

IN THE GRENFELL TOWER INQUIRY
AND IN THE MATTER OF THE INQUIRIES ACT 2005
AND THE INQUIRY RULES 2006 (SI 2006/1838)

PHASE 2, MODULE 2
RYDON MAINTENANCE LIMITED
OPENING

A INTRODUCTION

1. Module 2 concerns Cladding Products – Testing/Certification, Product Marketing/Promotion. Specifically:

“In depth analysis of the cladding products used at Grenfell and their history in terms of testing/certification, product development, marketing and promotion, including any advice or recommendations given by manufacturers specific to Grenfell Tower. With particular emphasis on:

- a. Reynobond ACM panels;*
- b. Rainscreen Insulation, Celotex, Kingspan;*
- c. Window infill panels – Aluglaze;*
- d. Windows and window surrounds – including extract fans/units, EDPM, uPVC;*
- e. Cavity barriers – Siderise.”*

2. These opening submissions focus on two products: (A) the ACM marketed as Reynobond PE (“**RB 55 PE**”) in cassette form and (B) Celotex RS5000 insulation. These two products were specified and used at Grenfell Tower, notwithstanding that architects, fire specialists, main contractors, specialist sub-contractors and specialist suppliers were engaged on the project and none objected to the use of the products. Building Control gave Building Regulations approval.
3. Arconic and Celotex marketed and promoted the use of RB 55 PE and Celotex RS5000 respectively. They manufactured and supplied their products knowing that they were to be used at Grenfell Tower, a high-rise residential tower block, and that neither RB 55 PE nor Celotex RS5000 should have been used (whether alone or in combination).
4. Those that have appeared before the Inquiry have given evidence as to the reliance placed on the way in which these products were marketed and certified and the fact that both Arconic and Celotex knew that their products were being used at Grenfell Tower.

5. Disclosure currently available reveals that both Arconic and Celotex *knew* that their products, if used on projects such as Grenfell Tower, presented a danger to the lives of the occupants but, nonetheless, promoted and allowed their use.

B REYNOBOND 55 PE

B.1 Introduction

6. When considering the use of RB 55 PE, the starting point is, by now, familiar. The Inquiry concluded in the Phase 1 Report at paragraph 2.13.a:

“The principal reason why the flames spread so rapidly up, down and around the building was the presence of the aluminium composite material (ACM) rainscreen panels with polyethylene cores, which acted as a source of fuel.”

7. The ACM rainscreen panels installed at Grenfell were RB 55 PE panels. Contrast Arconic’s RB FR (fire retardant core) product, which has a 70% mineral content plus 30% polyethylene and its A2 product with a core made up of 90% mineral content and 10% polyethylene: {MET00053105} at para 17.
8. RB PE comes in different colours, thicknesses of aluminium and cores. Importantly, the RB PE panels are referred to as the “standard” panels. RB FR is *not* its standard product. It appears that the preponderance of panels used in the UK were the cheaper PE panels and not FR.
9. The manufactured panels are generally delivered by Arconic to fabricators such as CEP. The panels are then drilled so that they can be attached to a building by rivets and screws (“riveted” or “face-fixed”). Alternatively, the panels are machined or folded to make “cassettes”.
10. Arconic, thus, developed, manufactured and marketed ACMs and, in particular RB 55 PE. It is axiomatic that Arconic would be highly attuned to the fact that products recognised as being safe, and in compliance with relevant national regulations, would be likely to find a market in contrast to unsafe and non-compliant products. From Arconic’s Technical Quiz, dated 2 July 2015, {MET00053158_P05_0019–0040}, Slide 20, it seems that Mr Claude Wehrle (Technical Manager and later Head of Technical Sales Support team) was in charge of “*Product / System Certification and Regulatory Watch*”.
11. It is assumed that “*Product*” and “*System*” Certification in this context includes certification of Arconic’s products when used alone or in systems and by bodies such as the BBA in the UK and CSTB in Europe and others around the world. “*Regulatory Watch*”, describes, as one would expect from a manufacturer, Arconic keeping up to date with and understanding

regulatory regimes within countries Arconic sold its RB ACM products (including RB 55 PE), such as the Building Regulations in the UK.

B.2 Summary

12. Reference is made in the chronology below to just some of the documents disclosed and relevant to Arconic. There is little doubt from those documents that personnel, at all levels within Arconic, knew at all material times that:
 - (1) RB 55 PE was a dangerous product because of its high combustibility.
 - (2) RB 55 PE was even more dangerous when used in cassette form.
 - (3) RB 55 PE should not as a result be used on a project such as Grenfell Tower.
 - (4) RB 55 PE was to be used and was used at Grenfell Tower.
13. Indeed Arconic promoted the use of RB 55 PE for Grenfell Tower. In light of the knowledge disclosed in the documents, the catastrophic nature of the fire at Grenfell Tower could not have come as a surprise to many Arconic personnel.

B.3 Prior to Arconic's involvement in the Grenfell Tower project: 2005 to 2012

14. On 7 January 2005, the CSTB issued a reaction to fire classification report {ARC00000360}. The Report suggested that RB 55 PE formed into a cassette panel was Class E in accordance with test standards EN 13823 and EN 11925-2 (Dr Lane opines that the results meant that it was Class E). On the same day, 7 January 2005 CSTB issued a similar report that RB 55 PE when used in riveted panels was Class B-s2, d0 {ARC00000359}. These classifications were expressed to be valid for 5 years and thus lapsed in January 2010.
15. From a meeting in the UK on 21 March 2006 between Arconic's Didier Scheidecker (Sales Manager based in France) and Colin Southgate (UK Sales Manager), it appears that by 2006 Arconic viewed RB PE when fabricated for use as a cassette as a key system on the market and a "real trend" {MET00053158_P13_0161-0165}. It appears from the same meeting that (1) Arconic considered that a BBA Certificate was a marketing and promotional necessity to get any traction for RB PE in the UK Market (Arconic knew the weight put on such certification by construction professionals); and (2) Arconic was exploring internally whether it could get BBA Certification based on "our cassette approval by the CSTB".
16. After some dealings with the BBA, on 24 December 2007 BBA sent Mr Wehrle the Final Draft of the BBA Certificate {MET00053158_P16_0155-0164}. It was circulated internally. Deborah French, Arconic's UK representative emailed Mr Wehrle and Colin

Southgate on 2 January 2008 stating that she had looked through the draft and it looked OK to her {MET00053158_P16_0165–0166}.

17. The BBA Certificate was issued on 14 January 2008 {ARC00000678}. It will be considered in some detail by the Inquiry. For present purposes it is notable that the BBA Certificate endorses PE fabricated in cassette form as having the same characteristics as riveted PE – both being classed B-s2, d0 in accordance with EN 13501-1:2002 (although the cassette system was never in fact assessed by the BBA {BBA00008210_0003}). The Certificate does not materially distinguish between Arconic’s PE or FR products. There is nothing to indicate that Arconic provided the BBA with the CSTB Class E result for cassettes obtained in 2005.
18. 8 years before the fire at Grenfell, Arconic became aware of a fire involving a PE product in Bucharest, Romania. Mr Wehrle messaged Claude Schmidt (General Manager/President of Arconic Architectural Products SAS) on 17 July 2009 {MET00053158_P10_0122–0126 and 0129–0130}:

“Here are some pictures to show you how dangerous “PE” can be when it comes to architecture... [...]

The others [pictures] show the spread of the fire along the façade made up of PE composite panels.” (Emphasis added)

19. On 15 March 2010, Mr Wehrle {MET00064988_0125–0126}, referring to the cassette form of its PE product, emails Guy Scheidecker (Sales and Marketing Director) and other Arconic personnel, stating:

“Contrariwise to what might be expected, the above type of test is much less favorable for the composite than for riveted products. And Reynobond PE in cassette form doesn’t obtain level “B” either! Having said that, this shortfall in relation to this standard is something that we have to keep as VERY CONFIDENTIAL!!!!”.

20. Mr Scheidecker responds directly to Wehrle: *“This shouldn’t even have been mentioned.”*
21. The BBA certificate represented the popular cassette RB PE as being Euroclass B on the basis of the CSTB Reports, when it was not. There is no other plausible explanation for the need to keep this *“VERY CONFIDENTIAL”*. Arconic wanted to mislead the market into thinking that the RB PE in cassette form, as eventually used at Grenfell, had passed a test it had not and that if the true state of affairs was widely understood in the market, it would have a detrimental effect on sales. Disclosure that it was Class E would indicate that PE cassette was more dangerous than riveted PE and unsuitable for use in any buildings over a very limited height.
22. All this, in any event, against the backdrop of Arconic’s knowledge: *“how dangerous “PE” can be when it comes to architecture...”* (see the 17 July 2009 email above).

23. Between 1 and 5 July 2010 there was an email exchange {MET00053158_P04_0002–0005} between Bruno Costa (of Inor S.A., presumably a customer), Isabel Moyses (Arconic Sales Manager based in France) and Mr Wehrle. Mr Costa was pressing for a copy of the fire certificate for RB PE in cassette form. In response he was sent the certificate for the riveted form, which he was told by both Ms Moyses and Mr Wehrle was LESS safe than the cassette, when in fact the CSTB testing showed that the absolute opposite was true. Internally, Mr Wehrle said to Ms Moyses, *"It's hard to make a note about this... Because we're not 'clean'..."*. Arconic were most certainly not “clean”. This was a quite deliberate deception over the fire safety of RB PE, a product they knew to be dangerous.
24. On 29 June 2011, when tested by the CSTB, RB PE cassettes achieved a result of “F”. This result was passed on by Mr Wehrle to those in Arconic: He said *“Oops...”* {MET00053158_P04_0014}. In short, cassettes had either not passed the EN Test or had only achieved an E. The following day, 30 June 2011, Mr Wehrle wrote to Guy Scheidecker (Sales Director) {MET00053158_P04_0026–0027} asking for a meeting to discuss the cassette PE test results adding:
- “In 2008, at a meeting, I stated that PE was in danger of becoming "or" for Architecture in Western Europe.*
In 2011... we're not there yet, but almost there!
The classification obtained for the Reynobond PE cassettes is the same as that of the competitors, i.e. "F", and therefore not suitable for use on building facades (M4 in France for example)..." (Emphasis added)
25. There is no record of the meeting in 2008 yet seen. However, not only did Mr Wehrle consider, 6 years before the fire at Grenfell Tower, that PE (cassette or riveted) would be banned, he considered that PE when fabricated into cassettes was *“not suitable for use on building facades”* because it was an “F”.
26. Arconic could not reasonably have considered that, although dangerous and unsuitable for use on facades in France, that RB PE was not dangerous and unsuitable for use on facades elsewhere. There is no suggestion from the documents held and disclosed by Arconic that it could be a safe product if installed with other products or using particular construction techniques.
27. On 6 July 2011, Mr Wehrle produced a report of a meeting in Freiburg with Frank Ritter (3A Composites) to discuss *“Changes in ACM use for Architecture”*¹ {MET00053161_0021–0022}. The report contains a European fire regulation table listing

¹ That is, Reynobond’s use in the construction of buildings, as opposed to advertising signage, and so on.

Reynobond PE cassette as Class E, and PE (riveted) and both fixings of FR as Class B-s1, d0. It states:

“European fire regulation

Remind:

The European fire reaction classification norm EN 13501 is testing the product in his installation conditions.

After the tests we did, the classifications for Reynobond in cassettes and riveted/sc[r]ewed system are: [Euroclass E for RB PE 55 cassette; Euroclass B-s1, d0 for all others including RB FR 55 cassette]

A "B class" is the minimum required for a façade in Europe.”

28. The report continues:

“For the moment, even if we know that PE material in cassette has a bad behavior exposed to fire, we can still work with national regulations who are not as restrictive.

Some count[r]ies (Spain...) are already working with EN13501 standards, and the PE in cassettes is no more usable there.

The evolution of fire regulation will put the PE out of market in the coming month.”

“New information – Big fire test:

[...]

We already did this kind of tests, even in Austria, and passed it with our Reynobond FR. But it's impossible to run it with Reynobond PE.

We already asked for such kind of test for Dubai, with a test in accordance with BS 8414 standard, but this will be very difficult to pass do to the temperature of the test who is higher than 660°C (aluminium fusion temp.).”

29. The shocking thing about this report is Arconic’s naked expression of its intention to “work with” national regulations. There is no expression of any view by Arconic that regulations in countries which prevented the use of RB PE, whether in cassette form or otherwise, were in any way unreasonable or misguided in not allowing its use. To the contrary, Arconic knew PE to be dangerous. Arconic were “working with” what they saw as lax or confusing regulations to enable it to sell a dangerous product in a period before it anticipated a regulatory blanket ban for its use in buildings such as Grenfell Tower.

30. In an internal email dated 29 August 2011 from Mr Wehrle to Mr Froehlich (Product Manager) and Julie Kasyanik {MET00053161_0016–0017} he concluded that PE and FR could not pass a Hungarian fire test (the “big fire test”) and that:

“In case of 45 minutes or more, we could sell Reynobond for middle high buildings up to app. 30 m (10 storey). For high buildings we could sell only A1 or A2 class material.”

31. Between 6 and 23 September 2011, there is an email exchange in which Deborah French asks Mr Wehrle whether she can send a client (Arup) *“these two documents showing the details of FR and PE core [...] I am unsure as they give a lot of detail !!”* Mr Wehrle responds:

“OH MY LORD !!! Where did you get that from ??? For sure you’re NOT allowed to diffuse to the customer those documents. The best way to answer is to speak about the difference of fire classification on the panels containing FR compared to those ones containing PE.”

32. He sends a follow-up email {MET00053173_0048–0049}, {MET00053173_0029–0040}. saying:

“FR core is done with 30% organic part and 70% mineral part PE is only organic. As organic is the material that is going to burn in case of a fire, FR is better”

It is not clear to which technical documents Mr Wehrle refers but there is plain recognition that its PE product *“is going to burn in case of fire”*.

33. On 23 November 2011 {MET00053158_P04_0054}, Mr Wehrle wrote to Jordi Gonzalez of Alotark Arquitectos regarding a project called Endesa:

“Cladding systems for projects in Spain have to be classified B-s3,d2 minimum [...] For the Reynobond FR, our riveted and cassette systems are both B-s1,d0. For the Reynobond PE, our riveted systems are B-s1,d0 and our cassette systems are E. The ENDEA project is made with cassettes, therefore, we recommend you to use our Reynobond FR product.”

34. Mr Gonzalez (Alotark) responds to the letter {MET00064988_0034} asking for:

“a brief explanation about how the fire reaction test have changed, how did they affected to the PE and why if riveted system gets B-s1-d0, the cassette one goes straight to E what, if you let me be sarcastic, is close to the spontaneous combustion.”

35. It is self-evident why Arconic was: (1) wrong to represent through the BBA Certificate that cassettes were Euroclass B; and (2) wrong to allow use of RB PE in cassette form anywhere in the world.

36. Through emails dated 16–17 January 2012, between Deborah French and Roy Fewster (CEP) { CEP00047982}, Ms French informs Mr Fewster of a *“4 tower blocks project”* in Newport. Ms French explains:

“They are looking for 4mm ACM cassette tray panels [...] job is “circa 6 000 – 7 000 m2. Material has to be BBA compliant so I have attached a copy of ours FYI... ”.

37. So, misleadingly, Arconic sent the BBA Certificate to support the use of cassettes on 4 towers, representing that the cassettes were Euroclass B.

38. Mr Wehrle writes to Claude Schmidt and Peter Froehlich on 29 May 2012 {MET00053161_0011} saying *“we have to take a decision for the class we are going to give the market for this product”*. Mr Wehrle writes to Mr Schmidt on 15 June 2012

{MET00053158_P02_0195}. Mr Schmidt rejects the meeting invite with subject line “*RB ARC - UK he beacon + fire for PE*” stating “*Please specify subject. I don’t accept meetings without knowing what it will be about.*”

39. Mr Wehrle responds:

“I thought the subject matter was sufficiently clear.

Two issues must be considered: [...]

2- Reynobond PE and its fire classification is a serious issue in Europe, and we would like to hear your opinion on the position to be held on the market.”

Whatever was discussed, Arconic ploughed on regardless.

B.4 From the beginning of Arconic’s involvement in the Grenfell Tower project until the fire: 2012 to 2017

40. In October 2012, a meeting took place between Arconic, CEP and Studio E to “to discuss Zinc rainscreen”: {CEP000005292} and {LBI00000616}. Ms French attended the meeting on behalf of Arconic, Geof Blades on behalf of CEP, and Bruce Sounes on behalf of Studio E. Mr Blades agreed, in his oral evidence to the Inquiry, that as well as promoting its Zinc Composite Material, Ms French also promoted Arconic’s ACM, i.e., RB PE. (Day 41/91:25–92:3). Mr Sounes recalled that he talked about the fact that Grenfell Tower was a multiple-storey residential block (Day 20/96:14–17) and that “zinc effect” ACM panels were discussed as an alternative to zinc (Day 20/97:18–98:1).

41. Shortly after, and importantly, in terms of it being driven home to Arconic as to why it was inexcusable to continue with PE, on 27 November 2012 {MET00053157_0040–0043} an Arconic email exchange (Robert Quattrocchi to Alain Flacon, Claude Wehrle, Hafid Asserrar (and cc Claude Schmidt)), attached a news article on the Tamweel Tower cladding fire in UAE:

“For your information. ACM facade caught fire in UAE. Read the article. There is a link to BBC photos. There is a protective film, but there is no way to see the brand. I think it is worth digging into.”

42. Mr Wehrle responded:

“This has to do with Gutbond PE - Knowing that all PE composites react the same way”

43. On 24 January 2013 Arconic received an email from CEP {CEP00048962} with drawings and specifications showing height and dimensions of Grenfell Tower, as well as other components in the proposed cladding system (including Celotex). On 27 February 2013 {CEP000004037} Arconic were told by CEP that Studio E was now considering alternatives to zinc and that CEP would propose the Reynobond range. On 5 March 2013 {MET00019920_0002} CEP asked Arconic to send various Reynobond samples direct to

Studio E and enquired whether there were any existing projects where Studio E could view a large area of the panels. On 9 April 2014 {ARC00000089} Harley informed CEP that Rydon had been confirmed as the preferred contractor.

44. In email exchanges on 25 April 2013 {MET00064988_0120-0122}, in response to Isabel Moyses (Arconic Sales Manager in France) seeking clarification as to whether the Euroclass B-s2,d0 classification for riveted was still valid, Mr Wehrle said:

“It’s valid because it’s contained in an official report. However the tests that we conducted are not really reflective of the riveted system in general. So, Alcoa aligns with the “market classification and does not use it any more, preferring a class “E””

45. There are important things to note about this email:

- (1) It appears that Mr Wehrle did not consider that the tests which resulted in riveted PE as being classified as B, were *“reflective of the riveted system in general”*.
- (2) Although he tells Ms Moyses that the B classification for riveted PE was not *“used anymore”*, this was not true (unless he was saying that it was only used for cassettes, which would make Arconic’s conduct even more outrageous).

46. It is not clear from the documents currently disclosed as to why Mr Wehrle considered the test which gave rise to the B classification for riveted not to be *“reflective”*. It may well be that it was tested in circumstances that would not reflect any normal or usual installation. The email goes on, Mr Wehrle says that: *“we have not communicated B-s2,d0 from the beginning of the year at the request of CS.”*

47. “CS” is presumably Claude Schmidt. Ms Moyses replies that that’s not what *“Miguel gets told”*. Mr Wehrle responds:

“Yes it is. I even told him that before everyone else when I was in Spain. The thing is that the DIT² still includes B-s2,d0 for PE, so he makes use of that.”

48. Ms Moyses retorts: *“Yet we still won’t stop proposing the riveted product in PE???”* Mr Wehrle replies: *“Yes, that’s the thing...It’s a gap in the certification that we continue to make use of.”*

49. So, Arconic knows:

- (1) PE, whether riveted or cassette, is dangerous (see above).
- (2) Cassettes are being represented as having a Euroclass B classification, when it is, in fact, E.

² DIT is a Spanish National Technical Approval document issued by IETcc (seemingly the Spanish equivalent of CSTB): <https://www.ietcc.csic.es/en/>, accessed 6 October 2020.

- (3) The rivet system classification is not reflective.
- (4) There is “*a gap in the certification that we continue to make use of*”, because, it appears, Miguel can make use of a DIT rating of “B”.
50. There are email exchanges between 2 and 10 May 2013, 4 years before the Grenfell Tower fire. An email from Graham Smith (Simco), on 2 May 2013, to Deborah French (Arconic) and cc’ing others including Peter Froehlich (Arconic) and John Simmons (Genius Facades) {MET00053173_0075} provided a link³ to a BBC report addressing the spate of ACM cladding fires in the UAE.
51. In the exchange, Smith says “*Debbs, I believe this will impact yourselves and the need for FR core more prevalent?*”. Ms French then forwards this email to Mr Wehrle {MET00053173_0075} and says: “*Not sure if you have seen this click on the link below.*”
52. Richard Geater of 3A Composites (manufacturer of Alucobond), was also prompted to send out an email, dated 9 May 2013, addressed to Barrie Wingrove of Argonaut UK (fabricator). Mr Wingrove then forwarded this email to Ms French {MET00053157_0048}. She, in turn, emailed Mr Wehrle, Peter Froehlich (Product Manager), Alain Flacon (Sales and Marketing Director) and Claude Schmidt (President/General Manager) on 10 May 2013 {MET00053157_0047–0049}:
- “Just to make you aware I sent this link over to Claude W last week concerning a BBC report covering a fire in UAE using ACM. Richard Geater – Alucobond Rep in the UK is emailing all fabricators explaining that Alucobond is now using a fire core only as std. [...] Would welcome any comments / statement we have ref the fire and our std’s so I can communicate this to our relevant customers.” (Emphasis added)*
53. “*std*” is presumably “standard”. Mr Flacon’s response was to ask Mr Wehrle “*what 3A says about the fire resistance of Alucobond’s FR*”, and Wehrle confirms it is B-s1,d0 “*just like our Reynobond FR.*”
54. The BBC Report included the following:
- “A fire at the Al Hafeet Tower in Sharjah on 23 April was eerily similar to a blaze that gutted the Tamweel Tower in Dubai last November. And the 40-storey Al Tayer tower in Sharjah also suffered a similar fate in April 2012.*
- In all three cases fire roared up the sides of the building as individual panels ignited and burst into flame. No deaths were reported from any of the fires.*
- “[The facades] are good-looking, long-lasting and easy to maintain, but they have one big problem - they burn rapidly,” Thom Bohlen, of the Dubai-based Middle East Centre for Sustainable Development, told the BBC...*

³ <https://www.bbc.co.uk/news/world-middle-east-22346184>

Occupants of residential towers that burst into flames have spoken about the lack of fire alarms at the time of the blaze but most seem unaware that they and their families are living in potential firetraps” (Emphasis added).

55. These comments told Arconic what it already knew. Any reputable organisation, even at this late stage – bearing in mind the knowledge it had, in any event – would have withdrawn RB 55 PE, its standard product, from use on residential buildings (whether face-fixed or cassettes) and issued warnings with regard to projects on which it had already been used. Ms French, in a meeting after the Grenfell fire, dated 21 June 2017 {MET00040561}, is recorded as having said that at the time Alucobond removed their PE offering from the market and began to supply only FR.

56. Arconic’s response was different. An email from Ms French of 13 May 2013 {CEP00049719} to CEP’s Neil Wilson, Geof Blades and Roy Fewster forwarding the BBC report of ACM cladding fires in the UAE stated:

“As a business we are aware of this report and our technical team are following the details [...] Regarding the supply of Reynobond in the UK, as you know we supply both PE and FR core and can control and understand what core is being used in all projects due to the controlled supply route we have. By only supplying Reynobond to a very small group of Approved Fabricators and working closely with them on all projects we are able to follow what type of project is being designed / developed and then offer the right Reynobond specification including the core. At this stage we will continue to offer both PE & FR core [...]” (Emphasis added).

57. The contents of this email were sent, apparently, not just to CEP but to other Arconic customers too: see email to Simco and Genius Facades (specialist façade contractors in the UK) {MET00053173_0079}. Mr Wehrle and Peter Froehlich were copied in to this email.

58. In its written closing submissions to the Inquiry at the end of Phase 1, Arconic said at paragraph 28(iv):

“One would not expect the supplier of the panels to be involved in the design of the cladding system, in the decision whether — and if so, which — panels to utilise, or in the method of fabrication and fixing” [{INQ00000558_0006}].

However, the truth of the matter is that that is what Arconic led its customers to expect.

59. What should be said and to whom was no doubt discussed carefully within Arconic before the email was sent. It was plainly sent to assure and give comfort to those to whom Arconic sold RB 55 PE. It represented that Arconic would not sell or supply the PE product to them (or presumably *anyone*) in circumstances where there was a risk of danger. The wording of the email is assuring each party that they need not be concerned about Arconic selling Reynobond products which did not have the correct core (PE or FR), or any other relevant characteristics, for the job.

60. To make good on this, of course, Arconic would need to find out the details of the particular project (including its height) and the governing legal regulations. Only this knowledge could enable it to offer the right specification for that project including whether it should have an A2, FR or PE core and be riveted or cassette.
61. On 7 November 2013 {MET00053158_P02_0038–0039} the CSTB informed Mr Wehrle that the riveted system achieved a Euroclass C and the test on the cassette system had to be stopped, meaning the best classification it could be awarded was an E.
62. The then existing BBA Certificate, even if it had properly represented RB PE, became obsolete, as the Euroclass B and Class 0 representations of the product were now based on outdated CSTB test reports. The BBA was not notified by Arconic, as BBA’s terms and conditions required (see signed terms and conditions at {MET00053158_P15_0085–0089}).
63. The history of the Grenfell Tower project before 2014 and around this time is well documented. From early January 2014 Deborah French was sent details by CEP and knew, for example, of the intention to use Celotex (see 7 January 2014 email {CEP00050793}).
64. In the meantime, the CSTB classified RB 55 PE cassette and riveted as Euroclass E on 31 January 2014 {ARC00000393}. This, again, should have put an end to RB PE being promoted for use in any form, let alone in cassettes for use in residential buildings greater than 18 m tall.
65. The consequences arising as a result of these new classifications are ventilated in email chains between Arconic and its customer, PREFA, in January and February 2014. Amongst other things, Mr Wehrle explained that the new CSTB classification report meant that PE in both cassette and riveted systems was now Class E, and that the previous Class B for riveted was only achieved “with a certain rear ventilation distance.” {MET00064988_0050–0066}
66. On 3 February 2014, Mr Wehrle informed those at Arconic of this new Class E result and instructed that:
- “The previous “B” class report done for Reynobond PE in riveted system can no more be used from now.”* {MET00053160_0001–0010}
67. At an Arconic Sales Meeting Presentation in February 2014 {MET00053158_P07_0087–0106} Deborah French, in the UK, was told that all PE was Class E (see 3 February 2014 presentation {MET00053173_0091–0095}).
- Nevertheless, on 23 April 2014, by email {CEP000004217_0001}, Deborah French sent to Harley and CEP a copy of the 2008 BBA Certificate, thereby falsely representing RB 55

PE, both riveted and cassette, as Euroclass B. It was sent on by Mark Harris (Harley) to Rydon {HAR00000933}.

68. On 30 May 2014, an Arconic visit report, relating to its meeting with PREFA, states {MET00053157_0253}:

“E classification instead of D for the RB 55 PE: we are rated E because we wanted to be honest! The test was done on a ventilated façade without any artifice to isolate the windows from the rest of the façade (steel plate etc...)”.

69. On 25 July 2014, notwithstanding the 13 May 2013 email, Arconic allowed RB 55 PE, in cassette form, to be specified at Grenfell Tower with no suggestion that the specification should at least be FR core or not used at all (see email from Mark Harris (Harley) to Deborah French and Geof Blades (CEP) {CEP00051955}), informing that:

“The Reynobond colour choice for the whole job is ‘Champagne’, in a cassette format.”
(Emphasis added)

70. See also in this regard, email from Harley to CEP dated 31 July 2014 {MET00053173_0404-0411}, copied to Deborah French, informing not only of the colour but also that it was in cassette form and photos showing the full height of the building and the crown. Deborah French responded: “I think I owe you and Geof either lunch or dinner at some point” {CEP00052068}.

71. Arconic’s RB Technical Datasheet dated 13 August 2014 {ARC00000399} stated:

“Building and Reynobond Architecture are especially developed for outdoor applications such as ventilated facades, interior coverings and designing facades, both in the area of new buildings as well as refurbishments.”

The datasheet did not refer to the fact that the most recent CSTB report had classified RB 55 PE (cassette and riveted) as Class E {ARC00000393}.

72. This datasheet was also provided by Arconic to BBA for certification renewal in October 2016 {BBA00011052}. BBA were not told of the new reduced Euroclass classifications.

73. On 17 October 2014, Mr Wehrle exchanged emails with Serge Wahler (Arconic). {MET00053158_P10_0107-0108} after PREFA had asked Mr Wahler (cc’ing Mr Wehrle): “When and which building classes should the PE or FR core be used in England?”. Mr Wahler responds: “You can do everything with PE in England”. Mr Wehrle then says privately to Mr Wahler:

“Be careful, this is not the case. Debby pushes hard for the PE prescriptions, but everything is moving to FR (from the British Standards to the European Norms) [...] Analyses of past figures are not necessarily correct.”

Mr Wahler responds:

“I called her, and she confirmed that so far, only PE is used regardless of the project, no specific legislation.”

74. After the Grenfell fire, on 16 June 2017, Mr Wehrle forwards this exchange to Mr Wahler and says: *“Remember....be careful with this kind of communication to PREFA”*. Mr Wahler responds:
- “...I thought Debbie was logically the person who was best informed, and I stupidly repeated what she told me (I am very good at doing that!!!!)”*
75. Notwithstanding everything, and notwithstanding the email of 13 May 2013 to CEP, Mr Wehrle knew that Arconic, through Deborah French, was pushing dangerous PE over FR. This is inexcusable. Arconic were exploiting what it saw as weak and ambiguous regulations to peddle a dangerous product.
76. In December 2014, CSTB reports provided that RB 55 PE cassette was classified as E and RB 55 PE riveted/face-fixed was classified as C ({**ARC00000395**} and {**ARC00000397**}). It is not clear how this squares with Arconic’s previous internal discussions to the effect that all RB 55 PE should be E. These classifications were repeated in the CSTB reports of September 2015 ({**ARC00000402**} and {**ARC00000405**}).
77. RB 55 PE, for use in cassette form, was manufactured and supplied by Arconic for use at Grenfell Tower. On 3 March 2015 {**CEP000000523**} and {**CEP000000524**} Arconic sent CEP a formal quote for the supply of RB 55 PE for the Grenfell Tower project. Harley’s first purchase order of RB 55 PE from CEP for the project was placed on 13 March 2015: {**CEP000000528**} and {**CEP000000529**}. On 26 March 2015 {**MET00053159_40**}, {**MET00053159_41**} and {**MET00053159_42**} Arconic sent CEP an order acknowledgment in respect of RB 55 PE panels for Grenfell Tower. The majority of panels were installed between 27 April 2015 and 24 July 2015.
78. At no stage did Arconic ensure that the right core was used for the right project. The exact opposite occurred: it knowingly manufactured and supplied for the project a product it knew to be dangerous. In written closing submissions to Phase 1 of the Inquiry it was suggested on behalf of Arconic that the tragedy of Grenfell Tower *“does not show the ACM PE cladding itself would necessarily have been a source of danger”* but that it all turned on the combination and configuration of other combustible materials with which it was used and other such matters (see para 98). Given the numerous times in the years preceding the fire when, without any qualification or reservation, the dangers of ACM PE had been acknowledged within Arconic, clearly that is not a view to which Arconic itself subscribed.

79. The BBA review report of 10 April 2015 for the Reynobond product concluded that the BBA certificate remained valid {MET00053158_P18_0024-0030}. This was sent to Mr Wehrle via email from Mandy Osman (BBA) {MET00053158_P18_0023}. The next review date was stated to be 14 January 2017. Instead of withdrawing PE, Arconic sought renewal of the BBA Certificate and allowed it to be renewed on the false premise of a subsisting Class B Euroclass classification.
80. During the time when the panels were being installed at Grenfell, in May 2015, Mr Wehrle (along with other Arconic personnel) was sent the Melbourne Fire Brigade (MFB) Lacrosse Fire Analysis Report, which was then circulated internally (see {MET00053158_P10_0183-0200} and {MET00053158_P11_0001-0111}; {MET00053158_P11_0113-0200} and {MET00053158_P12_0001-0040}; {MET00053158_P12_0041-0167}).
81. That report contains an Appendix 12 {MET00053158_P11_0088-0091} which identifies fires at 7 different locations around the world, with 1 taking place in 2007, another in 2010, 4 in 2012 and 1 in February 2015.
82. In response to an enquiry from Arconic Building and Construction Systems in the US on 24 June 2015 to Claude Schmidt and Nick Randall asking for definitions of PE, FR, A1 and A2 {MET00053158_P05_0008-0009}; {MET00053157_0259-0261}, Mr Wehrle prepared a table {MET00053157_0261} which for PE included the following:
“Maximal building height of 8m to 12m depending the country”.
 Arconic considered, it seems, that RB PE was unsuitable *anywhere* on buildings in excess of 12m.
83. On 29 June 2015 an email {MET00053158_P05_0014-0015} shows Mr Wehrle stating:
“As I have already mentioned on several occasions, Reynobond PE is classified as M2 or M4 (European Norm equivalent)... I was told that, for the time being, in France, it is the French standard that is required (therefore NFP 92 - M1)... and that it would be excessive to communicate on the subject.
My Opinion:
PE is DANGEROUS on facades, and everything should be transferred to FR as a matter of urgency. The NFP92 standard should have been discontinued over 10 years ago!
This Opinion is technical and anti-commercial, it seems ☺”
84. On 7 July 2015 Arconic {MET00053159_0746} acknowledged a further order from CEP of RB 55 PE for Grenfell Tower in an email which said *Many thanks for this new order”* and

added a smiley face. On 31 July 2015 {CEP00055739} Arconic sent CEP Operating & Maintenance Instructions, Data Safety Sheets and other information on the cladding panels for inclusion in the Grenfell Tower O&M manual. Thus, at the very time that Arconic was supplying and facilitating the installation of RB 55 PE panels at Grenfell Tower, internal communications within Arconic demonstrate that Arconic knew it should not be manufacturing or marketing RB PE 55 for use in habitable buildings either above a certain height or, indeed, at all.

85. This was not a new view, nor one that had not been expressed and understood within Arconic over many years before this email was sent. Mr Wehrle was advocating that PE should be withdrawn from the market. No-one who was a party to any of this correspondence could seriously have believed that Arconic should be allowing RB 55 PE to be used on a project such as Grenfell Tower; that it was the right core for the right project. Any suggestion that this view was in any way qualified, or that he was saying that PE was not dangerous if carefully installed together with other particular products would be preposterous (and any such suggestion is flatly contradicted by the contemporaneous documents held and disclosed by Arconic).
86. This email indicates knowledge that standards in countries such as France were “outmoded” but could be exploited to enable the continued manufacture, marketing and selling of dangerous product. The continued marketing of product before and after this email was putting profit above the risk to life. It is not clear who had the ultimate ability to action or indeed not action Mr Wehrle’s email. Ultimately, however, it was not actioned either at all or certainly not in respect of Grenfell Tower.
87. In her email of 31 July 2015 {MET00053180_0012}, Deborah French, by this time working for Taylor Maxwell, an Arconic customer, says in an email to Gwen Derrendinger of Arconic:
“We need to make sure we only order FR core if project needs to achieve an 'O' fire rating - if we don't highlight this to genius they only order PE only and it wont have the rating required. Vince can you please confirm if FR is the same cost to us as PE”
88. This suggests that Deborah French, at least, believed (and Arconic knew of this belief) that RB PE would not achieve “an ‘O’” (i.e. Class 0) fire rating required by Approved Document B, all at the time when the panels were being put up on Grenfell Tower.
89. As at September 2015 Reynobond’s product page on Arconic’s global website describes Reynobond FR as providing an “extra layer of protection” and that it is:

“manufactured just like Reynobond PE, but with a fire-retardant mineral core that guarantees higher resistance to fire. These panels meet or exceed national model building code requirements without exception.”

This does not warn against PE but merely suggests that FR might be a little bit better.

90. On 8 October 2015 {**MET00053182_0025-0027**} there is an internal Arconic email exchange regarding a query from CGL/Fairhursts regarding a UK project at Media City. Fairhursts’ query states that Media City was clad with *“the Standard non-fire retardant panel”* and that it:

“complies with current standards for surface spread of flame, (EN & BS), but not with regards to heat increase of the core material (BS476 pt 11).”

91. Rob Campbell of Arconic then passes the query on to Gwenaelle Derrendinger and Vince Meakins (both of Arconic), who in turn seeks input from Mr Wehrle. There is no response yet seen in which Mr Wehrle expresses his view about the compliance of PE with BS 476 Pt 11.

92. On 16 October 2015 there were internal Arconic emails between Messrs Wehrle, Flacon and Wahler {**MET00053158_P10_0168**} concerning a fire at *“King Fahed Medical Center Riyadh”* on 10 October 2015 which supposedly was clad in Alucobond FR. Mr Wehrle says:

“FR showed a very good fire behaviour. In PE, the fire would have spread over the entire height of the tower, while in this case only the area near the fire is affected... Long Live FR :-)”

93. Mr Wehrle believed that had the Tower been clad in PE and not FR, it would have spread over the entire height. It plainly echoes his warning that only FR and not PE should be marketed, manufactured or sold for architectural use.

94. On 12 November 2015 {**MET00053183**} Arconic sent CEP an order acknowledgment for the supply of further RB 55 PE panels for Grenfell Tower.

95. Deborah French’s view of the non-compliance of PE with Class 0 set out in her email of 31 July 2015 is repeated in an email chain relating to a project at Queens Way dated 24 November to 1 December 2015 {**ARC00000672**}; {**ARC00000674**};

{**MET00053180_0017**} where Grahame Byrne of Genius Facades says that Arconic had confirmed that if:

“a class 0 spread of flame is required then we will have to supply the FR core Reynobond”; and

“If I was a client I would take the FR core over the standard PE core we offer with Reynobond. With building regulations in the UK once a building goes over 18mtrs the material needs to be FR rated.”

96. Mr Byrne adds that he and Arconic may lose two projects due to other suppliers offering FR instead of PE.
97. On 9 December 2015 {ARC00000683} there is an email exchange between Genius Facades and Mr Wehrle and Vince Meakins (Arconic) in relation to the Queens Way project, in which Mr Wehrle expresses the view to Genius Facades that neither the BS nor the NF testing regime (in Britain and France respectively) is sensitive enough to make a difference between the FR and PE products. He of course knows that PE is dangerous and ought not to be used. Further down that chain, on 8 December 2015, he says:

“in accordance with the British Standards (BS 476), both Reynobond PE and Reynobond FR are well classified when tested for spread of flame. Nevertheless, in Europe, all the product should be tested in accordance with European Standard EN 13501 since 2000. And when tested like this, there is a big difference between those 2 products (PE and FR).”

98. On 14 December 2015 and amidst much correspondence with Arconic’s customer, Genius Facades {ARC00000699} {ARC00000696} (email attaching letter), it seems that the following position was reached *“concerning the issues you have on the Reynobond fire reaction class in the UK.”* The letter from Arconic says the Reynobond PE and FR grades are both classified as Class 0 when tested in accordance with British Standard BS 476 Pts 6 and 7, but:

“those two products are very different in their behaviour when exposed to a flame. This difference is shown when tested in accordance with the European standard EN 13501 where the following classes are achieved: Reynobond PE – class E, Reynobond FR – class B-s1, d0.”

Arconic exploited the perceived weakness of the British Standards in supplying what it knew to be dangerous RB 55 PE for the Grenfell Tower refurbishment.

99. On 4 January 2016, {MET00053158_P10_0172-0173} emails between Mr Wehrle, Alain Flacon and Serge Wahler (both Arconic) discuss yet another ACM fire in Dubai, this time at The Address Downtown on 31 December 2015. Mr Flacon says: *“No surprise. The only good news is that it seems to be AB [Alucobond] products”* to which Mr Wehrle responds: *“I hope that PE will gradually be excluded from façade cladding because each time it is the image of all the ACMs that takes a hit!”*
100. The fact of yet another fire involving a PE ACM is of “[n]o surprise”. What is a surprise is that Mr Wehrle now only refers to PE being excluded *“gradually”* and in terms of the industry’s image and its impact on ACMs (presumably those with FR and higher grade cores). It is easy to deduce that the company’s and group’s profit was the paramount consideration, not safety.

101. On 19 January 2016 {MET00053158_P10_0178-0181} Mr Wehrle emails Mr Flacon, Lionel Marconnet and other Arconic staff attaching a photo of a building on fire in Strasbourg, France, and says:

"We were very lucky... The Wolleck tower is in Reynobond PE 10 metres from a fire! [...] fortunately, the wind didn't change direction, but... we really need to stop proposing PE in architecture! We are in the "know", and I think it is up to us to be proactive...AT LAST".

102. Mr Wehrle envisages that had the wind changed direction there would have been a disaster. He recognises that Arconic are in a special position; *"In the "know"'* plainly means that Arconic know that PE is dangerous and should not be used in any circumstances, such as the Grenfell Tower project (whether in cassette form or otherwise). The reference to *"AT LAST"* and its connotations needs no elaboration.

103. The cladding on Grenfell was by then installed. Arconic's knowledge of the dangers of the cladding was not notified to anyone. Arconic had expressed internally, again and again, that PE was dangerous and should not be used. Even if this had been the first time Arconic had recognised the dangers of PE, it should have immediately and explicitly notified all relevant parties of the dangers of PE being left on buildings such as Grenfell Tower. Arconic plainly viewed the commercial and reputational ramifications too great for it to *"come clean"* with regard to Grenfell Tower.

104. On 9 February 2016, Hervé Marichez emailed Mr Wehrle and cc'ing Lionel Marconnet, Patrice Audureau and Kevin Lelu (all Arconic) attaching a cladding specification for a hotel in France {MET00064988_0027-0029}:

"Just as an example: here's some typical specification for the French market: an Alucobond Plus prescription (so our version of FR), and with M1 classification! And it's for a hotel!!!

...So do you reply with FR (with your conscience clear) or PE (so you're sure to get the business)?

What a dilemma!"

105. The fact that he considers the choice between selling a dangerous product and profit to be a *"dilemma"* is depressing and symptomatic of the culture within Arconic. The consciences of those selling PE for use at Grenfell do not seem to have been troubled.
106. Booth Muir are an Arconic customer and fabricator. A Booth Muir Technical Note {ARC00000701} {ARC00000702} was sent to Mr Wehrle and circulated internally at Arconic on 11 April 2016. It describes the four routes to compliance as recommended by the Building Control Alliance, and provides a table listing ACM panel products. The table lists

Reynobond PE core as “flammable” and Reynobond FR as “very low flammability”. The table also describes both PE and FR as not meeting non-combustible and limited combustibility criteria. The technical note then states:

“It is our opinion that options 2, 3 and 4 further illustrate that the easiest way to design a rainscreen system that is compliant with AD B2 featuring Booth Muirie’s rainscreen panels is to only incorporate non-combustible and or limited combustibility products throughout the wall construction (Option 1).”

107. There is no record of Arconic’s reaction.
108. On 3 May 2016, just over a year before the Grenfell Tower fire, Alain Flacon sent an internal email to several personnel including Mr Wehrle {MET00053158_P10_0085– 0086}; {MET00053158_P06_0099}; {MET00053157_0267–0268}. In it, he lists FR and PE classifications in France and elsewhere in the EU (PE riveted is stated as Class C and cassette as Class E) and says this:

“This ambiguous situation is open to interpretation and, in particular, gives control offices the option to check the M classification as a priority, as the European classification is more complex to understand and use. You and your customers regularly specify our Reynobond products on large-scale architectural projects. As such, Alcoa Architectural Products finds itself as a knowledgeable entity, and therefore accepts its responsibility and image as a specialist in this field. In view of the potential calorific benefits of Reynobond FR (vs. Reynobond PE), and consequently its superior performances, we have taken the proactive habit of favouring FR as the only solution in our specifications. As from today, I ask you to go further and to systematically confirm in writing the requirement for FR for all projects on which a Reynobond specification is involved, regardless of the nature and size of the building project [...] please contact Claude, who will give you all the necessary information to justify this choice and advise the specifiers as best as possible regarding this solution, which is by far the safest.”
(Emphasis added)

109. Mr Flacon, who was Sales and Marketing Director, and Mr Wehrle’s line manager, in this email recognised that Arconic itself has the ability to influence the specification of RB PE. This reflects Arconic’s previous assurances to customers, as in its email to CEP of 13 May 2013 {CEP00049719}, that it would “control and understand what core is being used in all projects” and work closely with its Approved Fabricators and “follow what type of project is being designed / developed and then offer the right Reynobond specification including the core.”
110. Moreover, whoever actually specifies RB PE, Arconic is a “knowledgeable entity, and therefore accepts its responsibility and image as a specialist in this field.”
111. Arconic had been in this position for some time. Arconic has no excuse for allowing RB 55 PE to be used at Grenfell. In any event, simply sending out an edict that “from this day forth” PE would not be specified was not good enough. At the very least, projects in which

it had been used should, in all conscience, have been notified and warned of the fact that they were clad in a dangerous product. As Arconic accepted, it had a responsibility. Practical Completion on the Grenfell Project was reached only 10 weeks later on.

112. Contrast this internal acknowledgment of what is plainly correct with recent pronouncements from Arconic to this Inquiry, for example:

“As to knowledge, without entering into the extent, if any, of our client’s knowledge as to the other components of the cladding system at Grenfell, such knowledge, if any, did not remotely fix them with responsibility to intervene in relation to the choice of those components and take upon themselves a responsibility which it was for others to fulfil.”
(Day 2/42 - oral opening to Phase 2, Module 1)

113. On 18 May 2016, {MET00053158_P05_0095–0096} Mr Wehrle has an exchange with Gabriele Mannucci (Arconic) regarding a query from a customer relating to the fire resistance of PE panels in Italy, to which he responds that:

“If the relevant norm is EN 13501, the European one, the fire class for Reynobond PE is “E”, what means that it's not allowed for buildings.... What is the requested norm in your point of view?”

114. Mr Mannucci responds raising a question about the European and Italian standards. Mr Wehrle responds saying:

“[...] The decision in taken to use as much as possible FR in Europe, due to the last fire and its consequences. [...]”

115. It is not clear to which fire he refers. Presumably the decision (whoever it was taken by) was on the basis that PE was dangerous.

116. On 22 June 2016, Kevin Lelu emailed Yves Biehlmann (also Arconic) and Mr Wehrle, asking whether a 20 year warranty can be offered for a housing project in France using PE {MET00053158_P06_0109–0112}. With his comments over the years in mind, it is with some understatement that Mr Wehrle responds that he has:

“major reservations about the use of PE on “Habitat” project of such size; I propose we use Reynobond 55 FR.”

117. This is a year before the Grenfell Tower fire. His reservations can only have been that PE is a fire risk and it would be dangerous to use. This, it seems, was regardless of whether the use of PE would have complied with French Regulations.

118. An email from Julie Kasyanik (Arconic) to Mr Wehrle of 24 June 2016 {MET00064988_0129} seemingly forwarded “quite interesting certificates and reports” regarding Alucobest to which Wehrle responded:

“This is a certif. for PE, not FR. We also had a class “B” at the time in PE, but by “arranging” the system to pass. So this report is really not a reference.”

119. The word “arranging” is in inverted commas and the connotations are obvious. See Mr Wehrle’s email of 25 April 2013 (above).
120. In December 2016, Arconic produced a brochure entitled “Fire safety in high-rise buildings” {CEP00061238}. It contained an illustration showing that PE is permissible for installation up to 10 metres, FR for 10–30 metres, and a non-combustible A2 core thereafter. The brochure also states that the panel is appropriate for use “...from the single-family house to residential, commercial and industrial buildings to large prestige projects.”
121. The backdrop to this brochure and how it came about is not clear from any of the evidence. As it is understood, it was relied upon by CEP for two UK projects after the Grenfell Tower fire (see {CEP00060130} and {CEP00062316}).
122. It was still not too late for Arconic to have explicitly written to all relevant parties involved in the Grenfell Tower project and warned them of the dangers of RB 55 PE.
123. On 4 May 2017, just over a month before the fire, Mr Wehrle says that on a visit to Chalcots Estate with Vince Meakins (Arconic) and Alan Whyte and Steve Blake of Rydon he was surprised to see PE on such a high building, presumably because he knew what risks it posed (although Mr Wehrle’s recollection was disputed by Mr Blake in his oral evidence (**Day 29/62:10–12**)).
124. It beggars belief that he was surprised bearing in mind his position and knowledge of how PE was marketed and sold in the UK. He did not take up the opportunity to confirm his surprise and thus his concerns, in writing, that PE had been installed at a building in excess of 18 metres.
125. Emails between 23 May and 12 June 2017 between Valentina Amoroso (BBA) and Nicolas Remy (Arconic), and copied to Mr Wehrle, discuss outstanding work on the re-issue of the Reynobond BBA Certificate. Mr Remy mentions calculations for cassette system and “*visible systems (Riveted/Screwed)*” and Ms Amoroso replies:

“Since the cassette system has never been assessed by BBA and you have confirmed that you do not manufacture them (hence you are not accountable for their final performance), these will be removed from the certificate. They can be added if a proper assessment is carried out including specific testing, audit of the fabricators and submission of information related to the approval procedure for the fabricators (they need to be registered in scheme controlled by you) [...] In our Certificate only rivets are mentioned, however if you want we can add the screws too.”
126. Mr Remy responds to the suggestion of removal of any reference to cassette system: “*Ok for us, let’s keep it like this!*” {BBA00008210}.

127. On 12 June 2017, two days before the Grenfell fire, we see emails between Meir Abekasis (Aluton Aluminium, a customer in Israel) and Virginie Grandin and Gabriele Mannucci (both Arconic), in which Mr Abekasis requests Euroclass classification reports for Reynobond PE and FR {MET00064988_0071-0074}. Ms Grandin sends reports for PE riveted, PE cassette and for FR. Mr Abekasis, however, requests a report that was valid until end of 2016, as the more recent reports have a worse classification. Ms Grandin forwards this request internally to Mr Wehrle and Philippe Vonthron, saying:

“Our partner in Israel is finding some big issue [in relation to PE] because of the fire tests lower class compare to previous one [...] can we do anything to support him ?”

Mr Wehrle responds:

“The test for the cladding changed to a more strict one. Today, all the ACM PE are classified “E” when tested in accordance with EN 13501 standard. In Europe, normally, PE should no more be used on a building for external cladding.” (Emphasis added)

128. It is not clear what test became stricter. However, the cladding he refers to is, of course, the cladding used at Grenfell.
129. Knowing that RB 55 PE in cassette form was used at Grenfell Tower, the fact that the fire spread with such catastrophic and tragic consequences cannot have come as any surprise to those within the Arconic organisation.
130. It is notable that after the fire, in an email on 20 June 2017 {BBA00010485}, the BBA internally discuss the Reynobond BBA Certificate, and Brian Moore (Operations Director) says that “*We [the BBA] would be in a stronger position if it [the 2008 certificate] stated in terms ‘not to be used above 18m’.*” Attached to this email is a draft internal note by John Albon (Head of Approvals) setting out BBA’s “*exposure concerning product/system Certification and Inspection*” {BBA00010486}.
131. It is clear beyond any shadow of a doubt that for many years before the Grenfell Tower fire Arconic knew that RB PE was dangerous and should not be used on habitable buildings. Despite this, Arconic not only continued to sell RB PE but actively promoted it for such use, cynically exploiting weaknesses and loopholes in different countries’ regulations. Arconic breached its obligations to the BBA by failing to inform the BBA of the further CSTB testing that downgraded the fire rating, crucially in the case of cassettes, to Class E. Instead, it continued to use the BBA certificate to promote the use of RB PE in applications which it knew would be dangerous, precisely as occurred in the case of the Grenfell Tower refurbishment, where it knew that the panels were to be used in cassette form on a high rise residential building. The body of evidence demonstrating just how dangerous PE panels

were and Arconic's appreciation of those dangers was growing even as Arconic was, unaccompanied by any warning, supplying RB 55 PE panels for Grenfell Tower, panels that it knew were going to be fashioned into cassettes. The Inquiry's finding that the RB 55 PE cassette panels acted as a source of fuel and was the principal reason why a fire spread so rapidly up, down and around the building was entirely in accord with what Arconic knew and could have predicted.

C CELOTEX

132. In 2013 Celotex was under pressure from its new owners, St Gobain, to increase profits and as a result set about trying to break into the lucrative "above 18m" market for rainscreen cladding insulation, a market which at that time was dominated by a rival rigid foam product, Kingspan's phenolic Kooltherm K15. The product which Celotex used for this assault upon the "above 18m" market was its existing FR5000 product, a rigid foam insulation board made of polyisocyanurate (PIR).
133. PIR is not of "limited combustibility" and if exposed to flame will burn. It therefore does not satisfy para 12.7 of the Approved Document for use in buildings above 18m. Accordingly, the linear route to compliance with the Building Regulations was not an option for Celotex. Celotex therefore necessarily had to adopt the alternative route to compliance offered by paragraph 12.5 of the Approved Document i.e., testing to BS8414 and obtaining BR 135 certification – see the "*Above 18m Action Plan*" dated 1 March 2013 {CEL00001182}.
134. BR 135 certification only applies to the complete cladding system that has been subjected to BS8414 testing and does not apply to the individual components of that system, such as the insulation. Any cladding system that differed from the tested system, e.g. by using the Celotex insulation with different cladding panels, would not have the benefit of the BR 135 certification. Celotex therefore intended to use the BR 135 certification to obtain a desktop analysis (or field of application report, as Celotex termed it) which would confirm that its insulation was safe to be used in a variety of different cladding systems, in addition to the specific system that had been tested.
135. Celotex initiated meetings and discussions first with Sotech and then with Simco (both cladding designers and suppliers) regarding partnering with them to produce a suitable cladding system that could be expected to pass BS8414 and gain BR 135 certification. They also sought advice from IFC (fire consultants). As a result of these meetings and discussions Celotex became aware that a cladding system comprising FR5000 and a standard ACM cladding panel of the type typically used in cladding systems would not be capable of

satisfying BS8414 and obtaining BR 135 certification because when exposed to fire the aluminium panel would melt and allow fire into the cavity behind the cladding and ignite the insulation. A note prepared by Jonathan Roper (then Assistant Product Manager) of his meeting with Sotech on 20 June 2013 {CEL00001863} states:

“Purpose:

Initial meeting to discuss partnering opportunity for testing to BR 135. To understand previous experience and methods for testing to BS 8414 using both Rockwool and Phenolic insulation behind a Sotech cladding system.

...

Sotech & BS 8414 -1/2:

Successfully [sic] passed to both 8414/1 & 8414/2. Both systems incorporated Rockwool insulation and AIM fire barriers. Part 2 testing provisionally used K15 as the insulation, forced upon by Metsec who built the steel frame. 15 minutes testing, BRE extinguished the chamber due to fire being at the 9 metre level using K15. Sotech reverted to Rockwool and passed. Aluminium railing system and cladding panels found to melt and allow fire to enter cavity. Outer face resistance to fire and tolerance of fire barriers proven to be crucial.

K15 BBA Certification & Literature

Astonished as to how K15 is used so widely based on testing involving a cement particle board as the outer face to represent a typical cladding panel. Identified that K'span used Promaseal fire barriers fixed to a galvanized steel sheet. Sotech convinced that the system quoted using a standard cladding panel would fail as the post flashover that occurs would penetrate and melt the panel and allow the flame to enter the cavity. Cleverly designed and worded i.e. non combustible substrate wording used in literature could be interpreted as applicable for part 1 and part 2 (cp board & masonry face). Outer face using CP board classified as 6mm non combustible cladding in product literature.”

136. Notes of a further meeting with Sotech and IFC on 3 October 2013 {CEL00011052} attended by Jonathan Roper and Jamie Hayes (Technical Services Officer) state:

“Fire test

- *Very problematic to pass – Kingspan failed twice with standard cavity barriers.*
- *John at Sotech sceptical about pass with decorative cladding.*
- *Still no idea how Kingspan support the use of decorative cladding as their fire test uses a non combustible cladding.*
- *Very unlikely to pass on the basis that Celotex FR5000 is slightly better than Phenolic (according to IFC testing)*
- *Possible idea to design "double cavity fire barrier":*
- *This will consist of a steel grill with an intumescent strip as well as a traditional mineral wool cavity barrier.*
- *Additional fire barriers may be required around openings or even vertically.*
- *Possibility to use heavier gauge aluminium with larger panel size.”*

This note also records a discussion about the use of breathable membranes as part of the cladding system and the adverse effect such membranes would have on the prospects of passing the BS8414 test and concludes:

- “• It may be that the use of a breathable membrane could be added to the field of applications report. However, IFC will not commit to anything without the fire test data [...]
- On the basis that the fire test is going to be a close call (if we can even pass it) I think we cannot rely on the field of applications report allowing a breathable membrane over the face of the insulation.”

137. During the course of an email exchange with Simco on 31 October 2013 {CEL00001886} regarding the possible design of the cladding system to be submitted for testing Jonathan Roper (then Product Manager) said:

“The big issue we have is that we know that a standard aluminium panel will melt and amount to a failure in this particular test”

138. In an email of 1 November 2013 from Jonathan Roper to Paul Evans (Head of Marketing) {CEL00000716} which is instructive to consider in full, Jonathan Roper set out the position as follows:

“Well... I think we have two possible solutions for testing in which both David @ IFC and I have confidence in. Will explain more on Monday but essentially since the beginning of the project, we have been looking at testing worst case scenario with an improved fire barrier to be then supported by an assessment report which broadens the scope of potential systems that we are applicable for.

After much research, I don't think this is possible and I don't believe K'span have a similar report. We cannot seem to find or design a suitable barrier in which we have enough confidence that it can be used behind a standard ACM panel which we know will melt and allow fire into the cavity. Speaking to SIMCO on Wednesday in B'ham with IL, he confirmed that architects will specify K15 with a standard fire barrier and panel. When the work is contracted and then sub-contracted to cladding contractors such as Simco, H A Marks, Stanmore etc, they value engineer that system to be competitive at tender. This means changing fire barriers, changing panels. The architect's only guarantee is that K15 will be used because there is no other alternative available.

An architect will be told that K15 is applicable for above 18m in accordance with ADS and that suffices from their perspective. Kingspan have done a great job at the spec end and according to Simco are specified much more than Rockwool Duo Slab for thermal performance. As discussed above, contractors opt for more cost effective solutions and although they are liable for what goes into that building, they do not know enough about the fire test to challenge. The only figure who might possibly challenge a product's eligibility for use in buildings above 18m is the building control officer. Kingspan I would suggest do not have a piece of paper that states they can specifically be used behind any cladding panel . what they have done is got BBA certification stating the fire test method and taken that to LABC to get a registered document detail which states that K15 can be used in a variety of cladding systems and complies with ADS through passing BR 135. A building control officer is unlikely to challenge a document that is approved from the head of building control.

What does all of this mean for us ? System approval limits us hugely as the market is so fragmented and its extremely difficult to grasp who is being most commonly used. The

likes of Marley, Alucobond & Trespa are spec'd a lot but value engineered out for standard aluminium panels. Trying to do the right thing requires a complete re- education of the mkt and this would require a huge campaign and probably a lawsuit. Two options proposed below :

1. Test a standard A2 limited combustible panel of which there are a few (Alucobond A2, Marley Eternit) with a standard fire barrier system. If challenged on what system to use, we can happily state that our test used an A2 panel with a particular commonly used fire barrier. Still not 100% confident in passing as A2 is a euroclass classification derived from test data on reaction to fire testing.

2. Opt for the K'span route and put a cement particle board as the cladding. Use a standard fire barrier. Good chance of passing knowing they have and cp board is good in terms of resistance to fire.

However, what we do need to consider is if we have two potential systems that could pass, how do these dictate route to market. What does an ASM/CTC state to somebody who enquires ? If we simply have the test report, we don't want to have to provide this as evidence. Do we in fact need to spend f25k/f30k for a BBA to be able to gain this document from LABC which in my mind gives us very little chance of being challenged from building control. Do we partner with a few fire barrier manufacturers who have tested with K15 currently to gain confidence in the mkt that way ? Or do we take the view that our product realistically shouldn't be used behind most cladding panels because in the event of a fire it would burn ?

What K'span have done extremely well is say very little but build confidence if challenged by having fire barrier manufacturers showing tests with K15, achieve BBA validation and subsequently gain LABC approval. There is always the chance they do have the piece of paper in the top drawer from somebody that states for use with any system but I doubt it. !"

139. The first attempt by Celotex at passing BS 8414-2 and obtaining BR 135 certification was made on 14 February 2014. The test system used 8mm Marley Eternit A2 cladding panels. Unlike standard ACM, these cladding panels are of limited combustibility. Nevertheless, the test failed.
140. Celotex tried again on 2 May 2014, this time using thicker 12mm Marley Eternit cladding panels. For this second test Celotex also increased the fire resistance of the cladding system by adding 6mm non-combustible magnesium oxide board as reinforcement in the area of the cavity barriers. There were other respects too, in which the cladding system submitted for testing was deliberately designed to maximise the prospects of passing the test but which also made the system quite different from cladding systems typically being installed.
141. When BRE sent Celotex a draft report of the successful test that made no mention of the magnesium oxide reinforcement board, Celotex took the deliberate decision not to ask BRE to correct the report by including a reference to the magnesium oxide reinforcement. Celotex also took the decision not to refer to the use of the magnesium oxide reinforcement board

when describing the test system in their marketing material. This was because Celotex feared that the need for the magnesium oxide reinforcement would affect marketability. This was a deliberate deception on the part of Celotex. As a consequence of this deception, anyone wishing to ensure that their proposed cladding system was Building Regulation compliant by replicating the system that Celotex had successfully tested would be misled and would, because of the omission of any reference to the magnesium oxide reinforcement, unwittingly install a different and less safe system than the one tested.

142. Having successfully obtained BR 135 certification for a cladding system using FR5000, Celotex had to decide how to promote and market the product. A Celotex internal presentation given on 14 May 2014 {CEL00008648} included the following slides:

“Market Opportunity

- *The Most Asked For Development Our Sales Team Request On A Monthly/ Daily Basis !*
- *Huge Trend Towards Concrete & Steel Frame Buildings*
- *Rigid Board As Sheathing To The Metsec Frame Is Critical From A U-value Perspective*
- *A Large Proportion Of Kooltherm Sales*
- *All Specs Are Either Rockwool Duo Slab or K15”*

“Kingspan K15

- *Launched in 2006 For Rainscreen Applications*
- *Supported By Testing To BS 8414-1:2002 Onto Masonry Substrate*
- *LABC Approval*
- *Created A Strong Perception On Fire-Safe Kooltherm Board*
- *System Used 6mm Non-Combustible Cladding As Façade*
- *Worth Circa £10M Per Annum”*

“Market Research

- *Everybody Uses K15 As There Is No Alternative*
- *Nobody Understands The Test Requirements (Architects Ask If It Can Be Used Above 18m, The Answer is YES)*
- *Building Control Have Hugely Differing Levels Of Understanding On The Subject*
- *Give Us A Board That Is An Alternative To Kingspan & We'll Buy It !”*

143. As is apparent from Jonathan Roper’s email of 1 November 2013 {CEL00000716} and from these slides, Celotex was aware that Kingspan’s K15 was being specified and used in a variety of different cladding systems, including ACM, notwithstanding that its BR 135 certification had been obtained using untypical non-combustible particle board as cladding panels. Celotex did not believe that Kingspan had obtained a desktop study based on its BR 135 certification that justified its use in other cladding systems. Rather, Celotex considered that Kingspan had been able to achieve this widespread use of K15 by, among other things, obtaining general approval from LABC (Local Authority Building Control) for the use of

K15 above 18m, and by exploiting ignorance and confusion within the construction industry and on the part of Building Control Officers with regard to the Building Regulations.

144. The original intention of obtaining field of application reports i.e., desktop studies for a variety of different cladding systems based on the BR 135 certification was not pursued, as it was appreciated that such reports would not validate the use of RS5000 with thinner or more combustible cladding panels typically being specified, such as ACM. If the product was promoted accurately and truthfully, i.e., as suitable for use above 18m only in cladding systems identical to the one tested, there would be little, if any, demand for the product because the cladding system tested was so unrepresentative. Therefore, to have any commercial success in the above 18m market, the product had to be promoted as being suitable for use more widely than the BR 135 report justified. That is what Celotex understood Kingspan were doing with K15. Celotex followed suit.
145. Celotex launched RS5000 at the beginning of August 2014, promoting it as a new product suitable for use above 18m and selling it at a higher price than the existing FR5000, although it was, in fact, exactly the same product as FR5000.
146. The product literature for RS5000 such as the Product Data Sheet {CEL00000008}, Rainscreen Cladding Applications {CEL00000409}, and Specification Guide {CEL00002154} included statements such as:

“suitable for building above 18 metres in height”

“the first PIR insulation board to meet the performance criteria in BR 135 for insulated rainscreen cladding systems and therefore is acceptable for use in buildings above 18 metres in height”

“the first PIR insulation board to successfully test to BS 8414-2:2005, meets the criteria set out in BR 135 and therefore is acceptable for use in buildings above 18 metres in height.”

“RS5000 has been successfully tested to BS8414-2 and meets the performance criteria of BR 135.”

“Has Class O fire performance throughout the entire product in accordance with BS 476”

147. These statements, which appeared prominently at the front of the literature, were grossly misleading. As regards the statements relating to BR 135, it was perfectly well understood within Celotex that BR 135 certification related to the testing and performance of an entire rainscreen cladding system, and not to the individual components of that system. It was therefore wrong and misleading to take one component of that system and describe it as

“acceptable” or “suitable” for use above 18m or to state that that component “meet[s] the performance criteria in BR 135”.

148. The Rainscreen Cladding Compliance Guide {CEL00002032_0003} was the only document that accurately reproduced – in the small print – the limitation and warning applicable to BR 135 certification, stating:

“The classification applies only to the system as tested and detailed in the classification report. The classification report can only cover the details of the system as tested. It cannot state what is not covered. When specifying or checking a system it is important to check that the classification documents cover the end-use application”.

Alongside a list of the components used and a figure showing a cross-section of the construction of the cladding system the Compliance Guide also stated:

“The fire performance and classification report issued only relates to the components detailed and constructed in figure 4. Any changes to the components listed and construction method set out in figure 4 will need to be considered by the building designer.”

149. In other product literature, references to the testing only appeared at the back of the documents, were unclear and were open to misinterpretation. For example, the Product Data Sheet {CEL00000008} and Rainscreen Cladding Applications {CEL00000409} said:

“Certification

Celotex RS5000 is a premium performance solution and is the first PIR board to meet the performance criteria set out in BR 135 for rainscreen cladding systems.

The system tested was as follows:

12mm Fibre Cement Panels

Supporting aluminium brackets and vertical rails

100mm Celotex RS5000

12mm Non-combustible sheathing board

100mm SFS System

2x 12.5mm plasterboard

The fire performance and classification report issued only relates to the components detailed. Any changes to the components listed will need to be considered by the building designer.”

The misleading statement that RS5000 met the performance criteria in BR 135 together with the statement that “*The fire performance and classification report issued relates to the components detailed*” could very well be interpreted as meaning that individually each of the components in the system tested met the requirements of BR 135.

150. In any event, every reference in the product literature to the detail of the cladding system tested was necessarily wrong and misleading because of the absence of any reference to the magnesium oxide board used as reinforcement.

151. As regards the statement in the product literature that RS5000 “*Has Class O fire performance throughout the entire product in accordance with BS 476*”, this too was misleading. Class 0 is relevant to the surface spread of flame. Counsel to the Inquiry described the concept of a product having Class 0 fire performance throughout as nonsense (**Day 46/30**). Moreover, as BS 476 deals with tests for both Class 0 and limited combustibility and as one of the means by which a material can achieve Class 0 is if it is composed throughout of materials of limited combustibility, stating that RS5000 “*Has Class O fire performance throughout*” could give the misleading impression that it was of limited combustibility.

152. As well as the product literature, Celotex also prepared a “standard response” {CEL00001382} which was to be issued to anyone enquiring of Celotex about the use and application of RS5000 and whether it had BBA certification. The “standard response” was in the following terms:

“As stated in Approved Document B2 (ADB), 'External walls should 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'. Celotex RS5000 has successfully tested to BS 8414-2:2005 and therefore complies with the requirements of ADB for buildings that exceed 18 metres in height

Currently, there is only a requirement from projects warranted by NHBC stated in NHBC Standards Chapter 6.9 Curtain Walling & Cladding that 'Rainscreen cladding systems, including panels, should have current certification confirming satisfactory assessment by an appropriate independent technical approvals authority accepted by NHBC, including: British Board of Agreement (BBA) or Building Research Establishment (BRE) Certification'.

Celotex RS5000 has current certification from the Building Research Establishment (BRE) confirming the product has met the criteria set out in BR 135 and therefore is acceptable in rainscreen cladding systems above 18 metres in height. The BRE has also validated that Celotex RS5000 achieves Class 0 fire performance and an A+ Green Guide rating and classification reports for these approvals are available on request.

Celotex RS5000 has also achieved Local Authority Building Control (LABC) approval for use in rainscreen cladding systems. Please find this attached confirming that the product is suitable for use in masonry and steel frame constructions, has achieved the performance criteria set out in BR 135 and has a thermal conductivity of 0.021 W/mK.”

There is nothing in that response that would alert anyone making an enquiry to the fact that the BR 135 certification applied only to the system tested and that any other system would require further consideration as to whether or not it was Building Regulation compliant – quite the reverse.

153. As regards the obtaining of LABC registration for RS5000, following an initial enquiry by Celotex, on 29 October 2013 LABC sent to Celotex an application form and a brochure

entitled “*Streamlining the Building Control Process*” which made clear the benefit of LABC registration in terms of avoiding scrutiny by individual Building Control officers {CEL00010021}:

“WHAT IS REGISTRATION?

Do you have an innovative building, construction solution, product or system that deserves recognition and accreditation for use across England and Wales? Well, look no further than LABC. LABC Registered Details enables you to register your product so that individual Local Authority Building Control teams will accept and approve it.

It also entitles you to use the coveted LABC Registered Logo on all your marketing and promotional literature, including exhibition stands and banners which will give the whole construction industry an instant assurance that your solution, system or building type has been rigorously checked and independently peer reviewed by LABC members.”

“HOW DOES LABC REGISTRATION HELP YOU?

Consider it a "fast track" through Building Control. Once your detail has been thoroughly researched by one of our research Local Authority Building Control departments and registered with LABC, other local authorities do not have to repeat this process”

“Registration is not certification

LABC is not a testing house and does not provide test certification – so applicants will be required to demonstrate technical performance and compliance with relevant EU Codes or other standards and specifications referred to in the Building Regulations or Approved Documents. This can be done by providing test certificates and other proofs of performance from recognised bodies using an appropriate methodology.”

154. Having obtained BR 135 certification, on 17 June 2014 Celotex emailed LABC with details of the registration Celotex was seeking {CEL00001995}. On 21 August 2014 Celotex was granted LABC Registration for RS5000. The Description of the registration was as follows:

“This Registered System relates to the Celotex RS5000 Insulation Board for use within rain screen construction. RS5000 is a textured aluminium foil faced PIR board with thicknesses between 50mm and 150mm. Limitations of use are detailed in the attached Drawing & Document List.” {CEL00000010}

The Drawing and Documents List {CEL00000009} included the following statements:

| | |
|---------------------------|---|
| <i>Limitations of use</i> | <i>For use in rainscreen wall construction including above 18 metres height. The required thickness of board for a particular construction must be established with the use of the Celotex online calculator.</i> |
| <i>Advice Notes</i> | <i>Celotex RS5000 can be used with a variety of cladding systems (including masonry or rainscreen systems) and can be fixed back to a structural steel frame with a sheathing board or direct back to masonry Celotex RS5000 has successfully tested to BS 8414:2 2005, meets the criteria set out in BR 135 and therefore is acceptable for use in buildings with storeys above 18m in height (subject to the board being fixed to a</i> |

*non-combustible substrate) alternative compliance to AD B.
The product has been tested and achieves a 'Class O' spread of flame*

There were therefore no material limitations in regarding the types of cladding systems for which RS5000 was given LABC approval.

155. This wording in the Advice Notes section of the Drawing and Documents List came from Celotex, not LABC. It reproduced verbatim the details of registration that Celotex had said it was seeking in its email to LABC of 17 June 2014 {CEL00001995}. This wording not only gave unqualified approval for RS5000 to be used above 18m in steel framed cladding systems such as that tested by Celotex under BS 8414-2, but also extended that unqualified approval to masonry systems falling within BS 8414-1, which Celotex had not had tested. By securing LABC registration in the terms that it did, Celotex now had unrestricted LABC approval for RS5000 to be used in any above 18m cladding system, notwithstanding that the BR 135 certification upon which that approval was based was applicable only to the specific cladding system that had been tested under BS 8414-2.
156. About a year later, on 12 May 2015, LABC contacted Celotex to advise of its concern that *“the certificates implied a global approval to the use of [RS5000] above 18m”* which it said *“had never been the intention”* and that the certificate of registration would be revised to make clear that it was limited to cladding systems that matched the one that had been tested to BR 135 {CEL00001286}.
157. The LABC registration with the revised wording took effect from 10 September 2015 {CEL00009779} {CEL00009780} {CEL00009781}. Therefore, the original LABC registration wording, expressing blanket approval for the use of RS5000 above 18m, was in circulation from 21 August 2014 to 9 September 2015.
158. These statements in the product literature, the LABC registration and the “standard response” were intended by Celotex to secure the use of RS5000 above 18m in a wider range of cladding systems than the BR 135 report justified. The hope was that potential customers would read those statements and rely on them, and not act on the warnings to be found elsewhere that they needed to check that the BR 135 classification covered their particular cladding system.
159. The Market Analysis of February 2015 carried out by Celotex {CEL00003544} shows that this was indeed happening.

160. This intentional deception by Celotex as to the suitability of RS5000 for use in any cladding system above 18m is reflected in the way it promoted the use of RS5000 for Grenfell Tower without ever giving any warning that the BR 135 certification did not cover the proposed cladding system for Grenfell Tower or that to combine RS5000 with ACM cladding panels was known by Celotex to be unsafe.
161. On 6 August 2014, the very next day after the launch of RS5000, Jonathan Roome emailed Ben Sharman of Harley as follows {CEL00001237}:
*“Hi Ben,
 Good to speak to you again. I have the pleasure of informing you as of yesterday we have now launched the first PIR Board To Successfully Meet The Performance Criteria In BR 135 For Insulated Rainscreen Cladding Systems, Therefore Acceptable For Use In Buildings Above 18m In Height. I would like to come into the office when everyone is around to present formally the new product.
 In the meantime if you would like me to run any U-Value calculations please let me know”*
162. That email clearly promoted RS5000 as suitable for any above 18m cladding system. Attached to the email were the RS5000 Product Data Sheet {CEL00001240}, Rainscreen Cladding Compliance Guide {CEL00001239}, Application Data Sheet {CEL00001241} and Product Comparison Matrix {CEL00001238}. With the exception of the small print in the Rainscreen Cladding Compliance Guide, all those documents also promoted the use of RS5000 in any above 18m cladding system (see above).
163. On 27 August 2014, following a telephone call from Daniel Anketell-Jones of Harley, Jonathan Roome sent Daniel Anketell-Jones an email with the subject heading “*Grenfell Tower, Hammersmith – RS5000 Data*” and saying “*For now, here is all the info I have on the RS5000 Rainscreen product for use over 18m. When you have a moment please can you send me across some drawings and an idea of who you would look to use for the supply chain. Speak again in a couple of weeks.*” Attached to the email was a zip file containing the Product Comparison Matrix, the RS5000 Product Data Sheet, the Rainscreen Cladding Compliance Guide (those being the same versions as those sent to Ben Sharman on 6 August), together with a Rainscreen Cladding Specification Guide {CEL00000013}, a four page abridged version of the BRE Classification Report {CEL00000011} and the LABC registration {CEL00000009} {CEL00000010}.
164. On 18 September 2014 Jonathan Roome emailed Daniel Anketell-Jones asking him for his availability to discuss Grenfell and other projects {CEL00000014} and on 30 September 2014, following a conversation with him, Jonathan Roome sent an email to Tony Hall at Harley providing his contact details and offering to look at future wall build-ups and U-value calculations {CEL00002017}.

165. Following the flurry of contact with Harley in August and September 2014, in mid- November 2014 Grenfell Tower featured on a list of “*Must Win*” projects presented by St Gobain to Jonathan Roome (Major Projects/Specification Manager London). After initially questioning the inclusion of Grenfell Tower on the “*Must Win*” list, describing it as “*a non starter*”, Jonathan Roome then confirmed its inclusion, placing Grenfell Tower at the top of his own “*Must Win*” list that he returned to St Gobain {CEL00004340} {CEL00011385} {CEL00011384} {CEL00011423} {CEL00003374}. This list of “*Must Win*” projects was to be presented to Paul Lake, the MD of St-Gobain UK at a meeting on 18 November 2014 {CEL00011423}.
166. It is to be inferred that by putting Grenfell Tower at the top of his “*Must Win*” list, Jonathan Roome was committing himself to procuring the use of RS5000 on Grenfell Tower. He did this despite the fact that as at November 2014 he knew nothing about the detail of the proposed cladding system for Grenfell Tower and therefore had no idea if the proposed cladding system with RS5000 as the insulation would be Building Regulation compliant. Indeed, there was a very high probability that it would not be, since it was very unlikely that the Grenfell Tower cladding system would be exactly replicating the system that had been tested by Celotex or anything like it.
167. On Monday 17 November 2014, the next working day after Jonathan Roome had received the “*Must Win*” email from St Gobain referring to Grenfell Tower, Jonathan Roome emailed Daniel Anketell-Jones at Harley and asked him whether he would be around on Thursday or Friday for a catch-up regarding current and future projects {CEL00000014}. That email was not doubt prompted by the presence of Grenfell Tower on St Gobain’s “*Must Win*” list.
168. A meeting was confirmed for 24 November 2014 {CEL00000015}, although in the event it was with Mark Stapley, another designer at Harley, as Daniel Anketell-Jones was not available. After the meeting Jonathan Roome emailed Mark Stapley that same day, 24 November 2014 at 22:30 {CEL00000017} saying:
- “Hi Mark,
Thanks for your time this morning.
When you have a chance please can you send me over a couple of section details of your "typical" insulated spandrel panels along with U values.
I will then raise a discussion with our technical and product management team to see what we could offer for this application.”*

169. A few minutes later at 22:41 Jonathan Roome emailed Daniel Anketell-Jones {CEL00000018} saying:

*“Hi Dan,
I spoke with Mark and the team regarding a few projects.
Grenfell Tower
When we last looked at this we came to a conclusion of using 3,000m² of 150mm
RS5000. Is this still so?
Mark's drawings were showing a mix of 100mm & 160mm”*

170. A few minutes after that there is a Celotex Salesforce entry made on 24 November 2014 at 22:48 {CEL00001450} which refers to a meeting relating to Grenfell Tower and which says:

*“Grenfall [sic] Tower
M/C Rydens [sic].
Front Fixed Windows
Rainscreen System (cassette) Insulation drawn currently – 100mm – 160mm
Architect — Bruce @ Studio E
Has used Build Desk for calcs.
Currently looking at 150mm RS5000 but needs to review calcs once finished with
current project at Trinity Square.”*

171. It is reasonable to assume that this Salesforce entry was also made by Jonathan Roome. It refers to the cladding as being in cassette form, which clearly suggests that there must have been some discussion about the type of cladding panels that were going to be used. It seems likely that Jonathan Roome would also have learned at this time that the panels were ACM. If he did not know then he could easily have asked.

172. In February 2015 there was an email exchange between Jonathan Roome and Ben Bailey at Harley concerning U-value calculations for the rainscreen cladding at Grenfell Tower. During the course of this exchange Jonathan Roome was provided with access to a Dropbox file containing technical drawings and other documents. {CEL00000024}, {CEL00000456}, {CEL00000457}, {CEL00008704}, {CEL00000459}, {CEL00000025} and {CEL00010011}, paras 25–36. The documents in the Dropbox file included:

- (1) drawings that identified the cladding panels as “Reynobond” and showed the panels to be 4mm thick: {CEL00000226} and {CEL00000227}.
- (2) “Specification Notes” that under the heading “System” said “Reynobond Composite Rainscreen Cassettes” and under the heading “Cladding - RI” said “Aluminium Composite Panel, Smoke Sliver Metallic Duragloss 5000 Satin”: {CEL00000170}.

173. Also, as part of this email exchange with Ben Bailey, Jonathan Roome was sent a Harley BuildDesk report which contained a U-value calculation that Harley themselves had carried out and which referred to ACM Cladding Panels {CEL00000029} {CEL00000030}. There was also express reference in this exchange to the fact that the insulation was going to be fixed directly to the existing concrete walls of Grenfell Tower and not to a steel frame.
174. On 11 February Celotex provided Harley with two U-value calculations {CEL00000025}. One was for RS5000 that was 200mm thick {CEL00000459} and one for RS5000 that was 160mm thick {CEL00009884}. The calculation for the 200mm thick insulation included this statement:
- “This calculation is for the purposes of demonstrating the thermal transmittance (U-value) through the modelled construction.
It should not be construed as demonstrating compliance with other areas of the Building Regulations such as Approved Document B (fire).
It is critical that all areas of the design are agreed with the relevant building control body before being finalised.
For building with a storey height above 18m please refer to our Rainscreen Cladding Compliance Guide, which is available from www.celotex.co.uk or from the Celotex Technical Centre”*
175. However, the U-value calculation for 160mm thick insulation, which was the thickness that was actually used on Grenfell Tower, contained no such statement.
176. As a result of Jonathan Roome’s discussions with Harley in November 2014 and February 2015, Celotex had knowledge of at least the following differences between the cladding system that had been tested to BS 8414-2 and received BR 135 certification and the proposed system for Grenfell Tower:

| | Celotex’s tested system | Grenfell Tower |
|---------------------------------------|--------------------------------------|--|
| Type of cladding system | Steel frame (BS 8414-2) | Direct fix to concrete substrate (BS 8414-1) |
| Thickness of insulation | 100mm | 100mm – 150/160mm |
| Cladding panels shape | Flat | Cassette |
| Cladding panel material and thickness | Marley Eternit cement particle, 12mm | Reynobond ACM, 4mm |

177. Without a doubt it would have been obvious to Celotex that such differences would have necessitated the question of Building Regulations compliance being considered by the building designer, as referred to in its Compliance Guide for RS5000 {CEL00000012}, i.e., the obtaining of a desktop study. However, nothing was said by Celotex to alert Harley to

that fact. It would have been equally obvious to Celotex that had such a desktop study been commissioned, the overwhelming probability was that the cladding system would not have been approved. That would have put the use of Celotex on Grenfell Tower, a “*Must Win*” project, in jeopardy.

178. Not only was the use of RS5000 on Grenfell Tower actively promoted by Celotex, its product literature was received by those involved in Grenfell Tower in precisely the way Celotex intended, creating an impression that RS5000 was suitable for use in any cladding system over 18m. For example, in his evidence to the Inquiry Ray Bailey of Harley said:

“Celotex made a big, big deal about their products being suitable for buildings over -- specifically designed for buildings over 18 metres, they complied with BS 8414, and then they use the term which is very misleading now, looking back at -- the term “class 0 throughout”, not surface, but actually throughout. So we not only read the literature, we had their technical sales manager in to go through the project, we sent drawings showing the application with the ACM on the building to them, and I think we carried out all possible reasonable tests. And it's also on the basis that Celotex produced (inaudible) [by St-Gobain⁴] a huge, multinational company, and we didn't believe for one second that they would attempt to mislead us on this.” (Day 32/16–17)

“Q. Now, would it follow from that that, had Harley, perhaps you, taken the trouble to familiarise yourself thoroughly with the sales literature and the certificates, you or others at Harley would have realised that RS5000 could only be used in a cladding system which was exactly the same as the system tested, which gave rise to the certification under 8414?

A. That's why we investigated the product with Celotex to go through this, to ensure that it was compliant.

Q. But even though the system was different, as we've accepted, and even though the sales literature and the certificates say that the 8414 test wouldn't cover a different system, what is it that Celotex said to Harley that led Harley to believe that it was covered?

A. Well, it -- they said it was safe and acceptable to use it with -- in the configuration that we had. If they had told us it wasn't safe to use, it would not be on the building.

Q. They said it was safe and acceptable to use, you say. Did anybody undertake any independent verification of that assurance, or did you just take it on trust from Celotex?

A. Celotex are a major insulation manufacturer. They're a huge corporation. We do not expect to be misled by them. So, yeah, we trusted what they told us.”

(Day 33/90–91)

179. In his evidence Neil Crawford of Studio E said in relation to the RS5000 Data Sheet:

⁴ See <https://www.grenfelltowerinquiry.org.uk/hearings/harley-evidence-8-september-2020>, Video 1/2, at 00:22:30.

“Obviously, I mean, the way this information is presented, there’s repeated use of “applicable for use in buildings over 18 metres”. I mean, everything in this document to me suggests that the product is appropriate in rainscreen use - - that’s its opening line - - in buildings of more than 18 metres in height. I had no reason to suspect that it wasn’t, based on the information that I read...” (Day 10/54)

“They talk about class 0 through the whole product, which I think is misleading...It suggests to me that ... it’s retarded and reduced flame spread throughout the product.” (Day 10/55)

180. John Hoban of RBKC Building Control said in his evidence that he looked up RS5000 on the Celotex website and read the LABC certificate, saw that it said suitable for use in buildings above 18m and accepted that **(Day 46/33, 44-45)**.
181. What was striking about the witness evidence was that when pressed by Counsel to the Inquiry to state on what basis they had thought that RS5000 was compliant with the Approved Document, i.e., para 12.7 (limited combustibility) or para 12.5 (BR 135) , the witnesses struggled to explain. In its written and oral openings for Module 1, Celotex has disingenuously highlighted only those parts of the product literature stating that the BR 135 certification was applicable only to the specific system and how the rainscreen cladding system described in the product literature bore no resemblance to the rainscreen cladding system installed at Grenfell Tower. However, the reality is that the confusion that Celotex sought to create by the language and presentation it used in its product literature and its hope that people would be misled into believing that RS5000 was suitable for any cladding system over 18m was all too successful in the case of the Grenfell Tower refurbishment, with tragic consequences.

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