Service (UKAS)¹⁶¹⁹ to the errors in the certificates issued by the BBA or to remind Mr Albon that the BBA ought to report the matter to UKAS itself. Mr Martin accepted that he should have reported the matter to UKAS,¹⁶²⁰ but he did not think at the time that it might uncover wider problems in the BBA's processes¹⁶²¹ or that the failure by UKAS to identify the error was itself a matter of concern.¹⁶²² It did not occur to him that there might be a similar problem in relation to insulation products other than K15.¹⁶²³

11.50 Mr Martin did not take any steps to pursue the matter following his email exchange with Mr Evans. On 15 August 2014¹⁶²⁴ Mr Evans reported that Kingspan had been encouraged by the preliminary results of two large-scale tests involving K15 but gave no results. He said that Kingspan had asked Arup to prepare a desktop report using the results from the three tests it had by then carried out under BS 8414 to describe the conditions that any cladding system should meet to allow K15 to be used in the construction of external walls of buildings over 18 metres in height.¹⁶²⁵ In the event, however, no such report was forthcoming¹⁶²⁶ and it is difficult to see on what basis Mr Martin could have thought that that might be a satisfactory method of assessing the suitability of K15 for use on high-rise buildings.¹⁶²⁷ As far as he was aware, in August 2014 there was no satisfactory test data to support the use of K15 on high-rise buildings.¹⁶²⁸ Nonetheless, he said that, having discussed the matter further with Mr Ledsome,¹⁶²⁹ they had concluded that the best course was simply to wait and see how the matter developed.¹⁶³⁰

¹⁶¹³ Martin {Day253/152:14-19}.

¹⁶¹⁴ Harral {Day244/91:23}-{Day244/92:8}.

¹⁶¹⁵ Ledsome {Day245/15:21}-{Day245/16:16}; {Day245/19:3-7}; Harral {Day244/105:23}-{Day244/106:1}; Martin {Day253/184:16}-{Day253/185:10}; {Day253/188:1-6}; {Day253/188:16-21}.

¹⁶¹⁶ Harral {Day244/97:17-23}; Ledsome {Day245/9:9}-{Day245/10:3}.

¹⁶¹⁷ Harral {Day244/97:9-11}; Ledsome {Day245/7:17-18}; Martin {Day253/192:16-21}.

¹⁶¹⁸ Martin {Day253/210:24}-{Day253/211:3}; Harral {Day244/97:12-16}; Ledsome {Day245/8:3-6}.

¹⁶¹⁹ UKAS was established in 1995 to accredit conformity assessment bodies against national and international standards of technical competence to undertake certain activities, including certification: Turner {UKAS0011242/4-5} pages 4-5, paragraph 7 (a)-(b).

¹⁶²⁰ Martin {Day253/202:5-20}; {Day253/207:17-23}.

¹⁶²¹ Martin {Day253/202:16-20}.

¹⁶²² Martin {Day253/203:3-6}.

¹⁶²³ Martin {Day254/14:10-25}.

¹⁶²⁴ {CLG00019253}.

¹⁶²⁵ {CLG00019253/1}.

¹⁶²⁶ Martin {Day254/11:25}-{Day254/12:2}.

¹⁶²⁷ Martin {CLG00019469/45} page 45, paragraph 128; Martin {Day254/7:15}-{Day254/8:7}; {Day254/10:4}-{Day254/11:9}.

¹⁶²⁸ Martin {Day254/13:25}-{Day254/14:25}.

¹⁶²⁹ Martin {Day254/17:1-18}.

¹⁶³⁰ Martin {Day254/17:24}-{Day254/18:1}.

- 11.51** In the event, Brian Martin did nothing further until 4 December 2014, when he sent an email to Mr Evans asking whether NHBC had any further information.¹⁶³¹ On 5 December 2014, Mr Evans said that he should be able to respond after a BCA meeting the following Monday,¹⁶³² but in the event he failed to do so¹⁶³³ and Mr Martin let the matter lie. There was no further contact between NHBC and the department until 2 April 2015,¹⁶³⁴ when Mr Evans sent an email to Mr Martin simply telling him that Kingspan was committed to further testing. It does not appear to have occurred to Mr Martin to ask for existing test results or the desktop report that was to be produced by Arup.¹⁶³⁵ It was clear to Mr Martin at that stage that the problem relating to the use of combustible insulation on high-rise buildings had not been resolved.¹⁶³⁶
- 11.52** No reasonable excuse was offered for that remarkable list of omissions. Mr Martin appears simply to have allowed himself to be guided by NHBC, which had in turn been taken in by Kingspan's repeated assurances that further testing would demonstrate that all was well.¹⁶³⁷ Although he had been told by Mr Evans that NHBC's inspectors had been accepting K15 for use on buildings over 18 metres in height for many years, it did not occur to Mr Martin that NHBC might have its own reasons for seeking to demonstrate that K15 was suitable for use on high-rise buildings.¹⁶³⁸ Although they had been sent to Mr Harral,¹⁶³⁹ neither he nor Mr Martin had had time to read the notes¹⁶⁴⁰ of a BCA meeting on 8 December 2014 which appeared to suggest that both NHBC and the LABC in the persons of Steve Evans and Barry Turner were doing exactly that.¹⁶⁴¹ Mr Martin regarded the people he knew at NHBC as responsible professionals; he trusted them and did not question their motives.¹⁶⁴²
- 11.53** We accept that the department was ill-equipped to investigate the use of combustible insulation on high-rise buildings¹⁶⁴³ and was busy with other work.¹⁶⁴⁴ It was not responsible for enforcing the Building Regulations, had limited power to intervene in operations and had a negligible role¹⁶⁴⁵ in the direct regulation of the industry. That was the responsibility of the building control bodies and the department left it to industry bodies to resolve any problems that might arise.¹⁶⁴⁶ However, that does not justify its failure to act on what it knew and indeed, as all three officials accepted during their evidence, more could and should have been done.¹⁶⁴⁷ The department's failure to act was a serious error.

¹⁶³¹ {CLG00019264/1-2}.

¹⁶³² {CLG00019264/1}.

¹⁶³³ Martin {Day254/26:23}-{Day254/27:1}.

¹⁶³⁴ Martin {Day254/28:3-17}.

¹⁶³⁵ Martin {Day254/70:7-12}.

¹⁶³⁶ {NHB00001057}.

¹⁶³⁷ Martin {Day253/179:10-23}; {Day253/180:1-3}; {Day253/182:20}-{Day253/183:5}.

¹⁶³⁸ Martin {Day254/25:22}-{Day254/26:17}.

¹⁶³⁹ {CLG10006884}; Harral {Day244/113:24}-{Day244/114:23}.

¹⁶⁴⁰ Martin {Day254/21:21-23}; {Day254/23:4-5}; {Day254/24:7-8}.

¹⁶⁴¹ {CLG10006889/4} section 12.0.

¹⁶⁴² Martin {Day254/26:12-22}.

¹⁶⁴³ Harral {Day244/98:1-2}; Martin {Day253/42:12-15}.

¹⁶⁴⁴ Harral {Day244/76:23}-{Day244/77:4}; {Day244/98:1-6}; {Day244/103:3-7}; Martin {Day253/171:15-21}; Martin {Day254/12:10-13}; {Day254/28:16-22}; {Day254/29:8-10}.

¹⁶⁴⁵ Harral {Day244/36:2-6}.

¹⁶⁴⁶ Ledsome {CLG00019465/57} page 57, paragraph 221; Ledsome {Day245/22:10}-{Day245/23:20};

{Day245/24:25}-{Day245/26:5}; Harral {CLG00019487/17} page 17, paragraph 56; Harral

{Day244/35:22}-{Day244/36:21}; {Day244/93:4-11}; {Day244/98:6}-{Day244/99:13}; {Day244/99:24}-{Day244/100:13};

{Day244/101:3-19}; {Day244/103:7-14}; {Day244/109:2-8}; Martin {CLG00019469/38} page 38, paragraph 113; Martin

{Day253/151:14-19}; {Day253/161:22}-{Day245:162:14}; {Day253/171:9-14}; {Day254/15:12}-{Day254/16:4}.

¹⁶⁴⁷ Harral {Day244/107:2-11}; {Day244/99:14}-{Day244/100:13}; {Day244/103:22}-{Day244/104:8}; Ledsome {Day245/9:22}-{Day245/10:3}; {Day245/10:24}-{Day245/11:5}; {Day245/13:10-16}; {Day245/14:15-24}; {Day245/17:8}-{Day245/18:22}; {Day245/23:21}-{Day245/24:19}; {Day245/25:20-25}; Martin {Day254/29:8-10}; {Day254/71:3-10}.

August 2014: BCA Technical Guidance Note 18

11.54 On 15 August 2014 Brian Martin received from Steve Evans¹⁶⁴⁸ a copy of Technical Guidance Note 18 (Issue 0),¹⁶⁴⁹ drafted principally¹⁶⁵⁰ by John Lewis of NHBC.¹⁶⁵¹ The guidance note, entitled *Use of combustible cladding materials on residential buildings* (which Mr Martin had not previously seen),¹⁶⁵² set out three recommended options for securing compliance with paragraph 12.7 of Approved Document B.¹⁶⁵³ Option 1, which has come to be known as the “linear route”, referred directly to paragraph 12.7 of Approved Document B and required the use of materials of limited combustibility for all elements of the external wall, including the external facing material.¹⁶⁵⁴ Option 2 was the classification of a system in accordance with the criteria in BR 135 following a test in accordance with BS 8414. Option 3 was a desktop assessment.

Option 1 and the “linear route”

11.55 The interpretation of paragraph 12.7 in Option 1 of the note was not consistent with the meaning Mr Martin and Mr Burd had intended that paragraph to bear when they originally drafted it. They had intended it to cover the core of a composite panel but not the external surface of the cladding material.¹⁶⁵⁵ In that respect, therefore, the BCA guidance was more restrictive than they had intended.¹⁶⁵⁶ Paragraph 12.7 of Approved Document B did not recommend that all components of the external wall of a high-rise building should be materials of limited combustibility.

11.56 Mr Martin thought that the BCA guidance note was an effective way of resolving the uncertainty over the meaning of paragraph 12.7 to which he had been alerted by the discussions at the CWCT meeting in July 2014.¹⁶⁵⁷ He may even have relied on it for that purpose, at least until he could cover it in the next review of the statutory guidance.¹⁶⁵⁸ That was not an appropriate position to adopt, however, not least because the department had not publicly endorsed the BCA guidance.

11.57 Although the BCA guidance did not have the same status as statutory guidance,¹⁶⁵⁹ Mr Martin appears to have thought that it was the most effective way to get the message across.¹⁶⁶⁰ He did not think that information published on the department’s website was widely read or easily accessible.¹⁶⁶¹ There was some evidence that the BCA’s guidance note might not have had as wide an audience as Mr Martin assumed,¹⁶⁶² but in any event, he did not think about publishing an FAQ on the matter.¹⁶⁶³ It does not seem to have occurred to him that the BCA’s Option 1 might have contributed to further uncertainty about the meaning of paragraph 12.7.

¹⁶⁴⁸ {CLG00019253}.

¹⁶⁴⁹ {CELO0003725}.

¹⁶⁵⁰ Lewis {NHB00003433/9} page 9, paragraph 29(d).

¹⁶⁵¹ John Lewis joined NHBC as a building control surveyor in 1997 and from 2013 until he left in October 2021, he was NHBC’s specialist fire engineer: Lewis {NHB00003433/3-4} pages 3-4, paragraphs 8-9.

¹⁶⁵² Martin {CLG00019469/44} page 44, paragraph 127.

¹⁶⁵³ {CELO0003725/2}.

¹⁶⁵⁴ {CELO0003725/2}.

¹⁶⁵⁵ Martin {Day254/37:23}–{Day254/38:6}.

¹⁶⁵⁶ Martin {Day254/32:4-8}; {Day254/33:19-25}; {Day254/35:22-24}; {Day254/36:7-11}.

¹⁶⁵⁷ Martin {Day254/42:7}–{Day254/43:15}.

¹⁶⁵⁸ Martin {Day254/43:9-15}; {Day254/44:4-13}; {Day254/55:8-14}.

¹⁶⁵⁹ Martin {Day254/48:9-11}.

¹⁶⁶⁰ Martin {Day254/45:3-5}.

¹⁶⁶¹ Martin {Day254/49:8-14}; {Day254/88:17}–{Day254/89:9}.

¹⁶⁶² Everett {CEV00000001/30} page 30, paragraph 128; Taylor {WIN00000002/61} page 61, paragraph 144.

¹⁶⁶³ Martin {Day254/49:8}; {Day254/49:24}–{Day254/50:1}; {Day254/50:25}–{Day254/51:4}.

21 February 2015: The fire at The Torch

11.58 On 21 February 2015, the department’s Chief Fire and Rescue Adviser, Peter Holland, sent an email to Mr Martin and others in the department about a fire that had occurred in the early hours of that day at The Torch, a high-rise block of flats in Dubai. In it he asked Mr Martin to confirm that such fires should not occur in the UK. Mr Martin did so, commenting that there were provisions in the Building Regulations designed to prevent that kind of problem but noting that there were no guarantees,¹⁶⁶⁴ by which he meant that no regulatory system was perfect.¹⁶⁶⁵ In his response he did not mention the warnings he had received about the way in which the words “filler material” in paragraph 12.7 of Approved Document B was being understood by some in the industry,¹⁶⁶⁶ nor did he mention them to Richard Harral or Bob Ledsome, to whom he copied his response. He accepted that he should have done both.¹⁶⁶⁷ Mr Martin accepted that he had not been candid with the others to whom the email had been sent about the controversy over the meaning of paragraph 12.7 that he had been aware of since the summer of 2014,¹⁶⁶⁸ and agreed that he had known at that stage that there was a risk that the statutory guidance was not being understood correctly.¹⁶⁶⁹

June 2015: NHBC’s question

11.59 Notwithstanding NHBC’s involvement in the drafting of BCA Technical Guidance Note 18, on 15 June 2015 Steve Evans wrote to Brian Martin in effect asking him the same questions that Tony Baker of BRE had asked him in November 2013,¹⁶⁷⁰ namely, what was meant by the word “filler” in paragraph 12.7 of Approved Document B and to what components of an external wall was it intended to apply.¹⁶⁷¹ Like Mr Baker before him, Mr Evans received no proper answer to those questions.¹⁶⁷² Mr Martin’s response was vague; he said that he could not offer a formal view and instead offered an anecdote about the fire at The Edge in January 2005,¹⁶⁷³ as he had done in response to Mr Baker. Given that he thought the BCA guidance note covered the very point that NHBC was now raising again, Mr Martin ought to have been seriously concerned. He told us that he had been under the impression that NHBC was involved in a disagreement with a developer¹⁶⁷⁴ and that he had therefore told Mr Evans that specific projects were a matter for the relevant building control authority.¹⁶⁷⁵ That is not apparent from the face of the document, however, in which Mr Evans specifically asked for the department’s view on the meaning and scope of the word “filler”.¹⁶⁷⁶

11.60 Mr Martin said that he had to be careful about providing a formal interpretation of the statutory guidance or telling building control what would or would not comply with the Building Regulations. We were not persuaded, however, that he was as constrained as he suggested. Although Mr Ledsome agreed that there was a limit to what officials could say

¹⁶⁶⁴ {CLG00031073}.

¹⁶⁶⁵ Martin {Day254/54:19}-{Day254/55:14}.

¹⁶⁶⁶ Martin {Day254/60:2-17}; {Day254/60:21}-{Day254/61:5}; {Day254/62:6-15}; Ledsome {Day245/52:7-10}; {Day245/52:19}-{Day245/53:14}.

¹⁶⁶⁷ Martin {Day254/65:13-15}.

¹⁶⁶⁸ Martin {Day254/66:4-12}.

¹⁶⁶⁹ Martin {Day254/61:8}-{Day254/62:2}.

¹⁶⁷⁰ Martin {Day254/132:10-14}.

¹⁶⁷¹ {NHB00002792/3}.

¹⁶⁷² {NHB00002792/2}.

¹⁶⁷³ {NHB00002792/2-3}; Martin {Day254/141:1-4}.

¹⁶⁷⁴ Martin {Day254/113:13-25}; {Day254/115:16-20}; {Day254/117:15-21}.

¹⁶⁷⁵ Martin {Day254/130:19-25}; Ledsome {Day245/42:10-15}.

¹⁶⁷⁶ {NHB00002792/3}.

about specific situations,¹⁶⁷⁷ he said that there was nothing to stop Mr Martin providing proper answers to questions of a general nature, including the questions that Mr Evans had asked in his email.¹⁶⁷⁸ Asked why he had not done that, Mr Martin said that at the time he had not thought to do so¹⁶⁷⁹ and that his response was probably more unhelpful than he had intended.¹⁶⁸⁰

- 11.61** The fact is that, as Mr Martin well knew, he was being asked to respond to a longstanding problem that had created confusion across the industry and needed to be resolved in the next review of Approved Document B.¹⁶⁸¹ His failure to tell more senior officials about it at any stage is extremely difficult to understand, particularly since the opportunity to do so arose again and again.
- 11.62** Neither Richard Harral nor Bob Ledsome was aware of Mr Martin’s correspondence with NHBC in July 2015 and did not learn of it until much later.¹⁶⁸² Once again, he failed to tell them that there was a difference of view within the industry about the interpretation of paragraph 12.7.¹⁶⁸³ Moreover, despite the fact that paragraph 12.7 was the only provision in Approved Document B that might have prevented the widespread use in England of aluminium composite panels with unmodified polyethylene cores, Mr Martin did not see a connection between the debate about the meaning of paragraph 12.7 and the assurance he had given Peter Holland in February 2015 following the fire at The Torch.¹⁶⁸⁴ He should have done so. One obvious reason why there could be no guarantee that a similar fire could not occur in the UK was because the specific provision in the guidance designed to prevent it was being widely misinterpreted, as Mr Martin had known since November 2013.

January 2016: the fire at the Address Downtown

- 11.63** On 31 December 2015 there was another serious fire in Dubai at a 63-storey building called the Address Downtown. On 4 January 2016, Mr Ledsome asked Mr Martin whether as a result there was anything the department needed to worry about in the Building Regulations or Approved Document B. In his response Mr Martin referred to paragraph 12.7 and said that the polyethylene core of an aluminium composite panel would be considered a filler material and so should not be used in the external walls of buildings over 18 metres in height.¹⁶⁸⁵
- 11.64** Mr Martin told us that, as far as he was aware at the time, everyone understood that the core of an aluminium composite panel was a filler material,¹⁶⁸⁶ but it is impossible to see how he can have thought that in January 2016, given the debate that had been taking place over the previous eighteen months. It was demonstrably untrue, even on his own evidence. Given his exchange with BRE in November 2013,¹⁶⁸⁷ the debate at the CWCT meeting in July 2014¹⁶⁸⁸ and Mr Evans’ clear statement six months earlier that the meaning of “filler” was unclear,¹⁶⁸⁹ Mr Martin must have known that the words “filler material” had

¹⁶⁷⁷ Ledsome {Day245/41:22}-{Day245/42:2}; {Day245/42:23}-{Day245/43:2}.

¹⁶⁷⁸ Ledsome {Day245/46:5-18}.

¹⁶⁷⁹ Martin {Day254/133:23}-{Day254/134:8}.

¹⁶⁸⁰ Martin {Day254/143:23}-{Day254/144:7}; {Day254/185:2-11}.

¹⁶⁸¹ Martin {Day254/119:20}-{Day254/120:6}; Martin {Day253/25:17-23}; Martin {Day254/135:16-25}; {Day254/44:4-13}; {Day254/55:19}-{Day254/56:15}; Martin {Day255/84:19}-{Day255/85:2}.

¹⁶⁸² Ledsome {Day245/40:4-7}; Harral {Day244/118:25}-{Day244/119:2}.

¹⁶⁸³ Ledsome {Day245/53:14}; Harral {Day244/119:3-7}.

¹⁶⁸⁴ Martin {Day254/118:14}-{Day254/119:19}.

¹⁶⁸⁵ {HOM00043106}.

¹⁶⁸⁶ Martin {Day254/167:2-11}; {Day254/170:13-18}.

¹⁶⁸⁷ {CLG10005895}.

¹⁶⁸⁸ CWCT Fire Group Minutes of Meeting dated 2 July 2014 {CLG00019336/4} second paragraph.

¹⁶⁸⁹ {NHB00002792/3} final paragraph.

not been understood by everyone in the same way. Although he refused to accept the fact, Mr Martin ought to have realised that there was a serious risk that material of that kind was being used on high-rise buildings in this country.¹⁶⁹⁰

- 11.65** At about the time of the fire at the Address Downtown Dr Crowder had discussed the fires in the UAE with Brian Martin who had expressed the view that, in contrast to this country, there were no regulations in Dubai that would prevent the use of aluminium composite cladding panels with polyethylene cores.¹⁶⁹¹ That may have been his understanding, but despite knowing that there was confusion over the meaning of paragraph 12.7 of Approved Document B, he had taken no steps in the period between the CWCT meeting in July 2014 and the fire at the Address Downtown in December 2015 to find out whether aluminium composite panels with polyethylene cores were in fact being used in this country.¹⁶⁹²
- 11.66** In January 2016 Mr Harral and Mr Ledsome were both unaware that a difference of view existed about the meaning of paragraph 12.7 and again, Mr Martin did not tell them.¹⁶⁹³ He could not explain why he had not told them and accepted that he should have done so.¹⁶⁹⁴ Mr Ledsome did not think there was a risk that aluminium composite panels with polyethylene cores might be in use on high-rise buildings in the UK.¹⁶⁹⁵ He took what Mr Martin told him on trust¹⁶⁹⁶ accepted that paragraph 12.7 of Approved Document B applied to the cores of such panels.¹⁶⁹⁷ If there had been any doubt about that, he would have expected Mr Martin to say so.¹⁶⁹⁸ Mr Ledsome did not check the text of the Approved Document for himself.¹⁶⁹⁹
- 11.67** Neither Mr Ledsome nor Mr Harral was told at any time before the Grenfell Tower fire about the results of the test carried out in 2001 on a system incorporating aluminium composite panels under contract cc1924.¹⁷⁰⁰ Mr Harral knew little about the product¹⁷⁰¹ and thought that the guidance in Approved Document B would preclude its use on high-rise buildings.¹⁷⁰² Despite that, he accepted that checks should have been made and that more should have been done, telling us that he wished the division had had the confidence, remit or resources to do that.¹⁷⁰³

16 February 2016: correspondence with Booth Muirie Ltd

- 11.68** On 16 February 2016, Brian Martin received an email¹⁷⁰⁴ from Nick Jenkins, then an Executive Director¹⁷⁰⁵ of Booth Muirie Ltd, a company providing architectural cladding services, including the design, fabrication and supply of aluminium composite panels.¹⁷⁰⁶ In his email Mr Jenkins asked Mr Martin whether he could answer some questions about

¹⁶⁹⁰ Martin {Day254/165:8-19}.

¹⁶⁹¹ Crowder {Day229/139:1-16}.

¹⁶⁹² Martin {Day254/165:20-24}; Harral {Day244/150:2-5}.

¹⁶⁹³ Martin {Day254/173:17}-{Day254/174:10}; Harral {Day244/148:19-24}; Ledsome {Day245/53:5-14}; {Day245/57:8-14}.

¹⁶⁹⁴ Martin {Day254/171:6-10}; {Day254/174:4-13}.

¹⁶⁹⁵ Ledsome {Day245/58:6}-{Day245/59:2}.

¹⁶⁹⁶ Ledsome {Day245/56:25}-{Day245/57:7}; {Day245/58:3-5}; {Day245/59:14-17}; {Day245/74:13-20}.

¹⁶⁹⁷ Ledsome {Day245/59:18-23}.

¹⁶⁹⁸ Ledsome {Day245/60:5-22}.

¹⁶⁹⁹ Ledsome {Day245/56:15-24}; {Day245/74:13-20}.

¹⁷⁰⁰ Harral {Day244/67:4-17}; Ledsome {Day242/185:8-20}.

¹⁷⁰¹ Harral {Day244/66:19-23}; {Day244/69:4-10}.

¹⁷⁰² Harral {Day244/68:4-23}; {Day244/125:12-17}; {Day244/139:13-21}.

¹⁷⁰³ Harral {Day244/144:4}-{Day244/145:21}.

¹⁷⁰⁴ {CLG00031093/5}.

¹⁷⁰⁵ Jenkins {BLM00000884/3} page 3, paragraph 1.7.

¹⁷⁰⁶ Murden {BLM00000004/1-2} pages 1-2, paragraph 7.

the meaning of paragraph 12.7 of Approved Document B that he had initially directed to Dr Sarah Colwell at BRE. The key point that Mr Jenkins had made in his email to Dr Colwell was that it was unclear whether paragraph 12.7 was directed to both insulation and the core of an aluminium composite panel and whether the latter should be a material of limited combustibility. He had expressed the view that if it was, only aluminium composite panels classified Euroclass A2 or better could be used on buildings over 18 metres in height in compliance with the guidance.

- 11.69** In his original email Mr Jenkins went on to say that in his experience Euroclass A2 panels were rarely specified. The vast majority of panels requested were classified Euroclass B or, in many cases, contained an unmodified polyethylene core and were often installed in combination with combustible insulation materials. In a later message pressing Dr Colwell for a response he said that he had discussed the matter with Steve Evans of NHBC and David Metcalfe of the CWCT and referred to the recent fires in the Middle East where fire had been seen to spread over the facades of buildings clad in aluminium composite material.¹⁷⁰⁷ In his email to Mr Martin he said that there was much confusion and misunderstanding in the industry and that the topic was being widely discussed.¹⁷⁰⁸
- 11.70** Mr Martin read the emails, including the original message that Mr Jenkins had sent to Dr Colwell.¹⁷⁰⁹ Although he told us that it had been clear to him that Mr Jenkins was correct in his interpretation of paragraph 12.7, he accepted both that that was not clear from the wording and that there was a debate about the matter.¹⁷¹⁰ When he responded on 16 February 2016, he told Mr Jenkins that the word “filler” had been added to the text deliberately to cover things that formed part of a cladding system and were not insulation but could provide a means for the spread of fire. He said that it was for the designer and building control body to decide whether the requirements of the Building Regulations had been met and added that his view that the core of an aluminium composite panel could reasonably be considered to be a “filler”.¹⁷¹¹ In our view that was an inadequate response to a question that deserved careful attention.
- 11.71** Mr Jenkins tried again later the same day to get a clear response from Mr Martin, telling him that the aluminium composite panels commonly used in the UK would not comply with Approved Document B for use on high-rise buildings and that none of the existing buildings in the UK over 18 metres in height that were clad in aluminium composite panels currently met functional requirement B4. He said that there were many such buildings and that their number was growing. He described the situation as one of grave concern and asked for a meeting to review the guidance.¹⁷¹² Mr Martin responded the following day, expressing the view that the text of paragraph 12.7 was “not really all that ambiguous”. He invited Mr Jenkins to attend a second meeting of the CWCT’s Fire Group in March 2016 and suggested that he contribute his views to the Part B user survey then being conducted by the department.¹⁷¹³ His superficial, hurried and unhelpful response to a serious question that required careful thought was clearly inadequate. A response by Mr Jenkins to the Part B user survey would have achieved nothing since, as Mr Martin accepted, it was not intended to deal with technical aspects of Approved Document B.¹⁷¹⁴

¹⁷⁰⁷ {CLG00031093/8-11}.

¹⁷⁰⁸ {CLG00031093/5}.

¹⁷⁰⁹ Martin {Day254/194:18-21}.

¹⁷¹⁰ Martin {Day254/192:19}-{Day254/193:6}; {Day254/194:13-17}.

¹⁷¹¹ {CLG00031093/4}.

¹⁷¹² {CLG00031093/4}.

¹⁷¹³ {CLG00031093/2-3}.

¹⁷¹⁴ Martin {Day255/25:9-12}.

- 11.72** Mr Martin did not tell Mr Harral, Mr Ledsome or anyone else in the department about his correspondence with Mr Jenkins or what he had said about the widespread use of combustible aluminium composite panels in the UK.¹⁷¹⁵ They both said that he should have referred the matter to them¹⁷¹⁶ and regarded it as a matter of the utmost seriousness that warranted being raised at ministerial level.¹⁷¹⁷ However, their failure to take any action in response to the email sent by Steve Evans on 11 July 2014¹⁷¹⁸ leads us to doubt whether decisive action would have been taken.
- 11.73** Mr Martin told us that in February 2016 he had not previously come across Nick Jenkins or Booth Muirie. He had not known whether what Mr Jenkins was telling him was true and had not recognised the significance of what Mr Jenkins was telling him, given that it was one of many conversations he had about matters of non-compliance.¹⁷¹⁹ However, those were not good reasons for taking no action, since he could easily have contacted Mr Jenkins and asked for more information.
- 11.74** Mr Martin agreed that his reluctance to say what paragraph 12.7 meant made it all the more important to publicise the department's position formally, but said that it had been almost impossible to get anything done in government at the time¹⁷²⁰ because of the deregulatory policies of the day.¹⁷²¹ A culture of deregulation certainly pervaded the department between late 2013 and February 2016, but it provides no excuse for Mr Martin's failure to take appropriate action in response to the confusion over the meaning of paragraph 12.7.
- 11.75** Mr Martin told us several times that he had underestimated the scale and seriousness of the hazard to which Mr Jenkins had alerted him.¹⁷²² He said that the division dealt with allegations of non-compliance every day¹⁷²³ and that he had not recognised that the danger identified by this particular warning was greater than the other dangers that had been drawn to its attention. However, the information Mr Jenkins had provided was obviously of great potential importance and should not have been ignored.¹⁷²⁴

Evidence and statistics

- 11.76** The fact that few, if any, of the fires in Dubai had resulted in fatalities may have played a part in Mr Martin's failure to recognise the danger of the use of aluminium composite materials on high-rise buildings.¹⁷²⁵ He thought it would be difficult to justify changes of a kind that made the guidance more restrictive when the statistics showed a steady reduction in the number of deaths through fire.¹⁷²⁶ However, relying only on statistics of that kind took no account of the magnitude of the risk that had not yet resulted in fatalities and was fundamentally and dangerously flawed.

¹⁷¹⁵ Martin {Day255/20:15-22}; Harral {Day244/154:9-21}; {Day244/157:10-15}; {Day244/160:10-19}; {Day244/160:24}-{Day244/161:2}; Ledsome {Day245/65:8-24}; {Day245/67:5-11}; {Day245/72:24}-{Day245/73:9}.

¹⁷¹⁶ Harral {Day244/160:20-23}; Ledsome {Day245/69:6-16}.

¹⁷¹⁷ Harral {Day244/158:11-20}.

¹⁷¹⁸ {CLG00000686}.

¹⁷¹⁹ Martin {Day255/5:12-23}; {Day255/22:18-21}; {Day255/10:17-25}.

¹⁷²⁰ Martin {Day254/199:8-10}.

¹⁷²¹ Martin {Day255/19:17}-{Day255/20:6}; {Day255/20:22}-{Day255/21:2}.

¹⁷²² Martin {Day254/197:4-5}; {Day255/5:16-19}; {Day255/6:19}-{Day255/7:22}; {Day255/8:12-17}; {Day255/14:1-3}.

¹⁷²³ Martin {Day255/13:15-24}.

¹⁷²⁴ Martin {Day255/41:20-23}.

¹⁷²⁵ Martin {Day255/7:9-15}; {Day255/31:23}-{Day255/32:2}.

¹⁷²⁶ Martin {Day255/38:1-6}.

24 February 2016: more industry concerns about ACM PE

- 11.77** On 24 February 2016, Mr Martin received an email¹⁷²⁷ from Alastair Soane, a structural engineer and director of the group of organisations known as Structural Safety,¹⁷²⁸ about the fire at the Address Downtown on 31 December 2015. He asked whether similar panels were used in the UK and whether there was a risk of a similar fire occurring in this country.¹⁷²⁹ The honest response would have been that the risk did exist,¹⁷³⁰ but Mr Martin gave the same response as he had given to Nick Jenkins a few weeks earlier, namely, that the core of an aluminium composite panel could reasonably be considered a “filler” within the meaning of paragraph 12.7 of Approved Document B.¹⁷³¹ He ignored Mr Soane’s offer to issue an alert.¹⁷³²
- 11.78** That answer plainly misled Mr Soane, who understood it to mean that it was unlikely that such panels were being used in the UK and was therefore reassured by it.¹⁷³³ Mr Martin said that he had thought at the time that his response was appropriate¹⁷³⁴ and that the BCA’s technical guidance note had effectively answered the problem.

17 March 2016: the second meeting of the CWCT Fire Group

- 11.79** On 17 March 2016, Brian Martin attended the second meeting of the CWCT’s Fire Group.¹⁷³⁵ Dr Colwell also attended, as did Nick Jenkins, David Metcalfe and Alan Keiller of the CWCT, David White of the NHBC, Stuart Taylor of Wintech, Adrian Pargeter from Kingspan, Clive Everett from St Gobain and others from across the industry.¹⁷³⁶ The minutes of the meeting recorded the view of those present that paragraph 12.7 of Approved Document B was poorly written and open to different interpretations. The heading was also thought to be misleading.¹⁷³⁷ Those present noted that BCA Guidance Note 18 had extended the requirement for insulation and filler material to be of limited combustibility to all materials used in the construction of the external wall.
- 11.80** At the meeting Mr Martin undertook on behalf of the department to revise paragraph 12.7.¹⁷³⁸ He had agreed with others at the meeting that the paragraph was open to different interpretations¹⁷³⁹ and accepted that to that extent it had failed in its purpose.¹⁷⁴⁰ He could not say when he had come to that conclusion. He told us that the recognition that people did not all understand it in the same way had grown progressively in his mind from about 2014 until the second CWCT meeting.¹⁷⁴¹
- 11.81** The minutes went on to record that the term “filler material” in paragraph 12.7 had been intended to be of wide application, as it was not possible to list all the materials that should be covered by it. Most significantly, they also recorded the conclusion of those present that

¹⁷²⁷ Soane {CUK00000002/2} page 2.

¹⁷²⁸ Structural-Safety is an organisation that combines the work of SCOSS (UK Standing Committee on Structural Safety) and CROSS (Collaborative Reporting for Safer Structures UK) involving committees of expert volunteers: Soane {CUK00000002/1} page 1, paragraph 1; Soane {CUK00000002/4-5} pages 4-5, paragraphs 6-13.

¹⁷²⁹ Soane {CUK00000002/2} page 2.

¹⁷³⁰ Martin {Day255/44:23}–{Day255/45:3}.

¹⁷³¹ Soane {CUK00000002/3} page 3.

¹⁷³² Soane {CUK00000002/2} page 2; Martin {Day255/50:16}–{Day255/51:1}.

¹⁷³³ Soane {CUK00000002/3} page 3; Soane {CUK00000002/17} page 17, paragraph 45.

¹⁷³⁴ Martin {Day255/47:3-4}; {Day255/47:23-25}.

¹⁷³⁵ Martin {CLG00019469/49} page 49, paragraph 138.

¹⁷³⁶ CWCT Technical Group Minutes of Fire Meeting dated 17 March 2016 {CLG00019440/1}.

¹⁷³⁷ CWCT Technical Group Minutes of Fire Meeting dated 17 March 2016 {CLG00019440/2} final two paragraphs.

¹⁷³⁸ Martin {CLG00019469/49} page 49, paragraph 138.

¹⁷³⁹ Martin {Day255/54:2-15}.

¹⁷⁴⁰ Martin {Day255/55:18-24}.

¹⁷⁴¹ Martin {Day255/54:16-25}; {Day255/59:2-7}; {Day255/60:3-6}; {Day255/84:19}–{Day255/85:13}.

the paragraph was intended to cover all the materials in the external wall.¹⁷⁴² Mr Martin was the only person present who could say what paragraph 12.7 had been intended to achieve,¹⁷⁴³ but if he agreed (as it appears he did) that the intention had been to cover *all* the materials in the external wall, that represented a significant departure from his original intention. We think it possible, therefore, that the discussion on this point was more consistent with Mr Metcalfe's recollection, namely, that those present agreed that paragraph 12.7 *should* apply to all materials in the external wall, not that it did so.¹⁷⁴⁴ That would also be consistent with Mr Martin's later approval of the language of Option 1 in BCA Technical Guidance Note 18.

- 11.82** Mr Martin acknowledged that the interpretation of paragraph 12.7 that by March 2016 he had come to prefer was not one he had ever professed.¹⁷⁴⁵ He had come to think that the BCA's interpretation was a safer one that provided a good starting point for designers.¹⁷⁴⁶ He had not given any consideration at the time to the effect it would have on paragraph 12.6 and the relevant part of Diagram 40,¹⁷⁴⁷ but he agreed that it created an anomaly¹⁷⁴⁸ in that paragraph 12.6 had no part to play if that was the correct interpretation of paragraph 12.7. Mr Martin did not see that as a problem, however.¹⁷⁴⁹ He said that readers of Approved Document B should have recognised that paragraph 12.7 was imprecise¹⁷⁵⁰ and should have referred back to the functional requirement.¹⁷⁵¹
- 11.83** It seems clear to us that Mr Martin had not given the question enough thought. The purpose of the guidance was to advise readers on how to go about complying with the various functional requirements in commonly encountered situations. If the guidance was so imprecise and contradictory that it had to be disregarded, it simply created confusion. That was a significant and serious problem.
- 11.84** The CWCT meeting on 17 March 2016 was the first occasion on which Mr Martin had stated publicly what paragraph 12.7 of Approved Document B had been intended to mean.¹⁷⁵² (Whether it actually bore that meaning, despite the inconsistency it would create with paragraph 12.6, is another matter which we have addressed separately in Chapter 7.) He appears to have thought at the time that the conclusion he had reached would be disseminated by those who attended the meeting and by the guidance that the CWCT planned to publish,¹⁷⁵³ but he did not report the outcome of the meeting to Mr Harral or Mr Ledsome, nor did he tell them that he intended to propose an amendment to paragraph 12.7 when Approved Document B was revised.¹⁷⁵⁴ In short, he was complacent and did not appreciate the severity of the risk.¹⁷⁵⁵

¹⁷⁴² CWCT Technical Group Minutes of Fire Meeting dated 17 March 2016 {CLG00019440/3}.

¹⁷⁴³ Martin {Day255/61:8-14}.

¹⁷⁴⁴ Metcalfe {CWCT0000115/18} page 18, paragraph 65; Metcalfe {Day228/191:21-24}; {Day228/202:16}-{Day228/203:6}.

¹⁷⁴⁵ Martin {Day255/65:3-7}.

¹⁷⁴⁶ Martin {Day255/65:12-19}.

¹⁷⁴⁷ Martin {Day255/67:15}-{Day255/68:1}.

¹⁷⁴⁸ Martin {Day255/68:25}-{Day255/69:7}.

¹⁷⁴⁹ Martin {Day255/69:8-23}; Martin {Day254/123:24}-{Day254/124:17}; {Day254/124:25}-{Day254/125:6}; {Day254/126:1-13}; {Day254/128:7-15}.

¹⁷⁵⁰ Martin {Day255/81:20}-{Day255/82:8}.

¹⁷⁵¹ Martin {Day255/72:2-15}; {Day255/75:8-12}; {Day255/80:2}-{Day255/81:6}.

¹⁷⁵² Martin {Day255/82:13-21}.

¹⁷⁵³ Martin {Day255/86:15}-{Day255/87:12}.

¹⁷⁵⁴ Martin {Day255/87:13}-{Day255/88:5}; {Day255/89:12-20}; {Day255/101:20}-{Day255/102:5}; Harral {Day244/166:9-21}; Ledsome {CLG00019465/54} page 54, paragraph 207; Ledsome {Day245/79:12}-{Day245/80:1}; {Day245/83:9}-{Day245/84:16}; {Day245/88:17-23}; {Day245/96:11-17}.

¹⁷⁵⁵ Martin {Day255/91:24-25}; {Day255/93:4-9}.

11.85 For the same reason, he did not view the problem as urgent.¹⁷⁵⁶ All he could say was that, in his mind, industry guidance was doing the job, but in March 2016 he should have given further thought to the publication of an FAQ.¹⁷⁵⁷ He did not make it clear to any senior official that the revision to paragraph 12.7 that he thought was needed could wait until the next review of the document,¹⁷⁵⁸ but he knew that the scope of the next revision was still being discussed and that there was no timetable in place for it.¹⁷⁵⁹

28 March 2016: the fire at the Ajman One complex, Dubai

11.86 Less than two weeks after the CWCT meeting on 17 March 2016, Mr Martin corresponded with Dr Crowder and Martin Shipp at BRE about yet another high-rise cladding fire that had occurred in the Ajman One complex, Dubai, on 28 March 2016.¹⁷⁶⁰ Although he noted that aluminium composite material again seemed to have been involved,¹⁷⁶¹ he failed to make the connection between that fire and what Mr Jenkins had told him about the widespread use of similar material in the UK.

7 July 2016: the NHBC's new guidance

11.87 On 7 July 2016 Mr Martin spoke at a seminar¹⁷⁶² at which the NHBC was launching its new guidance, *Acceptability of common wall constructions containing combustible materials in high-rise buildings*.¹⁷⁶³ Mr Martin told us that he had read the guidance when he met Steve Evans and Diane Marshall on 30 June 2016¹⁷⁶⁴ and was satisfied that it was a reasonable approach to satisfying the functional requirements of the Building Regulations.¹⁷⁶⁵ For the reasons we have given we disagree.

11.88 Mr Martin's speech at the seminar was about the regulatory requirements for facades. Nonetheless, for reasons which are not clear to us, he did not use the opportunity to tell those present what he understood to be the effect of paragraph 12.7 following the discussion at the CWCT meeting four months earlier.¹⁷⁶⁶ He said that he had not been thinking in that way at the time¹⁷⁶⁷ and that his mind was on a broad range of issues rather than one particular matter.¹⁷⁶⁸

11.89 Although no-one at NHBC had told him so, Mr Martin assumed that the guidance note was based on a number of large-scale tests in accordance with BS 8414.¹⁷⁶⁹ He was therefore¹⁷⁷⁰ not concerned by that part of the guidance which said that the use of aluminium composite material with a polyethylene core that was not classified Euroclass B fell outside of the scope of the guidance¹⁷⁷¹ (thereby indicating that if it was classified Euroclass B it fell

¹⁷⁵⁶ Martin {Day255/94:7}-{Day255/95:4}; {Day255/98:22}-{Day255/99:14}.

¹⁷⁵⁷ Martin {Day255/99:10-14}; {Day255/99:20-22}.

¹⁷⁵⁸ Martin {Day255/100:16-21}.

¹⁷⁵⁹ Martin {Day255/90:1-8}; {Day255/90:20}-{Day255/91:21}; Ledsome {Day245/96:18}-{Day245/97:1}.

¹⁷⁶⁰ {CLG10008111}.

¹⁷⁶¹ {CLG10008111/1}.

¹⁷⁶² Martin {CLG00019469/51} page 51, paragraph 144.

¹⁷⁶³ {NHB00000065}.

¹⁷⁶⁴ Martin {Day255/143:1-6}.

¹⁷⁶⁵ Martin {CLG00019469/52} page 52, paragraph 146; Martin {Day255/163:19-23}.

¹⁷⁶⁶ Martin {Day255/128:15}-{Day255/130:3}.

¹⁷⁶⁷ Martin {Day255/130:17-22}.

¹⁷⁶⁸ Martin {Day255/130:24-25}; {Day255/131:21}-{Day255/132:23}.

¹⁷⁶⁹ Martin {Day255/146:18-20}; {Day255/147:13-15}; {Day255/148:3-25}; {Day255/149:23}-{Day255/150:25}; {Day255/151:22}-{Day255/152:4}; {Day255/152:16-18}; {Day255/155:23-25}; {Day255/156:17-23}; {Day255/158:6-13}.

¹⁷⁷⁰ Martin {Day255/146:18-21}; {Day255/152:5-18}; {Day255/158:1-9}.

¹⁷⁷¹ {NHB00000065/4} left-hand column under the heading "Restrictions on use".

within it). He agreed that Euroclass B did not indicate a material of limited combustibility¹⁷⁷² but said that he had assumed that tests in accordance with BS 8414 had been carried out on systems incorporating panels classified Euroclass B.¹⁷⁷³

11.90 Mr Martin accepted that, under NHBC's 2016 guidance, a building control officer could approve a cladding system on a building over 18 metres in height containing a combustible insulation, such as Kingspan K15 or Celotex RS5000, and aluminium composite panels with polyethylene cores classified as Euroclass B.¹⁷⁷⁴ He appears to have thought that NHBC had assessed the guidance thoroughly,¹⁷⁷⁵ including through testing,¹⁷⁷⁶ but some basic enquiries of Diane Marshall¹⁷⁷⁷ or Steve Evans would have revealed that not to have been the case. Although Mr Martin appears to have taken the view that that was not his responsibility,¹⁷⁷⁸ the fact is that NHBC's guidance was inconsistent with what by then he was telling people that paragraph 12.7 was intended to mean. Given Mr Martin's awareness of the risks inherent in using aluminium composite panels with polyethylene cores in the external walls of high-rise buildings, he should not have lent his (and thereby the department's) support to guidance that sanctioned the use of them, even if they were classified Euroclass B. The position was made worse by NHBC's advice that such material could safely be used in combination with Celotex RS5000 or Kingspan K15, PIR and phenolic insulation materials that by common consent were not materials of limited combustibility. Mr Martin should have refused to lend his support to that guidance and should have taken it up with senior management at NHBC.

¹⁷⁷² Martin {Day255/148:2-3}; {Day255/150:12-15}.

¹⁷⁷³ Martin {Day255/149:1-13}.

¹⁷⁷⁴ {NHB00000065/4}; Martin {Day255/154:2-12}; {Day255/155:14-20}; {Day255/161:15-21}.

¹⁷⁷⁵ Martin {Day255/155:23-25}.

¹⁷⁷⁶ Martin {Day255/148:3-18}; {Day255/151:22}-{Day255/152:4}.

¹⁷⁷⁷ Diane Marshall was NHBC's Head of Technical Services between 2012 and 2017: Marshall {NHB00003434/2} paragraph 11(d).

¹⁷⁷⁸ Martin {Day255/156:9}.

Chapter 12

Regulation of fire risk assessors

- 12.1** The Fire Safety Order introduced a requirement for responsible persons to carry out fire risk assessments, and in many cases they engaged commercial fire risk assessors to produce such assessments on their behalf.
- 12.2** By about 2009 it had become clear to those working in the government fire safety policy team and the fire sector generally that there were significant grounds for concern about the competence of some commercial fire risk assessors. Those concerns were set out in a series of reports produced by and for the government.

The Initial Evaluation of the effectiveness of the Fire Safety Order (March 2009)

- 12.3** In March 2009, the Department for Communities and Local Government (the department) published an evaluation of the Fire Safety Order entitled *Initial Evaluation of the Effectiveness of the Regulatory Reform (Fire Safety) Order 2005*.¹⁷⁷⁹ By that time, the Fire Safety Order had been in force for almost three years.¹⁷⁸⁰ The department considered it good practice periodically to evaluate how well legislation of that kind was functioning and becoming familiar to the enforcing authorities, responsible persons and the fire safety sector.¹⁷⁸¹ The aim of the report was to obtain views from as broad a constituency of consultees as possible.¹⁷⁸² It was based on a series of interviews with a range of interested organisations, including 20 enforcing authorities, representatives from bodies concerned with fire safety, consultants and 45 businesses of various kinds.¹⁷⁸³
- 12.4** The report's findings revealed that some fire and rescue authorities were concerned about the work of independent consultants and other commercial fire safety organisations.¹⁷⁸⁴ The main problem was a variation in the level of competence.¹⁷⁸⁵ By the time of the report, some organisations had set up voluntary registers of fire risk assessors, whose competence they certified.¹⁷⁸⁶ Although fire and rescue authorities welcomed that development, the report noted that some authorities and responsible persons thought that a national scheme of accreditation or licensing would be preferable.¹⁷⁸⁷
- 12.5** Dennis Davis of the Fire Sector Federation told us that, at the time, unqualified fire risk assessors were a serious concern for the fire and rescue authorities.¹⁷⁸⁸ Mr Davis described a call from the sector that in the case of more complex buildings there should be some

¹⁷⁷⁹ {HOM00046062}.

¹⁷⁸⁰ The Fire Safety Order generally came into force on 1 April 2006.

¹⁷⁸¹ Upton {Day247/15:14-23}; Louise Upton {HOM00046040/4} page 4, paragraph 14.

¹⁷⁸² Upton {Day247/18:14-19}.

¹⁷⁸³ {HOM00046062/8} paragraph 2.

¹⁷⁸⁴ {HOM00046062/43} paragraph 6.

¹⁷⁸⁵ {HOM00046062/46}; {HOM00046062/12}.

¹⁷⁸⁶ Davis {Day246/136:1-11}.

¹⁷⁸⁷ {HOM00046062/12}.

¹⁷⁸⁸ Davis {Day246/137:10-23}.

assurance that a fire risk assessor was competent.¹⁷⁸⁹ We conclude from that evidence that the worries about the competence of some fire risk assessors were well known to the government.

Sir Ken Knight's report on the fire at Lakanal House (July 2009)

- 12.6** In July 2009, Sir Ken Knight produced a report for the Secretary of State for Communities and Local Government on a number of matters affecting fire safety that had emerged from the fire at Lakanal House.¹⁷⁹⁰ In it he recognised that in the early years after the introduction of the Fire Safety Order there had been problems in ensuring that fire risk assessors had the necessary level of competence, particularly for assessing the risks posed by more complex buildings.¹⁷⁹¹ He was aware of the concerns that had been expressed in the *Initial Evaluation of the Effectiveness of the Fire Safety Order (March 2009)*,¹⁷⁹² but he did not give any advice to ministers about them because he saw his role as working mainly with the fire and rescue services.¹⁷⁹³
- 12.7** Sir Ken Knight's investigations had revealed that there was a need for some kind of formal requirement to ensure that fire risk assessors undertaking assessments of high-risk premises were competent.¹⁷⁹⁴ He considered that article 9 of the Fire Safety Order should be amended to include an express duty on the responsible person to use a competent person to carry out a fire risk assessment in relation to any high-risk property.¹⁷⁹⁵ He thought that the broad approach in the Fire Safety Order was inappropriate because in some respects high-rise buildings required a greater level of expertise, for instance if an invasive assessment was required.¹⁷⁹⁶ Sir Ken's report also said that it was important that both the responsible person and the enforcing authority should have confidence that any fire risk assessment, particularly one in relation to a high-risk building, had been carried out by a competent person.¹⁷⁹⁷
- 12.8** However, on 28 July 2009, shortly before the report was due to be completed, Louise Upton, the official leading the fire safety policy team, discussed the proposed recommendation with Peter Wise, a fire safety engineer working with Sir Ken.¹⁷⁹⁸ He told Sir Ken that she was disinclined to recommend any revisions to the Fire Safety Order so soon after it had come into force.¹⁷⁹⁹ Ms Upton told us that she and her line manager, Sandy Bishop, had thought that it was too soon to amend article 9 and that there were other ways, such as working with the fire safety sector and introducing competence standards, to address the concerns of business.¹⁸⁰⁰
- 12.9** Ms Upton proposed an alternative course, namely a broader review of how responsible persons could satisfy themselves that fire risk assessments were suitable and sufficient, particularly if the premises are higher-risk.¹⁸⁰¹ Sir Ken adopted Ms Upton's proposal almost entirely and recommended that consideration should be given to conducting a review into

¹⁷⁸⁹ Davis {Day246/138:10-20}.

¹⁷⁹⁰ {HOM00001092}; Sir Ken Knight {HOM00046025/5-6}, pages 5-6, paragraph 17; Knight {Day245/149:9-18}.

¹⁷⁹¹ Knight {Day246/28:23}-{Day246/29:5}.

¹⁷⁹² Knight {Day246/51:8-17}.

¹⁷⁹³ Knight {Day246/52:12-20}.

¹⁷⁹⁴ Knight {Day246/36:2-7}.

¹⁷⁹⁵ Knight {Day246/36:3-13}.

¹⁷⁹⁶ Knight {Day246/36:23}-{Day246/37:4}; {Day246/37:16-24}.

¹⁷⁹⁷ {HOM00001092/36}.

¹⁷⁹⁸ {HOM00011611}.

¹⁷⁹⁹ {HOM00011611}.

¹⁸⁰⁰ Upton {Day247/34:21}-{Day247/36:18}; {Day247/38:10}-{Day247/39:2}.

¹⁸⁰¹ Upton {Day247/38:7-9}, and email correspondence from Peter Wise to Sir Ken Knight dated 28 July 2009 {HOM00011611}.

how the responsible person under the Fire Safety Order can be assured that a suitable and sufficient fire risk assessment has been carried out, particularly in the case of high-risk premises.¹⁸⁰² He also recommended that the guidance on how to comply with the Fire Safety Order should be amended, where appropriate.¹⁸⁰³

- 12.10** Louise Upton’s intervention effectively frustrated the purpose of Sir Ken Knight’s independent review. She thought that amending the Fire Safety Order would not be welcome because the government did not want to increase regulation and the department had insufficient resources to support more legislation.¹⁸⁰⁴ Instead, it was thought that the sector should resolve the problem itself and that the government’s role was to encourage it to do so.¹⁸⁰⁵ That approach did not have the formal approval of ministers; it was simply adopted by Louise Upton and her policy team¹⁸⁰⁶ and as a result no proposal to amend the Fire Safety Order was put forward for consideration by ministers. We cannot tell whether such a proposal would have been accepted but Sir Brandon Lewis, who later served as a minister in the department from September 2012,¹⁸⁰⁷ said that if he had received such advice he would not have considered it unfavourably,¹⁸⁰⁸ and that he would have given a recommendation from an expert like Sir Ken Knight very serious consideration.¹⁸⁰⁹
- 12.11** Sir Ken Knight was worried that people are often unaware of their own lack of competence and thereby put other people at risk.¹⁸¹⁰ Nevertheless, he did not press his recommendation because it was an early and short report and he felt that the recommendations he had made were there for others to take forward.¹⁸¹¹ However, he accepted that as Chief Fire and Rescue Adviser he should have ensured that the amendment of article 9 of the Fire Safety Order remained at the front of ministers’ minds¹⁸¹² and that instead he had allowed policy officials, such as Louise Upton, to take control.¹⁸¹³ Although he denied that he had changed his mind as a result of the discussion with officials,¹⁸¹⁴ we find that difficult to reconcile with the significant change of direction following their intervention. Sir Ken said that, on reflection, he could and should have been more robust with policy colleagues.¹⁸¹⁵ We agree.
- 12.12** We would go further. It was unacceptable for officials to influence the outcome of Sir Ken Knight’s report and not to seek the minister’s view on the merits of amending article 9 with the benefit of objective advice from the Chief Fire and Rescue Adviser. Equally, given the sector’s clear concern about the lack of competence of fire risk assessors and the risks to life that posed, Sir Ken should have recognised the importance of his function as an expert adviser and should have insisted on placing his conclusions before ministers irrespective of the views of officials. His failure to do so reflects poorly on his independence of mind and frustrated the object of creating the position to which he

¹⁸⁰² {HOM00001092/37}.

¹⁸⁰³ {HOM00001092/37}.

¹⁸⁰⁴ Upton {Day247/34:18-25}; {Day247/30:22}-{Day247/31:7}.

¹⁸⁰⁵ Upton {Day247/31:20-24}.

¹⁸⁰⁶ Upton {Day247/33:10}-{Day247/34:8}.

¹⁸⁰⁷ Lewis {Day257/2:22}-{Day257/3:3}.

¹⁸⁰⁸ Lewis {Day257/25:21}-{Day257/26:25}.

¹⁸⁰⁹ Lewis {Day257/26:20-25}.

¹⁸¹⁰ {HOM00011612}.

¹⁸¹¹ Knight {Day246/41:8-13}.

¹⁸¹² Knight {Day246/42:16-20}.

¹⁸¹³ Knight {Day246/43:1-9}.

¹⁸¹⁴ Knight {Day246/49:20-22}.

¹⁸¹⁵ Knight {Day246/56:21-25}.

had been appointed. The practical result was that unqualified and incompetent fire risk assessors were able to continue in practice despite mounting concern on the part of many in the sector.

- 12.13** Following the publication of his report, Sir Ken played no further part in advising the government on the competence of fire risk assessors.¹⁸¹⁶ Although he was optimistic that the sector would take the issue forward to the benefit of the industry,¹⁸¹⁷ the basis of his optimism is not obvious, and it was not identified by Sir Ken in his evidence to the Inquiry.

London Assembly Report – Tall and Timber-Framed buildings

- 12.14** In December 2010, the Planning and Housing Committee of the London Assembly published a report entitled *Fire Safety in London: Fire risks in London’s Tall and Timber Framed Buildings*.¹⁸¹⁸ The report was prompted by a series of fires that included the Lakanal House fire.¹⁸¹⁹ The investigation drew on a considerable base of evidence and 45 written submissions, including submissions from 16 London boroughs, six housing providers, seven trade organisations, four fire brigades, four consultancies and two insurers.¹⁸²⁰
- 12.15** The committee was concerned that “the desire to remove prescriptive regulation and replace it with non-mandatory guidance may have created a situation where the fire authorities do not have sufficient capacity to ensure the risk management process is always robust.”¹⁸²¹ Its recommendation was that DCLG, with relevant bodies such as the Local Authorities’ Co-ordinators of Regulatory Services and the Chief Fire Officers Association, should “draw up national guidance to ensure mandatory minimum standards of competence for training and accrediting fire risk assessors.”¹⁸²²
- 12.16** Very similar concerns were set out in a report published in December 2010 by the Fire Sector Federation following the Fire Futures review entitled *Decentralisation in the fire sector: Empowering and protecting the citizen*.¹⁸²³ The report had been prompted, in part, by the Federation’s concern to ensure that the government involved all relevant sectors in identifying and mitigating risks relating to fire safety. It described perceived low levels of competence within the fire sector in relation to fire safety and the built environment that was not helped by the absence of a common framework of qualifications.¹⁸²⁴
- 12.17** Although the authors of the report acknowledged that there was an important role for third-party certification schemes endorsed by industry, they considered that the optimum effect would be achieved only by the introduction of one or more mandatory schemes.¹⁸²⁵ That was yet another call for a mandatory scheme to establish competence but, again, there appears to have been no discussion of the matter at ministerial level.¹⁸²⁶ Sir Brandon Lewis for his part told us that he could not recall having been aware of the report or the recommendation.¹⁸²⁷

¹⁸¹⁶ Knight {Day246/59:11}–{Day246/60:6}.

¹⁸¹⁷ Knight {Day246/62:19}–{Day246/63:5}.

¹⁸¹⁸ {INQ00014711}.

¹⁸¹⁹ {INQ00014711/11}.

¹⁸²⁰ {INQ00014711/22} paragraph 1.32.

¹⁸²¹ {INQ00014711/35} paragraph 4.12.

¹⁸²² {INQ00014711/35} recommendation 7.

¹⁸²³ {FSF00000037}.

¹⁸²⁴ {FSF00000037/10}.

¹⁸²⁵ {FSF00000037/10}.

¹⁸²⁶ Upton {Day247/115:23}–{Day247/116:5}.

¹⁸²⁷ Lewis {Day257/30:3}.

12.18 The first recommendation was that the sector should take the lead in formulating standards of competence and the introduction of certification and other related measures.¹⁸²⁸ The authors also recommended that the government should ask the Federation to produce a formal plan of action. However, nothing came of that.¹⁸²⁹

The government's initial response

12.19 By March 2009, government officials had become aware of the concern among some enforcing authorities and responsible persons about the competence of some commercial fire risk assessors.¹⁸³⁰ Following the publication in March 2009 of the government's initial evaluation of the effectiveness of the Fire Safety Order and the delivery of Sir Ken Knight's report in July 2009, the fire safety policy team concentrated on designing and implementing a programme of work in response to the findings.¹⁸³¹ Initially there was no settled view about how a system of accrediting fire risk assessors would work in practice.¹⁸³²

12.20 Notably, the concerns had persisted despite the existence of certification schemes, two of which, the schemes run by British Approvals for Fire Excellence (BAFE) and Warringtonfire Testing, were accredited by UKAS.¹⁸³³ The aim of the schemes was to provide independent assurance of the competence of fire risk assessors,¹⁸³⁴ but it was not necessary to be a member in order to work as a commercial fire risk assessor.

12.21 On 11 June 2009, there was a meeting of the Chief Fire Officers Association's working group on enforcement.¹⁸³⁵ At that meeting it was noted that although the department recognised that many would welcome a nationally-recognised accreditation scheme for fire risk assessors, it was not something that government intended to develop.¹⁸³⁶ Instead, it encouraged the sector to establish a register to help businesses identify competent fire risk assessors.¹⁸³⁷

Jayne Boys's review

12.22 In order to investigate and assess the options for developing a nationally recognised quality assurance scheme for fire risk assessors, the department engaged a consultant from the In-House Policy Consultancy Service, Jayne Boys.¹⁸³⁸ The fire safety policy team did not have the capacity to carry out the work itself.¹⁸³⁹ The project was managed by Louise Upton.¹⁸⁴⁰ Consultees included businesses and fire and rescue authorities.

12.23 At a meeting of consultees on 14 December 2009, some of those present again described the lack of understanding among responsible persons of the nature and extent of their obligations under the Fire Safety Order and the shortcomings of the existing guidance.¹⁸⁴¹

¹⁸²⁸ {FSF00000037/11}.

¹⁸²⁹ Upton {Day247/117:17-18}.

¹⁸³⁰ Upton {Day247/22:12-22}.

¹⁸³¹ Louise Upton {HOM00046040/5} page 5, paragraph 16; Louise Upton {HOM00050082/3} page 3, paragraph 7.

¹⁸³² Upton {Day247/22:25}–{Day247/23:3}.

¹⁸³³ Davis {Day246/136:20-25}.

¹⁸³⁴ Davis {Day246/136:23-25}.

¹⁸³⁵ {HOM00012153}.

¹⁸³⁶ {HOM00012153/2} paragraph 11.

¹⁸³⁷ {HOM00012153/2} paragraph 11.

¹⁸³⁸ Louise Upton {HOM00050082/3} page 3, paragraph 9; Project Specification {HOM00012290}.

¹⁸³⁹ Louise Upton {HOM00050082/3} page 3, paragraph 9.

¹⁸⁴⁰ Louise Upton {HOM00050082/3} page 3, paragraph 9; Upton {Day247/53:9-17}.

¹⁸⁴¹ {HOM00012752/12}.

- 12.24** It was clear from the review carried out by Jayne Boys that some consultees wanted to establish a single nationally-recognised scheme.¹⁸⁴² Although some (including the Institution of Fire Engineers, the Royal Institution of Chartered Surveyors, and BAFE) wanted a mandatory scheme under which responsible persons would be required to use accredited fire risk assessors, that desire was not shared by the department,¹⁸⁴³ which thought that much could be achieved by voluntary methods. That meant, however, that responsible persons were not expressly required to use competent fire risk assessors.¹⁸⁴⁴ Ms Upton rightly accepted that there was no evidence that voluntary methods would achieve the aim of ensuring competence among fire risk assessors.¹⁸⁴⁵
- 12.25** Those present at the meeting agreed that there was a need to establish a body (referred to at the meeting as a “Fire Risk Competency Council”) that could set standards of competence required for carrying out fire risk assessments in different circumstances and would be accredited by UKAS.¹⁸⁴⁶ Louise Upton thought that there was a benefit in bringing together a number of disparate schemes to make good the absence of a set of agreed common standards.¹⁸⁴⁷ The department does not appear to have opposed the proposal for UKAS accreditation at that time, but it later became concerned that to require all fire risk assessors to be certified by bodies accredited by UKAS could present a disadvantage to professional bodies that were not subject to UKAS accreditation but who considered their members to be no less competent. It feared that might distort the market, reduce choice and increase costs.¹⁸⁴⁸ However, no formal assessments had been carried out that supported those fears¹⁸⁴⁹ and no research at all had been done into the extent to which the introduction of UKAS accreditation might distort the market.¹⁸⁵⁰ Ms Upton accepted that a UKAS-accredited scheme represented the best available means of addressing concerns about the competence of fire risk assessors.¹⁸⁵¹

The Fire Risk Assessment Competency Council

- 12.26** On 9 March 2010, the Fire Risk Assessment Competency Council held its inaugural meeting,¹⁸⁵² at which the agreement to publish an overarching set of criteria by which to establish competence supported by UKAS accreditation was affirmed.¹⁸⁵³
- 12.27** However, the minutes fail to reflect a more contentious discussion between the members. Louise Upton acknowledged that their interests differed,¹⁸⁵⁴ which made it difficult for them to agree on the best way to ensure the competence of fire risk assessors.¹⁸⁵⁵ In truth, their interests were fundamentally opposed and their different views reflected their particular positions.¹⁸⁵⁶ The difficulties of looking to a fragmented group of organisations to produce a method of ensuring the competence of fire risk assessors are neatly illustrated by the email Jayne Boys sent to Louise Upton following the first meeting, in which her advice was to keep the note of the meeting as short as possible because every word was one more

¹⁸⁴² Upton {Day247/53:3-8}.

¹⁸⁴³ Upton {Day247/59:2}-{Day247/60:6}.

¹⁸⁴⁴ Upton {Day247/60:20}-{Day247/61:3}.

¹⁸⁴⁵ Upton {Day247/61:4-9}.

¹⁸⁴⁶ {HOM00050090/4}.

¹⁸⁴⁷ Upton {Day247/57:9-15}.

¹⁸⁴⁸ Louise Upton {HOM00050082/11} page 11, paragraph 37.

¹⁸⁴⁹ Upton {Day247/66:23}-{Day247/67:9}.

¹⁸⁵⁰ Upton {Day247/68:11-14}.

¹⁸⁵¹ Upton {Day247/69:13-23}; {Day247/70:12-18}.

¹⁸⁵² {HOM00013530}; Upton {Day247/76:13-5}.

¹⁸⁵³ {HOM00013530/2} paragraph 4; Upton {Day247/77:9-17}.

¹⁸⁵⁴ Upton {Day247/81:10}.

¹⁸⁵⁵ Upton {Day247/81:11-17}.

¹⁸⁵⁶ Upton {Day247/79:2-21}; {Day247/80:7-11}.

to argue over.¹⁸⁵⁷ That inability to reach agreement effectively thwarted the department's hope that the sector would find a way to ensure the competence of fire risk assessors. Unwisely, in our view, the department never threatened the Competency Council that, if it failed to make significant progress towards introducing an effective scheme, it would reconsider the question of regulation.¹⁸⁵⁸

- 12.28** Another question to be resolved was whether membership of the scheme should be mandatory. The view of most members of the council was that few would adopt any new scheme unless it was compulsory,¹⁸⁵⁹ but Louise Upton and Brian Martin did not share it.¹⁸⁶⁰ In the light of the department's evaluation of the effectiveness of the Fire Safety Order in 2009, Ms Upton thought that responsible persons did not want to be compelled to use an accredited fire risk assessor¹⁸⁶¹ and she maintained that view despite the findings of the report on Tall and Timber-Framed Buildings and the Fire Futures review.¹⁸⁶² As a result, in July 2010 and February 2011 she sent submissions to Bob Neill MP, the then Fire Minister, that did not argue in favour of either a single national register or accreditation by UKAS.¹⁸⁶³
- 12.29** In the first of those submissions Ms Upton sought the minister's approval for the department's approach of encouraging the sector itself to respond to the concern of business that some form of quality assurance for commercial fire risk assessors would be helpful.¹⁸⁶⁴ She said that businesses were unlikely to welcome further regulation, but that was no more than an assumption on her part for which she had no evidence.¹⁸⁶⁵
- 12.30** The second submission of 7 February 2011 sought the minister's approval to offering continued support to existing attempts to manage the risks posed by low levels of competence among fire risk assessors by exploring the options for creating one or more schemes to certify fire risk assessors.¹⁸⁶⁶ The department proposed to offer continued support to the sector to allay any concerns that existing certification bodies, including the professional institutions, might have about applying for UKAS accreditation and to develop agreement on the basis of any future scheme.¹⁸⁶⁷ In reality, that meant little more than being available for discussions and attending meetings.¹⁸⁶⁸ Ms Upton warned that there was a risk that the sector would do nothing without the department's continued involvement, leading to criticism of the government. Although she recognised the risk that its efforts might fail, she was over-optimistic about the Competency Council's ability to tackle the problem of ensuring the competence of fire risk assessors.¹⁸⁶⁹
- 12.31** By that time over a year had passed since the establishment of the Competency Council in December 2009. There had been no significant progress in agreeing standards of competence or a means of imposing them, despite repeated warnings and successive calls from industry for the introduction of a mandatory regime. That was partly because the department's policy at that time was not to become actively involved in organising

¹⁸⁵⁷ See, for instance, email correspondence between Jayne Boys, Brian Martin, and Louise Upton dated 10 March 2010 {HOM00013486/1}.

¹⁸⁵⁸ Upton {Day247/83:3-8}.

¹⁸⁵⁹ Upton {Day247/91:3-6}.

¹⁸⁶⁰ Upton {Day247/91:10-14}; {CLG10004360/1-3}.

¹⁸⁶¹ Upton {Day247/91:10-14}.

¹⁸⁶² Upton {Day247/109:1-15}; {Day247/118:11-15}.

¹⁸⁶³ {HOM00000884}; {HOM00001003}.

¹⁸⁶⁴ {HOM00000884/1} paragraph 2.

¹⁸⁶⁵ Upton {Day247/104:4-9}.

¹⁸⁶⁶ {HOM00001003/3} paragraphs 11-13.

¹⁸⁶⁷ {HOM00001003/3} paragraph 12.

¹⁸⁶⁸ Upton {Day246/119:6-9}.

¹⁸⁶⁹ Upton {Day247/121:25}-{Day247/122:9}.

schemes of that kind and partly because it did not have the resources necessary to do it.¹⁸⁷⁰ A similar picture was painted by others in the department responsible (at least from 2013) for reviewing and revising the Building Regulations. In our view, the minimalist approach adopted by the department between 2011 and 2017 and its antipathy to regulation enabled the risk identified by Ms Upton to eventuate. The Competency Council failed to complete its work and it left responsible persons without the means of identifying competent fire risk assessors.

The Competency Council guides

- 12.32** On 21 December 2011, the Competency Council published *Competency Criteria for Fire Risk Assessors* (the “Competency Criteria”).¹⁸⁷¹ The guidance contained standards relating to various matters (for example, means of escape and fire prevention) against which fire risk assessors could be judged.¹⁸⁷² Its use was entirely voluntary and to that extent reflected the government’s preference to allow the industry to draw up its own guidance to assist those engaging fire risk assessors.
- 12.33** On 1 February 2013, the Competency Council published a second guide, entitled *Guide to Choosing a Competent Fire Risk Assessor*,¹⁸⁷³ which offered advice to responsible persons in relation to the appointment of specialist fire risk assessors and listed several existing competency schemes.¹⁸⁷⁴ Louise Upton said she had viewed the publication of the guide as a positive development and a first step towards creating a professional fire risk assessor industry.¹⁸⁷⁵
- 12.34** Dennis Davis said the publication of the Competency Criteria was one of the key elements needed to improve the competence of fire risk assessors.¹⁸⁷⁶ Together with previous guidance, it created a procedure for fire risk assessors to follow,¹⁸⁷⁷ but it did not provide a means of assessing the skills and thoroughness of individual fire risk assessors.
- 12.35** In our view, reliance on voluntary guidance was the wrong response to the well-documented and frequently repeated warnings about the competence of fire risk assessors. No guides of any kind could exclude the risks posed by those fire risk assessors who chose to operate outside the certification schemes or who chose not to follow the prescribed standards. Responsible persons were not required to make use of the guides, which did not prevent unqualified and unregulated fire risk assessors continuing to practise.
- 12.36** On 9 January 2013, the Fire Sector Federation agreed to take responsibility for monitoring the operation of the guides to determine whether the Competency Council needed to be reconvened to consider or respond to developments.¹⁸⁷⁸

¹⁸⁷⁰ Upton {Day247/120:3-9}; {Day247/121:3-5}.

¹⁸⁷¹ {HOM00033347}.

¹⁸⁷² {HOM00033347/2} paragraph 6.

¹⁸⁷³ {HOM00025548}.

¹⁸⁷⁴ {HOM00025548/5}.

¹⁸⁷⁵ Louise Upton {HOM00050082/11} page 11, paragraphs 38-39.

¹⁸⁷⁶ Davis {Day246/142:4-11}.

¹⁸⁷⁷ Davis {Day246/143:13-24}.

¹⁸⁷⁸ {HOM00001351/5}.

The Lakanal House inquests

- 12.37** Following the inquests into the deaths at Lakanal House, the coroner wrote to the Fire Sector Federation on 30 March 2013 expressing the view that it was well-placed to shape national policy on the scope of fire risk assessments and how they should be carried out. She also encouraged it to consider whether it might offer further guidance on the training of fire risk assessors.¹⁸⁷⁹
- 12.38** The Fire Sector Federation was split into groups, known as “workstreams”, which concentrated on different aspects of fire safety.¹⁸⁸⁰ A Competency and Accreditation workstream, chaired by Dennis Davis, was formed in about April 2013 in anticipation of the coroner’s letter and to build on the work of the Competency Council.¹⁸⁸¹
- 12.39** Mr Davis told us that the guides published by the Competency Council had provided a method for carrying out fire risk assessments and had been a key element in addressing the problem of competence among fire risk assessors.¹⁸⁸² However, he had thought that further work was required to combine the advice provided by different guides into a single set of principles and that some form of regulation of commercial fire risk assessors was required.¹⁸⁸³ In our view, that is an important point. Although guidance may have been useful for those who chose to have regard to it, there remained no regulation of fire risk assessors, including those who chose to disregard the various guides produced by the Competency Council and others.
- 12.40** At the workstream’s first meeting on 12 April 2013 its members decided that the Competency Criteria needed to be extended in several respects, among which were the following:¹⁸⁸⁴ a new section was needed drawing attention to the risks posed by the modification or refurbishment of a building;¹⁸⁸⁵ greater emphasis was needed on the risks posed by the introduction of new materials, building design, modern engineering practice and building methods; and greater emphasis needed to be laid on the importance of gaining access to individual premises, rather than merely common areas, to establish whether compartmentation had been weakened, for example, by changing entrance doors or removing self-closing devices.¹⁸⁸⁶ Mr Davis said that the second reflected in particular a concern that the sector was not keeping up with innovations in the construction industry.¹⁸⁸⁷ Those present also decided to review the LGA Guide and to promote its use in relation to high-rise premises.¹⁸⁸⁸

¹⁸⁷⁹ {HOM00004356}.

¹⁸⁸⁰ Dennis Davis {FSF00000036/5} page 5, paragraphs 23-24.

¹⁸⁸¹ Davis {Day246/118:5-6}; {Day246/125:5-12}; Dennis Davis {FSF00000036/8-9} pages 8-9, paragraph 34; {FSF00000036/11} page 11, paragraph 42; {FSF00000199/1}.

¹⁸⁸² Davis {Day246/143:17-21}.

¹⁸⁸³ Davis {Day246/144:20-25}.

¹⁸⁸⁴ Davis {Day246/146:4-20}.

¹⁸⁸⁵ {HOM00001351/6}.

¹⁸⁸⁶ Davis {Day246/148:21}-{Day246/149:5}. {HOM00001351/6}.

¹⁸⁸⁷ Davis {Day246/147:12-15}.

¹⁸⁸⁸ {HOM00001351/6}, Davis {Day246/149:18-22}.

- 12.41** The members decided that a “passport” scheme should be established for fire risk assessors¹⁸⁸⁹ with the object of creating a quality assurance body that would police compliance¹⁸⁹⁰ and recommended that specific recognition be offered in the nine areas of competence covered by the Competency Criteria.¹⁸⁹¹ On satisfying those requirements, a fire risk assessor would receive a passport, grading competence in each area.¹⁸⁹²
- 12.42** The intention behind those proposals was to establish an overarching system of quality assurance.¹⁸⁹³ It was recognised that fire risk assessors who had not joined one of the existing certification schemes would not be subject to its requirements,¹⁸⁹⁴ but it was seen as a start.¹⁸⁹⁵ The only way to enforce compliance was by legislation.
- 12.43** A copy of the proposal was sent to Sir Ken Knight and was circulated among the department’s officials, including Louise Upton and Brian Martin.¹⁸⁹⁶ Mr Martin wrote to colleagues on 29 April 2013 saying that it appeared that the Fire Sector Federation was in danger of trying to do more than was necessary or desirable or indeed within the scope of its ability.¹⁸⁹⁷ In an email to Sir Ken Knight Louise Upton used the expression “control freakery” to describe the proposed passport scheme.¹⁸⁹⁸ Although it is not clear why Sir Ken had continued to be involved after his retirement as Chief Fire and Rescue Adviser in January 2013, he took a similar view and was concerned that the Federation was going beyond what was required.¹⁸⁹⁹
- 12.44** On 10 October 2013, the members of the workstream met to discuss the proposed passport scheme. They identified several obstacles to its work, including the government’s general opposition to regulation, continuing austerity and the existence of well-established self-certification schemes,¹⁹⁰⁰ that made a scheme involving formal certification, although desirable, impractical.¹⁹⁰¹ They therefore decided instead to focus their efforts on the role and competence of fire safety managers, who were the people responsible for ensuring compliance with statutory fire safety requirements.¹⁹⁰² Those who were involved in the existing certification schemes considered that the Competency Council documents and PAS 79 were sufficient.¹⁹⁰³ They considered that the problem lay not so much among fire risk assessors already covered by the existing schemes as among responsible persons who did not know when to seek advice from a competent fire risk assessor.¹⁹⁰⁴

¹⁸⁸⁹ Vice Chairman’s Report on Activities dated 1 May 2013 {HOM00001351/7}.

¹⁸⁹⁰ Vice Chairman’s Report on Activities dated 1 May 2013 {HOM00001351/7}.

¹⁸⁹¹ Vice Chairman’s Report on Activities dated 1 May 2013 {HOM00001351/7}.

¹⁸⁹² Vice Chairman’s Report on Activities dated 1 May 2013 {HOM00001351/7}.

¹⁸⁹³ Davis {Day246/151:2-9}.

¹⁸⁹⁴ Davis {Day246/151:10-18}.

¹⁸⁹⁵ Davis {Day246/151:17-18}.

¹⁸⁹⁶ {CLG00000526}.

¹⁸⁹⁷ {CLG00000526}.

¹⁸⁹⁸ {CLG00000527/1}.

¹⁸⁹⁹ Knight {Day246/85:1}-{Day246/86:5}.

¹⁹⁰⁰ Competency Workshop, draft note of meeting dated 10 October 2013 {FSF00000407/2}.

¹⁹⁰¹ Competency Workshop, draft note of meeting dated 10 October 2013 {FSF00000407/2}; Davis {Day246/162:24}-{Day246/163:2}.

¹⁹⁰² Competency Criteria for Fire Safety Managers {FSF0000041}; Competency Workshop – Draft Note of Meeting {FSF00000407/2}; Dennis Davis {Day246/172:5-9}.

¹⁹⁰³ Davis {Day246/163:15-20}.

¹⁹⁰⁴ Davis {Day246/163:21}-{Day246/164:1-4}.

- 12.45** The consequence of that decision was that the Federation offered no further guidance on the scope of fire risk assessments or how such assessments should be carried out.¹⁹⁰⁵ Dennis Davis said that the rationale was to direct responsible persons towards competent fire risk assessors who were members of existing schemes.¹⁹⁰⁶
- 12.46** Even allowing for opposition from government and others to a regulatory regime, there was no good reason following the Lakanal House inquests not to amend the existing guidance to deal with the risks posed by refurbishment, modern methods of construction, and the importance of gaining access to individual flats when carrying out fire risk assessments. On any view, an amendment would have raised awareness within the industry of the importance of those matters.

The persisting problem

- 12.47** Concern about the competence of some fire risk assessors persisted in the years after the publication of the Competency Council guides. In August 2013 the government published a further review of the Fire Safety Order entitled *Focus on Enforcement Review: Enforcement of the Regulatory Reform (Fire Safety) Order 2005*,¹⁹⁰⁷ which said that businesses had reported that some fire risk assessors had been overstating the need for their services, that a number of fire professionals had questioned the quality of some commercial risk assessors, and that in practice a third-party assessment offered no guarantees to businesses.¹⁹⁰⁸
- 12.48** In December 2013, Louise Upton drafted a paper to identify options in response to the review, one of which was the creation of a national regulator for fire safety with broad responsibility for setting and communicating safety standards and developing standards for fire risk assessors.¹⁹⁰⁹ In that paper she discussed the possibility of additional resources to develop, or obtain from third parties, expertise in fire safety, so that the department could provide independent and high quality advice to businesses and enforcing authorities on how to discharge their duties under the Fire Safety Order.¹⁹¹⁰ At that time the Fire Safety team did not have the expertise or resources to provide advice of that kind and it had become increasingly difficult to obtain it from others on anything other than a temporary basis.¹⁹¹¹
- 12.49** At a meeting on 17 July 2013, Sir Brandon Lewis had expressed reluctance to pursue the idea of a national fire safety regulator¹⁹¹² because he was not attracted to the idea of introducing additional regulation.¹⁹¹³ He was more interested in making existing schemes more efficient¹⁹¹⁴ and devolving power away from central government.¹⁹¹⁵ However, given that the fire sector had failed to solve the problem of the competence of fire risk assessors since work on the matter had begun some years earlier, the basis of his optimism was not clear. His views appear to have been of the most general kind and not directed to the particular merits of introducing a national fire safety regulator.

¹⁹⁰⁵ Davis {Day246/165:10-18}.

¹⁹⁰⁶ Davis {Day246/165:19-24}.

¹⁹⁰⁷ {BEI00001317}.

¹⁹⁰⁸ {BEI00001317/19}.

¹⁹⁰⁹ {HOM00046039}; Upton {Day247/174:22}-{Day247/175:3}.

¹⁹¹⁰ {HOM00046039/4}.

¹⁹¹¹ Upton {Day247/177:8}-{Day247/178:20}.

¹⁹¹² {HOM00046059/2}.

¹⁹¹³ Lewis {Day257/73:15-18}.

¹⁹¹⁴ Lewis {Day257/72:15-25}.

¹⁹¹⁵ Lewis {Day257/76:13-14}.

12.50 After that, there was very limited ministerial consideration of the risks to safety posed by the continuing problem of the lack of competence of some fire risk assessors. Louise Upton could not tell us why the proposals in her paper had not been discussed any further.¹⁹¹⁶ Sir Brandon Lewis told us that the competence of fire risk assessors was not the most important matter the department had to consider¹⁹¹⁷ and that he was happy to defer to the approach suggested by officials as his focus was on other things.¹⁹¹⁸

Further proposals: 2016 onwards

12.51 Mr Davis, however, remained concerned about the quality of fire risk assessments and competence of fire risk assessors.¹⁹¹⁹ In January 2016, he and Neil Gibbins, then acting chief executive of the Institute of Fire Engineers, prepared a strategy note suggesting that the Fire Sector Federation establish a licensing system applicable across the sector to provide the public with an assurance that the holder was competent to perform the tasks covered by the licence.¹⁹²⁰

12.52 In January 2016 responsibility for fire safety policy was transferred from DCLG to the Home Office and the team of officials responsible for fire safety policy moved to the new department.¹⁹²¹ In June 2016 Sir Brandon Lewis MP became Minister of State for Policing and the Fire Service.¹⁹²² The change of department appears to have had little or no effect on policy relating to the competence of fire risk assessors and the previous concerns persisted right up to the time of the Grenfell Tower fire. On 8 June 2016, the coroner at the inquest into the death of Stephen Hunt, a firefighter who had died at a fire in Manchester in July 2013, wrote to Sir Brandon Lewis suggesting that the Secretary of State should consider measures to ensure the competence of fire risk assessors.¹⁹²³

12.53 However, on 25 August 2016 a submission was sent up to Sir Brandon Lewis by officials the thrust of which was that the government had already taken action to ensure the competence and accreditation of fire risk assessors.¹⁹²⁴ The minister's reply to the coroner enclosed a paper written by the Chief Fire and Rescue Adviser which referred to the Competency Council guides but made no proposals for additional steps to be taken to ensure the competence of Fire Risk Assessors.¹⁹²⁵ The response was criticised by Matt Wrack, the General Secretary of the Fire Brigades Union, who asked why the steps taken by the department had failed to bring about an improvement and why no further proposals had been forthcoming.¹⁹²⁶ He observed that, in the three years since the publication of the *Guide to Choosing a Competent Fire Risk Assessor*, there had been no steps to find out whether it had had any discernible effect.¹⁹²⁷ That was a very fair question.

12.54 In his reply Sir Brandon said that the use of guidance was a recognised practice in relation to health and safety matters,¹⁹²⁸ a trite observation that failed to respond to Mr Wrack's point that, several years after the publication of the Competency Council's guidance,

¹⁹¹⁶ Upton {Day247/181:5-10}.

¹⁹¹⁷ Lewis {Day257/86:14-17}.

¹⁹¹⁸ Lewis {Day257/86:24}-{Day257/87:10}.

¹⁹¹⁹ Davis {Day246/186:22-25}.

¹⁹²⁰ {FSF00000420/1}.

¹⁹²¹ Brandon Lewis {CLG00031121/5} page 5, paragraph 15.

¹⁹²² Lewis {Day257/10:25}-{Day257/11:3}.

¹⁹²³ {HOM00033384}.

¹⁹²⁴ {HOM00043184/3} paragraph 7.

¹⁹²⁵ {HOM00043186}.

¹⁹²⁶ {INQ00014699/5} section 9.

¹⁹²⁷ {INQ00014699/5} section 9.

¹⁹²⁸ {INQ00014700/2}.

concerns about the competence of fire risk assessors remained. The fact was that despite those repeated concerns, the senior coroner's recommendation and Mr Wrack's pointed question, the department appears to have set its face against reconsidering whether mere guidance was capable of improving the competence of those who chose not to comply with it. That was so, even though those to whom it had looked for a cure for the problem had pointed out several years earlier that legislative intervention was required. The department gave no good explanation for its failure to act.

- 12.55** There were further, unfortunately fruitless, attempts by the Fire Sector Federation to make progress on the problem. On 16 June 2016, the chairman, Brian Robinson, wrote to the Home Secretary expressing the Federation's concern about the competence of fire risk assessors¹⁹²⁹ and in October 2016, the Federation produced a further paper, entitled the *Fire Competency Registration Scheme*, which effectively repeated its earlier proposal for the introduction of a licensing scheme.¹⁹³⁰ Ms Upton did not recall having seen that document¹⁹³¹ and it does not appear that the department took any action in response to it.
- 12.56** In the summer of 2016, Anthony Maude, the official from the department who had usually attended Federation meetings, retired.¹⁹³² No one from the department was sent to Fire Sector Federation meetings in his place¹⁹³³ and as a result regular contact with the Federation lapsed.¹⁹³⁴
- 12.57** The weakness in the system was that although the Fire Sector Federation was active in discussing how to improve the competence of fire risk assessors, its views and recommendations were never taken seriously by the government.¹⁹³⁵ It is not surprising, therefore, that the initial enthusiasm and support for its work in that area waned over time.¹⁹³⁶ Whatever the merits of encouraging the sector to take effective steps to address a widely recognised problem, by 2016 it had become obvious that the Federation had not found any common ground with the government about the right answer to the problem of incompetence among fire risk assessors. By that time it should have been clear to the department that the Fire Sector Federation itself could not produce an answer. Given the scale of the risks resulting from the continued existence of incompetent fire risk assessors the government should have taken effective measures to regulate the industry. For no good reason, it failed to do so.

¹⁹²⁹ {CLG00035514/3}.

¹⁹³⁰ {HOM00043195}.

¹⁹³¹ Upton {Day248/6:3-6}.

¹⁹³² Maude {CLG00034279/9} page 9, paragraph 36.

¹⁹³³ Upton {Day248/6:14-16}.

¹⁹³⁴ Upton {Day248/8:3-7}.

¹⁹³⁵ Davis {Day246/179:7}-{Day246/180:11}.

¹⁹³⁶ Davis {Day246/179:9-20}.

Chapter 13

The Fire Safety Order

- 13.1** At the time of the Grenfell Tower fire, the scope of the Fire Safety Order was in some respects not clearly understood. Article 6(1) excluded from its scope “domestic premises”, defined as “a private dwelling (including any garden, yard, garage, outhouse, or other appurtenance of such premises which is not used in common by the occupants of more than one such dwelling).”¹⁹³⁷ The implication was that parts that were “used in common” were within the scope of the Fire Safety Order but the meaning of that expression was not defined. Discussion of the problem was not assisted by the preference of those involved to use related expressions, such as “common parts” or “common areas”, instead of the statutory language.
- 13.2** On 11 December 2012, Ron Dobson, then the London Fire Commissioner, wrote to Sir Brandon Lewis, then Fire Minister, to make a number of recommendations about matters that had arisen in the course of the LFB’s investigation into the fire at Lakanal House on 3 July 2009.¹⁹³⁸ The first two recommendations sought guidance on the meaning of the expression “used in common” in the Fire Safety Order.¹⁹³⁹
- 13.3** On 6 February 2013, Louise Upton responded to Mr Dobson on behalf of the minister.¹⁹⁴⁰ The thrust of the response was that the department did not think that the Fire Safety Order applied to the structure (i.e. the walls and roof) of a block of flats, but that guidance had been developed to help responsible persons to ensure the safety of tenants. Guidance had also been produced on risk assessment and the management of safety of residents in purpose-built blocks of flats. However, she did not suggest that the department would review or amend the existing guidance.¹⁹⁴¹ On any view, there was at that time no clear consensus within the department about the meaning of the expression “used in common”.¹⁹⁴²
- 13.4** The same uncertainty emerged in the context of the Lakanal House inquests. In her letter to the Secretary of State the coroner said that there was uncertainty about the scope of inspection for fire risk assessment purposes that should be undertaken in relation to high-rise residential buildings and in particular whether it was necessary to inspect the interior of flats to enable the fire risk assessor to identify potential breaches of compartmentation.¹⁹⁴³ She therefore recommended that the government provide clear guidance on the definition of “common parts” of buildings containing multiple domestic premises, the need for inspection of flats that had been modified internally to determine whether compartmentation had been breached and the need for inspection of a sample of flats to identify possible breaches of compartmentation. It was plain, therefore, that the coroner thought that there was uncertainty surrounding the interpretation of the Fire Safety Order, despite the existence of the guidance.¹⁹⁴⁴

¹⁹³⁷ The Regulatory Reform (Fire Safety) Order 2005 {INQ00011327/6-7} Article 6(1)(a); The Regulatory Reform (Fire Safety) Order 2005 {INQ00011327/3-4} Article 2.

¹⁹³⁸ {CLG00000274}.

¹⁹³⁹ {CLG00000274/1}.

¹⁹⁴⁰ {LFB00032153}; Louise Upton {HOM00046040/14-15} pages 14-15, paragraphs 49 – 51.

¹⁹⁴¹ Lewis {Day257/40:3-23}; {LFB00032153}.

¹⁹⁴² Louise Upton {Day247/131:9-22}.

¹⁹⁴³ {HOM00045865/2}.

¹⁹⁴⁴ Louise Upton {Day247/136:1-8}; Lewis {Day257/51:24}-{Day257/52:10}.

- 13.5** In her submission to the Secretary of State, Ms Upton said that the LGA planned to undertake a quick review with the housing sector to ensure that the existing guidance adequately addressed the matters the coroner had raised.¹⁹⁴⁵ She appears to have thought that the review would consider whether the phrase “used in common” needed definition.¹⁹⁴⁶
- 13.6** Ms Upton accepted that the department should have done more to advise ministers that the definition needed to be clarified and that by not taking the opportunity presented by the coroner the government had buried its head in the sand.¹⁹⁴⁷ She thought that the only way to resolve the problem was by amending the legislation, but that was not practicable because of the deregulatory agenda.¹⁹⁴⁸ She explained that informal internal discussions had made it clear that at that particular time amending the Fire Safety Order was a task that was too difficult to take on.¹⁹⁴⁹ However, ministers were never asked whether a review of the legislation could be undertaken and none of them explicitly refused to consider a review of the Fire Safety Order.¹⁹⁵⁰
- 13.7** On 20 May 2013, the Secretary of State responded to the coroner’s letter in the terms proposed in the draft enclosed with Ms Upton’s submission.¹⁹⁵¹ He said that he considered that the LGA Guide was appropriate to assist responsible persons in discharging their duties under the Fire Safety Order.¹⁹⁵² He also mentioned the forthcoming review by the LGA and told the coroner that it would consider whether the matters she had raised held any implications for the guidance that might need to be included in a revised version.¹⁹⁵³
- 13.8** The review conducted by the LGA did not expressly consider whether guidance on the meaning of the expression “used in common” was needed.¹⁹⁵⁴ The Secretary of State’s letter to the coroner had said that the department considered that the Guide provided sound advice and the Association asked consultees only whether they were satisfied that the matters raised by the coroner in her Rule 43 letters were adequately addressed by the existing guidance.¹⁹⁵⁵ On any view, the terms of the consultation did not encourage a full and frank expression of views by consultees and tended to suggest that the department had already made up its mind. Consultees were given 13 days to respond.¹⁹⁵⁶ In June 2013, Louise Upton was told by Eamon Lally of the LGA that the review had elicited little response from consultees but that the guidance had received very robust endorsement from its authors.¹⁹⁵⁷ Ms Upton should have treated that self-serving endorsement with scepticism and should have scrutinised the review. She did not do so and was unconcerned by the absence of any significant response from the consultees.¹⁹⁵⁸ She assumed that, given the generally vocal nature of the sector, silence indicated satisfaction.¹⁹⁵⁹

¹⁹⁴⁵ {HOM00004403/2}.

¹⁹⁴⁶ Louise Upton {Day247/147:3-19}.

¹⁹⁴⁷ Louise Upton {Day247/143:3-20}.

¹⁹⁴⁸ Louise Upton {Day247/143:3-20}.

¹⁹⁴⁹ Louise Upton {Day247/154:2-6}.

¹⁹⁵⁰ Louise Upton {Day247/152:5}-{Day247/154:10}; {HOM00046067}; {HOM00004403}.

¹⁹⁵¹ {HOM00046077/1-2}.

¹⁹⁵² {HOM00046077/1-2}.

¹⁹⁵³ {HOM00046077/1-2}.

¹⁹⁵⁴ {CST00005484}.

¹⁹⁵⁵ {CST00005484}.

¹⁹⁵⁶ {CST00005484}.

¹⁹⁵⁷ {HOM00046074/3-4}; Louise Upton {HOM00046040/11} page 11, paragraph 39.

¹⁹⁵⁸ Upton {Day247/157:3-16}.

¹⁹⁵⁹ Upton {Day247/159:9-14}; Louise Upton {HOM00046040/11} page 11, paragraph 39.

- 13.9** Given the terms of the letter and the short duration of the review, the absence of any significant response is unsurprising. On any view, it was inappropriate for Louise Upton to rely solely on the endorsement of the Guide’s authors, who could not have provided the degree of independent scrutiny required to respond adequately to the coroner’s concerns. The LGA review also received scant attention from ministers. Although Lord Pickles expected the matter to return to the minister responsible for fire safety,¹⁹⁶⁰ Sir Brandon Lewis could not recall having been made aware of the outcome of the review.¹⁹⁶¹
- 13.10** The members of the LFB’s Lakanal House Working Group were dissatisfied with the department’s response to the Commissioner’s letter, which they thought had not answered his questions.¹⁹⁶² Rita Dexter thought that the Lakanal House inquest and the coroner’s rule 43 recommendations had provided both the impetus and the opportunity to write again to the department to repeat what the LFB had discovered in its investigation of the Lakanal House fire and its concerns.¹⁹⁶³ Accordingly, on 26 September 2013, Ron Dobson wrote again to Sir Brandon Lewis to take up the response that the department had provided in its letter of 6 February 2013.¹⁹⁶⁴
- 13.11** In his letter the Commissioner said that the meaning of the Fire Safety Order required further attention on the part of the department.¹⁹⁶⁵ He told us that the LFB had encountered difficulties in bringing prosecutions where it considered the Fire Safety Order was not being complied with because of the confusion about what parts of a building were and were not within its scope.¹⁹⁶⁶
- 13.12** The department’s response, sent by Sir Brandon Lewis on or around 16 October 2013, did not expressly refer to the request for guidance,¹⁹⁶⁷ but it alluded to it, saying that officials were looking again at whether the department might be able to provide greater clarity in relation to residential buildings in multiple occupation to which both the Fire Safety Order and the Housing Act 2004 applied.¹⁹⁶⁸ The obvious conclusion to draw from that letter was that the department had decided to shelve the matter.¹⁹⁶⁹ No further action was taken by government until the enactment of the Fire Safety Act 2021.

¹⁹⁶⁰ Pickles {Day261/125:6-9}.

¹⁹⁶¹ Lewis {Day257/59:7-11}.

¹⁹⁶² Dexter {Day179/145:5-11}; Dobson {Day211/17:9-25}.

¹⁹⁶³ Dexter {Day179/149:3-13}.

¹⁹⁶⁴ {LFB00032149}.

¹⁹⁶⁵ {LFB00032149/2}.

¹⁹⁶⁶ Dobson {Day211/20:23}–{Day211/21:9}.

¹⁹⁶⁷ {LFB00058999}.

¹⁹⁶⁸ {LFB00058999/1}.

¹⁹⁶⁹ Also see Dexter {Day179/157:21}–{Day179/158:1}.

Chapter 14

The Local Government Association Guide

- 14.1** On 29 July 2011, DCLG on behalf of the Secretary of State published the Local Government Association (LGA) guide entitled *Fire safety in purpose-built blocks of flats* (“LGA Guide”)¹⁹⁷⁰ pursuant to his obligation under article 50 of the Fire Safety Order.¹⁹⁷¹ The LGA Guide was published as part of the response to the Lakanal House fire, albeit before the hearings of the Lakanal House inquests that took place some two years later.¹⁹⁷² It was recognised that there was a need for guidance on ensuring fire safety in purpose-built blocks of flats. The guidance, which had not previously existed, was directed at responsible persons, fire risk assessors and enforcing authorities.¹⁹⁷³ The section entitled “Preparing for emergencies” contained guidance for the evacuation and assistance of disabled persons in the event of a fire. It recognised that there is likely to be a diverse range of physical and mental capabilities among the occupants of a general needs block.¹⁹⁷⁴ The needs of vulnerable occupants were addressed in paragraphs 16.11–16.13, which recognised that older people and people with certain disabilities may have particular needs in responding to a fire.¹⁹⁷⁵
- 14.2** In the Phase 1 report, the Chairman recommended that the owner and manager of every high-rise residential building be required by law to prepare personal emergency evacuation plans (PEEPs) for all residents whose ability to escape may be compromised, such as persons with reduced mobility or cognition.¹⁹⁷⁶ Disabled people were particularly affected by the speed and ferocity of the Grenfell Tower fire. In Phase 2, therefore, we explored why the LGA Guide advised landlords and responsible persons that it was usually unrealistic to plan for the evacuation and assistance in the event of a fire of disabled and vulnerable residents living in general needs blocks of flats,¹⁹⁷⁷ such as Grenfell Tower.
- 14.3** The department engaged the Local Government Improvement and Development Agency to draft the LGA Guide¹⁹⁷⁸ and the agency delegated the work to C S Todd and Associates.¹⁹⁷⁹ A project group was appointed by the agency to act as a steering group to oversee the content, monitor progress and contribute technical expertise.¹⁹⁸⁰ The project group was ultimately responsible for the content of the publication.¹⁹⁸¹ Louise Upton from the Fire Safety policy team, Brian Martin from the Building Regulations team and Peter Wise from the Chief Fire and Rescue Adviser’s unit, as well as housing policy officials, represented the department on the project group.¹⁹⁸² No disability specialists or representatives of organisations representing disabled persons were invited to join the project group.¹⁹⁸³

¹⁹⁷⁰ {HOM00045964}.

¹⁹⁷¹ {HOM00045964}; {HOM00046077/1-2}.

¹⁹⁷² {HOM00000720}.

¹⁹⁷³ {HOM00000720/3-4}; {HOM00045964/2-3}.

¹⁹⁷⁴ {HOM00045964/119-120} paragraphs 79.8 - 79.9.

¹⁹⁷⁵ {HOM00045964/25-26} paragraphs 6.11 - 6.13.

¹⁹⁷⁶ Phase 1 Report Volume IV paragraph 33.22(f).

¹⁹⁷⁷ {HOM00045964/120} paragraph 79.9.

¹⁹⁷⁸ Todd {CTA00000012/6} page 6, paragraph 30.

¹⁹⁷⁹ Todd {CTA00000012/4} page 4, paragraph 14.

¹⁹⁸⁰ Todd {CTA00000012/11} page 11, paragraph 48.

¹⁹⁸¹ Todd {CTA00000012/11} page 11, paragraph 48; Project Group Terms of Reference {HOM00000990}.

¹⁹⁸² Louise Upton {Day248/9:9-25}.

¹⁹⁸³ Todd {Day168/133:22-25}. For full membership of the project group, see Project Group Meeting agenda for meeting on 5 April 2011 {HOM00018117}.

- 14.4** The members of the project group also sat on a larger “reference group” that included representatives of organisations involved in the provision of housing in the local authority and voluntary sectors as well as representatives of the fire and rescue services.¹⁹⁸⁴ The reference group was intended to act as a sounding board for the project, to gather views and to promote consensus on the contents of the guidance.¹⁹⁸⁵ The department maintained oversight of the whole process and was a member of the reference group.¹⁹⁸⁶ None of those who sat on the reference group was a disability specialist or a representative of an organisation representing disabled people. That appears to have been an oversight rather than a deliberate decision,¹⁹⁸⁷ and the reference group did contain representatives from residents’ associations and landlords.¹⁹⁸⁸
- 14.5** The draft document was subject to a detailed and wide-ranging consultation, the responses to which were then considered by C S Todd and Associates and the project group.¹⁹⁸⁹ However, neither the department nor C S Todd and Associates took any steps to ensure that the views of organisations representing the disabled and the vulnerable were sought.¹⁹⁹⁰ One of the key questions that arose from the consultation, to which attention had been drawn by many of the respondents, was how people with disabilities could escape from their flats in the event of a fire.¹⁹⁹¹ In its response to the consultation, the Chief Fire Officers Association said that not to include advice on the evacuation of disabled people was a fundamental error.¹⁹⁹²
- 14.6** On 22 June 2011, the project group considered the issues raised by the consultation but it is not clear whether that particular question was discussed.¹⁹⁹³ In any event, a disability specialist or someone who could represent those who were disabled and vulnerable was not appointed to assist the project group.¹⁹⁹⁴ Despite the views raised by the Chief Fire Officers Association, the project group did not seek to commission any research or embark upon a further round of consultations to examine ways of helping those who were unable to escape unaided.¹⁹⁹⁵ As is plain from paragraph 79 of the LGA Guide, its response was either considered and rejected or simply ignored.
- 14.7** Another matter that was raised by the consultation was the provision of PEEPs. Consultees appear to have accepted that they were not appropriate in general needs housing but questioned whether the guidance should identify other means of reducing the risk to vulnerable people.¹⁹⁹⁶ C S Todd and Associates sought the views of the project group, which agreed that PEEPs were impracticable because of the difficulty of collating information and keeping the document up to date and the absence of staff who could help people to escape.¹⁹⁹⁷
- 14.8** After the LGA Guide had been published at the end of July 2011, Elspeth Grant, a director of TripleAconsult and a fire safety consultant who had worked with disabled people, wrote to Sir Merrick Cockell, the chairman of the LGA, on 23 August 2011 saying that paragraphs

¹⁹⁸⁴ Terms of Reference for the Reference group {HOM00001976}.

¹⁹⁸⁵ Terms of Reference for the Reference group {HOM00001976}.

¹⁹⁸⁶ Todd {CTA00000012/6} page 6, paragraph 31; Louise Upton {Day248/10:11-20}.

¹⁹⁸⁷ Louise Upton {Day248/11:3-18}.

¹⁹⁸⁸ Louise Upton {Day248/10:21}-{Day248/11:23}.

¹⁹⁸⁹ {HOM00018928/1}.

¹⁹⁹⁰ Louise Upton {Day248/13:11-20}; Todd {Day168/108:17-25}.

¹⁹⁹¹ {HOM00018928/2}.

¹⁹⁹² {HOM00002660/7}.

¹⁹⁹³ Louise Upton {Day248/14:21}-{Day248/16:18}.

¹⁹⁹⁴ Louise Upton {Day248/17:17-25}; Louise Upton {Day248/23:1-13}.

¹⁹⁹⁵ Louise Upton {Day248/18:1-6}.

¹⁹⁹⁶ {HOM00018928/2-3}.

¹⁹⁹⁷ Todd {CTA00000012/17} page 17, paragraph 78; Louise Upton {Day248/21:1-9}.

79.9 to 79.11 of the LGA Guide encouraged readers to ignore the Fire Safety Order and to breach international and domestic law on equality and fire safety.¹⁹⁹⁸ She also said that the LGA Guide reflected an outdated viewpoint and was discriminatory.¹⁹⁹⁹

- 14.9** A copy of that letter was sent to Caroline Bosdet, who had been the project manager responsible for drafting the LGA Guide, who in turn sent it to Colin Todd asking him to draft a response. Copies were also sent to some other members of the project group, including Louise Upton, Brian Martin and Peter Wise.²⁰⁰⁰ Ms Upton told Ms Bosdet that she would be very interested in hearing the views of her organisation’s lawyers, including any disability discrimination specialists,²⁰⁰¹ but no lawyers or disability specialists were asked to comment.²⁰⁰²
- 14.10** In her response Ms Bosdet told Ms Grant that the particular needs of people with disabilities and vulnerable people had been taken into account but that no practical solutions had been offered for evacuating disabled people from purpose-built blocks of flats.²⁰⁰³ Although the response suggested that practical solutions had been sought, Colin Todd confirmed no one on the project group had asked stakeholders to suggest solutions to the problem.²⁰⁰⁴ Nor is there any evidence that the department sought legal advice on whether Ms Grant’s allegation of unlawful discrimination was well-founded or not. The response of the department to Ms Grant’s letter was wholly unsatisfactory; it was, in effect, simply brushed aside.
- 14.11** In December 2011, BS 9991 *Fire safety in the design, management and use of residential buildings – Code of practice* was published.²⁰⁰⁵ BS 9991 provided recommendations and guidance on the design, management and use of dwellings, including self-contained flats, to achieve reasonable standards of fire safety.²⁰⁰⁶ It included recommendations and guidance on the management of fire safety throughout the life of a building and could be used in the assessment of existing buildings.²⁰⁰⁷
- 14.12** Section 9 of BS 9991 advised that those responsible for managing fire safety should take into account the full range of people who might use the premises, paying particular attention to the needs of disabled people,²⁰⁰⁸ and Annex E pointed out that the UK has an ageing society and that there are therefore many people living in standard residential accommodation who have a range of impairments that could affect their ability to evacuate or follow procedures.²⁰⁰⁹
- 14.13** For present purposes, it is enough to note that the guidance in paragraphs 79.9 to 79.11 was concerned with what arrangements for the evacuation of disabled people could as a matter of practicability be made in general needs blocks of flats. It was not, therefore directly inconsistent with BS 9991, which drew attention to the need to pay particular attention to the needs of disabled people, but it was couched in language that suggested a

¹⁹⁹⁸ Letter from Elspeth Grant to Sir Merrick Cockell dated 23 August 2011 {HOM00019844/1}.

¹⁹⁹⁹ Letter from Elspeth Grant to Sir Merrick Cockell dated 23 August 2011 {HOM00019844/2}.

²⁰⁰⁰ Email from Caroline Bosdet to CSTA Office and others dated 29 August 2011 {CLG10004907/2}.

²⁰⁰¹ Email from Louise Upton to Caroline Bosdet dated 12 September 2011 {CLG10004908/1}; Louise Upton {Day248/108:22}-{Day248/110:2}.

²⁰⁰² Email from Louise Upton to Caroline Bosdet dated 12 September 2011 {CLG10004908/1}; Louise Upton {Day248/108:22}-{Day248/110:2}.

²⁰⁰³ Letter from Caroline Bosdet to Elspeth Grant (undated) {CLG10004932/2}.

²⁰⁰⁴ Todd {Day168/137:22}-{Day168/138:18}.

²⁰⁰⁵ {BSI00000059/2}.

²⁰⁰⁶ {BSI00000059/21}.

²⁰⁰⁷ {BSI00000059/21}.

²⁰⁰⁸ {BSI00000059/145-146}.

²⁰⁰⁹ {BSI00000059/175}.

very different approach. It is surprising and disappointing, therefore, that the department failed to recognise the difference and take steps to reconcile the two documents. In our view that was a significant oversight.

- 14.14** In July 2012, the LGA conducted an evaluation of the LGA Guide to assess how widely it was being used and how useful it was.²⁰¹⁰ On 31 July 2012, Ms Upton was sent the draft report.²⁰¹¹ It indicated that those who had used it considered the guidance to have been effective in improving fire safety of residents in purpose-built blocks of flats²⁰¹² but gaps were identified in relation disabled and vulnerable persons.²⁰¹³ The report referred to a failure of the government to understand that disabled people could not escape from flats without help in the event of a fire and that more guidance was needed on the provision of PEEPs for residents known to have difficulty escaping or to be unable to escape.²⁰¹⁴ Those were similar to the concerns that had been raised by Elspeth Grant in August 2011.²⁰¹⁵
- 14.15** The department did take steps to develop guidance on the evacuation of disabled people living in sheltered or specialised accommodation, but considered it too difficult to find a solution to the problem posed by vulnerable persons who could not escape from purpose-built general needs blocks of flats without assistance.²⁰¹⁶ Although the department recognised the concerns, it took the view that the risks to disabled people in general needs housing were far lower than the risks to those living in specialist accommodation or sheltered housing.²⁰¹⁷
- 14.16** In her submission of 13 May 2013 to the Secretary of State Ms Upton advised the minister that the department was content that the LGA Guide provided sound advice on both the process of fire risk assessment and the matters that housing providers should consider if they are to ensure an acceptable level of fire safety.²⁰¹⁸ That was based on the assessment carried out by the LGA and informal reports received by the department.²⁰¹⁹
- 14.17** In the present case it is difficult to see what additional measures the TMO could have taken to assist the evacuation of disabled residents once they had entered the common parts of Grenfell Tower, but one piece of advice that in our view requires reconsideration is paragraph 79.11, which states that in the case of a “general needs” block it is not realistic to expect the responsible person to hold information relating to residents with mobility or other conditions affecting their ability to escape in a way that enables it to be made available to the fire and rescue services, for example, in a premises information box. We have covered this more fully in Part 5, Chapter 46.

²⁰¹⁰ {HOM00023280}; Louise Upton {HOM00046040/10-11} pages 10 – 11, paragraphs 35 – 36.

²⁰¹¹ Louise Upton {Day247/138:23}–{Day247/139:5}; {HOM00023279/2}.

²⁰¹² {HOM00023280}.

²⁰¹³ {HOM00023280/11}.

²⁰¹⁴ {HOM00023280/11}.

²⁰¹⁵ {HOM00023280}; {HOM00019844}.

²⁰¹⁶ Louise Upton {Day248/33:25}–{Day248/34:14}.

²⁰¹⁷ Louise Upton {Day248/34:4}–{Day248/35:8}.

²⁰¹⁸ {HOM00004403/2} paragraph 7.

²⁰¹⁹ Louise Upton {Day247/142:4-18}.

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