

OPUS 2

INTERNATIONAL

Grenfell Tower Inquiry

Day 70

November 12, 2020

Opus 2 International - Official Court Reporters

Phone: +44 (0)20 3008 5900

Email: transcripts@opus2.com

Website: <https://www.opus2.com>

1 Thursday, 12 November 2020
 2 (10.00 am)
 3 SIR MARTIN MOORE-BICK: Good morning, everyone. Welcome to
 4 today's hearing. We're going to begin today by hearing
 5 further evidence from Mr Jonathan Roome, so would you
 6 ask Mr Roome to come back in, please. Thank you.
 7 MR JONATHAN ROOME (continued)
 8 SIR MARTIN MOORE-BICK: Good morning, Mr Roome.
 9 THE WITNESS: Good morning.
 10 SIR MARTIN MOORE-BICK: All ready to carry on?
 11 THE WITNESS: I am, yes.
 12 SIR MARTIN MOORE-BICK: Good, thank you.
 13 Yes, Mr Millett.
 14 Questions from COUNSEL TO THE INQUIRY (continued)
 15 MR MILLETT: Good morning, Mr Chairman.
 16 Good morning, Mr Roome. Can I take you back,
 17 please, to the slide presentations which were presented
 18 by Mr Roper at the August 2014 launch meeting at
 19 {CEL00008668/18}, please. You can see that this is
 20 a slide which says "Latest Addition To Our '5000'
 21 Range", and then you see five products set out
 22 underneath. "Celotex FR5000 - Multi Purpose Solution",
 23 is the first one there, and then there are three others:
 24 CG5000, GD5000, GS5000, and then at the bottom
 25 "Celotex RS5000 - Rainscreen Cladding Solution".

1

1 When this was presented, did you understand from the
 2 slideshow and the presentation that RS5000 was a new
 3 product?
 4 A. That's what I understood, yes.
 5 Q. And as a new product, it was an addition to the existing
 6 range?
 7 A. That's correct.
 8 Q. And therefore an addition and separate from, or
 9 a separate product from, FR5000?
 10 A. Correct.
 11 Q. Did nobody tell you that RS5000 was FR5000 simply
 12 re-branded?
 13 A. Not at that stage, no.
 14 Q. You say, "Not at that stage"; did you come to learn that
 15 fact later?
 16 A. I learnt that much later, yes.
 17 Q. When?
 18 A. I couldn't tell you.
 19 Q. Was it before or after you left Celotex?
 20 A. I think it was before, in the latter stages of my time
 21 at Celotex.
 22 Q. Right. Was it before or after you tendered your
 23 resignation?
 24 A. It may have been about that same time.
 25 Q. I see. How did you find out?

2

1 A. I must have been told by one of the team, one of the
 2 team I -- the sales team that I was in.
 3 Q. Right. How did you feel when you found out that,
 4 in fact, RS5000 was not a new product but simply FR5000
 5 re-branded?
 6 A. I didn't feel anything.
 7 Q. Were you surprised?
 8 A. I suppose a little bit, yes.
 9 Q. From what you could observe from your teammates around
 10 you, both during and after the August launch
 11 presentation, were they also labouring under the
 12 misapprehension that RS5000 was a new product and not
 13 simply FR5000 re-branded?
 14 A. I can't be sure.
 15 Q. Can I ask you to go to page 32 {CEL00008668/32}. This
 16 is a slide which is called "Celotex Rainscreen Cladding
 17 Solutions", and you can see that it says below
 18 18 metres: RS5000, above 18 metres: RS5000. Then in the
 19 third bullet point it says, "Incurred Substantial
 20 Development Costs."
 21 Did Mr Roper or anybody else at the meeting discuss
 22 what the substantial development costs comprised?
 23 A. No.
 24 Q. Did you have any inkling or idea as to what those were?
 25 A. No.

3

1 Q. Did you know that the development costs for RS5000
 2 comprised the test and classification costs and
 3 marketing, but no development costs in the sense of
 4 research and development, production, et cetera?
 5 A. No, I wasn't privy to any information.
 6 Q. What did you think "Incurred Substantial Development
 7 Costs" meant?
 8 A. I don't think I thought about it at the time.
 9 Q. Can we look at page 46 {CEL00008668/46}. This is
 10 a slide which calls itself "E-shots":
 11 •" Launch Email.
 12 •" Product Spotlight.
 13 •" Sent to:
 14 •" Architects / Specifiers.
 15 •" Cladding Contractors.
 16 •" Distribution.
 17 And then there is an inner slide which may need to
 18 be blown up a little more, but says.
 19 "Celotex launch above 18 metre board
 20 Celotex RS5000."
 21 It says in the text on the right of the balloon:
 22 "Committed to on-going product development, Celotex
 23 has launched Celotex RS5000, specifically designed for
 24 Rainscreen Cladding applications and the latest addition
 25 to the '5000' series."

4

1 Now, that description there, " specifically designed
2 for Rainscreen Cladding applications and the latest
3 addition to the '5000' series ", was false, wasn't it,
4 in fact?

5 A. I mean, looking at this now, that would seem to be so,
6 yes.

7 Q. So did you think, when you saw this slide, that actually
8 RS5000 had been specifically designed and was
9 an addition to the 5000 series?

10 A. That's what I was led to believe, yes.

11 Q. Yes.

12 Can we then turn back to your relationship with
13 Harley in respect of the Grenfell Tower project, which
14 was where we left off yesterday, and go, please, to
15 {CEL00001451}. This is another Salesforce entry, and
16 again if we can have that blown up, please, so we can
17 see as much of it as possible. We can see -- and I'm
18 afraid it is a little bit fuzzy -- that the last
19 modified date and time is 18 September 2014. It relates
20 to a meeting, and this I think is a screenshot, if one
21 looks at the whole thing.

22 If you go a little bit further down, it relates to
23 an activity type called "Rainscreen Contractor", and
24 then under last modified date and time, 28 August 2014.
25 Do you see that?

5

1 Then under "Comments":

2 "Refurb of Grenfell Tower."

3 Do you see? It says:

4 "0.15 U Value. Dan has calculated using FR but
5 stated that he needs to use RS5000, 150mm.

6 "Due on site in October.

7 "Will re-calculate using our software instead of
8 Builddesk to make sure everything is in order."

9 Now, I've done my best to read what is not
10 a particularly legible document, but do you think I've
11 got that right --

12 A. Yes.

13 Q. -- what I've read to you?

14 A. Yes.

15 Q. Thank you.

16 Do you recall having a conversation with
17 Dan Anketell-Jones after sending the documents in the
18 zip file that we looked at yesterday?

19 A. If that is my record, which I think it is, then I must
20 have done, yes.

21 Q. Yes. I've shown you that it says "Dan has calculated
22 using FR but has stated he needs to use RS5000", and FR
23 there, would that be a reference to FR5000?

24 A. I would have thought so, yes.

25 Q. Does that record, "Dan has calculated using FR but has

6

1 stated he needs to use RS5000", reflect a statement made
2 by Dan Anketell-Jones to you where he said, "I need to
3 use RS5000"?

4 A. I would have thought so, yes.

5 Q. Does that in turn reflect, do you recall, advice that
6 you had given Daniel Anketell-Jones that RS5000 needed
7 to be used, or did the RS5000 come from him?

8 A. I mean, this would have been after I'd presented or
9 emailed him all of the information on the RS5000.

10 Q. Yes. Yes, exactly. Therefore, it looks as if there's
11 a later conversation in which he says he's measured with
12 FR but needs to use RS5000.

13 So can we take it from that that, to the best of
14 your recollection, he's now understood that, because
15 Grenfell Tower is above 18 metres, he needs to use
16 RS5000 instead of FR5000?

17 A. Yes.

18 Q. Yes.

19 Can you help us as to why it would be that
20 Daniel Anketell-Jones thought that FR5000 might
21 originally have been appropriate for Grenfell Tower,
22 being a building over 18 metres?

23 A. Possibly after reading the literature that I'd
24 previously sent to him.

25 Q. No, FR not RS, I meant. Why might he have thought that

7

1 FR, which was originally specified, might have been
2 appropriate for application at Grenfell Tower, being
3 a building over 18 metres? Can you help with why he
4 might have thought that?

5 A. I can't, no.

6 Q. Okay.

7 At this point, though, 28 August 2014, we know that
8 you'd sent Daniel Anketell-Jones the marketing
9 literature. What was your impression through your
10 conversations with Dan Anketell-Jones at the end of
11 August 2014 of how alert he was to the fact that RS5000
12 could only be used at Grenfell Tower in the same system
13 as tested?

14 A. I can't be sure.

15 Q. Do you think that he understood that?

16 A. I couldn't tell you.

17 Q. You had no impression at all of what was going through
18 his mind from your conversations with him?

19 A. No.

20 Q. Now, it also says in the Salesforce entry, in the last
21 line that I've read to you, "Will re-calculate using our
22 software". Is that Celotex will recalculate?

23 A. I should imagine so, yes.

24 Q. Right. And the BuildDesk was the software -- is this
25 right? -- that Harley had used for the calculation?

8

1 A. That's correct, yes.
 2 Q. We will come back to the Harley calculation later on,
 3 but do you remember whether you were sent it at this
 4 moment, at this time?
 5 A. I can't be sure.
 6 Q. Can we go to {CEL0000014}, please. I would like to go
 7 to the second email down on that page at 18/09, if we
 8 can go to the bottom. This is on 18 September at 6.02
 9 in the morning, so you're up early, and you write:
 10 "Morning Dan,
 11 "Please can you let me know your availability to
 12 discuss Grenfell Tower and the other projects in your
 13 pipeline."
 14 Do you see that?
 15 A. I do.
 16 Q. Then, again, if you go to the top of the document, there
 17 is an email from you on 17 November 2014, again to
 18 Daniel Anketell-Jones at Harley, copied to "Celotex,
 19 Dormant":
 20 "Hi Dan,
 21 "Would you be around on Thursday/Friday to catch-up
 22 regarding your current/future projects?
 23 "Jonathan."
 24 Pausing on "dormant", what was "Celotex, Dormant"?
 25 A. I couldn't tell you. I don't know.

9

1 Q. I mean, it was an email address you thought fit to use
 2 as the copy address; did you not know what it was?
 3 A. Unless it's an automated system within Celotex or the
 4 email system which pings back a dormant address,
 5 I couldn't tell you. It looks like a IT issue.
 6 Q. What I'm really getting at is whether this was an email
 7 address where you would send information about
 8 potentially dormant customers or dormant projects.
 9 A. I don't think it means that. I think it's probably a IT
 10 issue, I'd have thought.
 11 Q. All right.
 12 Now, do you remember having any discussions, either
 13 in September 2014 or November 2014, to discuss
 14 Grenfell Tower and other projects in Harley's pipeline?
 15 A. I think if there was a -- I mean, I can't remember off
 16 the top of my head, but if there was a record in the
 17 database system, then I would have done. I would have
 18 made a record there.
 19 Q. Do you remember discussing RS5000 at Grenfell
 20 specifically either in September or in November 2014?
 21 A. I don't, unless there's a record.
 22 Q. Okay.
 23 Now, did you know at the time that, at the end of
 24 September 2014, RBKC had approved the use of Reynobond
 25 PE 55 for the external rainscreen material at

10

1 Grenfell Tower?
 2 A. I didn't, no.
 3 Q. You didn't.
 4 Let's go to {CEL00000015}, please. We can see here
 5 an email on 18 November 2014. It looks like a diary
 6 entry to yourself with an appointment for a meeting on
 7 24 November at Harley House in Crowborough, East Sussex.
 8 Do you see that?
 9 A. I do.
 10 Q. The subject was a "Celotex Project Review".
 11 Then underneath that, it seems to be an email that
 12 was sent by you:
 13 "Hi [Dan],
 14 "Good to speak to you again.
 15 "Confirmation of our meeting to review current and
 16 future projects for potential Celotex specifications."
 17 Would I be right in thinking that between the
 18 17 November email I showed you just a moment ago and
 19 your making this arrangement on the 18th, you had
 20 a conversation with Dan Anketell-Jones?
 21 A. I think I must have done, yes.
 22 Q. Looks like it. You then set the meeting up on
 23 24 November.
 24 Can we go to {CEL00000018}. This is an email from
 25 you, Mr Roome, to Daniel Anketell-Jones on

11

1 24 November 2014, and it says:
 2 "Hi Dan,
 3 "I spoke with Mark and the team regarding a few
 4 projects."
 5 The top one is listed Grenfell Tower. Do you see
 6 that?
 7 A. I do.
 8 Q. In the second line it refers to you having seen Mark's
 9 drawings. You say:
 10 "When we last looked at this we came to a conclusion
 11 of using 3,000m2 of 150mm RS5000. Is this still so?
 12 "Mark's drawings were showing a mix of 100mm &
 13 160mm."
 14 Now, you say, "When we last looked at this"; when
 15 was that? When did you last look at Grenfell and come
 16 to the conclusion about the square metreage for RS5000
 17 and its thickness?
 18 A. It must have been at some point prior to this, when
 19 I would have attended the offices of Harley. But
 20 I can't be sure exactly the date.
 21 Q. In the second line it refers to you having seen Mark's
 22 drawings. Whose drawings were those, or what drawings
 23 were those?
 24 A. So that might be Mark Stapley, who was also part of the
 25 design team, and he may have brought up an image on his

12

1 computer to show the areas of insulation .
 2 Q. Did those drawings you saw show the cladding which would
 3 be used?
 4 A. I can't be sure.
 5 Q. Was there any discussion that you had with Harley about
 6 the cladding which would be used?
 7 A. I don't think at that point, no, it was more about the
 8 insulation .
 9 Q. Was there any mention at all about the use or proposed
 10 use of ACM cladding panels at Grenfell Tower?
 11 A. Not that I can recall , no.
 12 Q. Was there any discussion at all about the suitability of
 13 RS5000 with the rainscreen system they were proposing,
 14 either with the external panels or the whole system?
 15 A. No.
 16 Q. Did anybody at Harley ask you any questions about RS5000
 17 in this meeting that you're referring to in this email,
 18 or in the previous meeting or discussion to which you're
 19 referring?
 20 A. Only inasmuch as the thickness of the insulation .
 21 Q. Right, we'll come back to that.
 22 Did you make it clear to them that RS5000 could not
 23 be used on Grenfell Tower unless it was part of the
 24 exact same system that had passed the BS 8414 test?
 25 A. I don't think I did, no.

13

1 Q. Why is that?
 2 A. I think I expected that the team who were specialists in
 3 this arena had covered the literature that I'd been
 4 sending out to them.
 5 Q. Let's go to --
 6 SIR MARTIN MOORE-BICK: Sorry to interrupt you, Mr Millett.
 7 Can I just ask you this: sometimes even an expert
 8 can overlook something or be under a misapprehension;
 9 did it ever occur to you that Mr Anketell-Jones might
 10 have missed something or be under a misapprehension of
 11 some kind?
 12 A. I was -- no, I was never given that sort of impression,
 13 no.
 14 SIR MARTIN MOORE-BICK: All right. Thank you.
 15 MR MILLETT: Did you have an impression that
 16 Mr Anketell-Jones might have been an expert in some way,
 17 or in some field?
 18 A. I think from previous meetings with Dan in my previous
 19 life at Hilti , where it was more occasion when we were
 20 looking at structural fixings , I knew of his sort of
 21 knowledge in that arena.
 22 Q. So you knew him as a structural engineer having
 23 expertise in that arena. What about his expertise in
 24 relation to façades more generally and fire performance
 25 specifically ?

14

1 A. I didn't question any specific knowledge that he may or
 2 may not have had. He was part of a team that -- or
 3 a company that specialised in that sort of operation.
 4 Q. Did you know Mr Anketell-Jones to be, or did you think
 5 that he was, a façade engineer or the sort of person who
 6 you would equate with a specialist consultant that we'd
 7 seen in your February 2015 tier slides?
 8 A. I wouldn't have -- I would have classed him as
 9 a knowledgeable person, but I couldn't tell you his
 10 background or his -- yeah, his education.
 11 Q. Did you know that Harley and indeed the design team
 12 around them, such as it was, did not include
 13 a specialist façade engineer or fire engineer?
 14 A. I didn't, no.
 15 Q. You didn't know.
 16 In those circumstances, given what you didn't know,
 17 why did you not think it appropriate just to make
 18 absolutely sure that Dan Anketell-Jones had familiarised
 19 himself thoroughly with the caveat in all of Celotex's
 20 marketing literature when considering the use of RS5000
 21 for Grenfell Tower?
 22 A. I can't tell you.
 23 Q. Well, I'm asking you a "why" question. Do you have
 24 an answer to that?
 25 A. I don't, no.

15

1 Q. Looking then at the email I wanted to go to, which is
 2 {CEL00000024}, please, this is an email on
 3 11 February 2015 from you to Ben Bailey. There are two
 4 emails on page 1, and then an email on page 2. So this
 5 is around about the time, those are the emails we end up
 6 with.
 7 If we go to page 2 {CEL00000024/2} to start with,
 8 and go to the bottom of page 2, we see that here is
 9 an email from you on 11 February 2015, and you say
 10 there:
 11 "Hi Ben,
 12 "Looking back through my records it seems that Dan
 13 had performed an initial calc using his build desk
 14 software 0.15 U Value.. 150mm of Insulation.
 15 "He was going to send me the drawings once finished
 16 with Trinity (Back in November).
 17 "Let me have the final construction drawings showing
 18 the different build-ups and I will get these modelled
 19 for you."
 20 Just looking at that, is it right, as this would
 21 suggest, that Daniel Anketell-Jones hadn't sent you the
 22 drawings in November or after November as you were
 23 expecting?
 24 A. I think that's correct, yes.
 25 Q. You go on to ask Ben Bailey at Harleys for the final

16

1 construction drawings showing the different build-ups so
 2 you could get those modelled.
 3 Would you normally ask for final construction
 4 drawings?
 5 A. I think if there was a query over the performance. It
 6 looks like the insulation and the thickness, there was
 7 still an anomaly there from the calculation that Dan had
 8 performed.
 9 Q. Why did you ask for the final construction drawings?
 10 A. Because there's certain components within the -- that
 11 penetrate through the insulation that could have changed
 12 the way that U-value had been calculated, and I wanted
 13 to take or get hold of something that could confirm that
 14 which I could send to the technical team to review.
 15 Q. What did you mean by different build-ups?
 16 A. Well, basically what was behind or penetrating through
 17 the insulation.
 18 Q. Did it not occur to you at that stage that any
 19 difference in the build-up, even a build-up behind or
 20 penetrating through the insulation, would be different
 21 from or might very well be different from the build-up
 22 forming part of the test back in May 2014?
 23 A. I didn't, no.
 24 Q. Why is that?
 25 A. I can't tell you.

17

1 Q. You did realise at the time, of course, didn't you, that
 2 any difference in build-up in the cladding system as
 3 a system which meant that it was different from the
 4 system as tested in May 2014 would have meant that it
 5 wasn't covered by the BS 8414 test results --
 6 A. But I did know --
 7 Q. -- and therefore couldn't be used above 18 metres?
 8 A. But I did know there was other routes to compliance
 9 based upon that test.
 10 Q. What do you mean by that?
 11 A. Well, with the Building Control Alliance document, the
 12 use of a specialist to take the test as an assessment,
 13 an initial assessment, and potentially perform a desktop
 14 study, for instance.
 15 Q. Oh, right. But at this stage, had you any inkling that
 16 Harley were going to obtain a desktop study based on the
 17 data derived from the 8414 test?
 18 A. I didn't know what they were doing, no.
 19 Q. And you didn't have a desktop study, did you?
 20 A. I didn't, no. The company didn't.
 21 Q. So what route to compliance did you think Harley was
 22 pursuing at this point?
 23 A. I couldn't be sure.
 24 Q. Given that you couldn't be sure, did you not seek to
 25 clarify that with Mr Anketell-Jones?

18

1 A. No, I didn't.
 2 Q. Why is that?
 3 A. I just -- I didn't.
 4 Q. Is it because you wanted to make the sale and left it to
 5 him to make the decision as to whether or not RS5000
 6 could safely be used on Grenfell Tower?
 7 A. I think it must have been the case that I had, as you
 8 say, left it to him to make that decision.
 9 Q. And did you perceive that he might be making that
 10 decision ignorant of exactly what it was that he could
 11 and couldn't do with the results of the 8414 test?
 12 A. No, I didn't think like that, no.
 13 Q. If you were confident in your mind that he,
 14 Mr Anketell-Jones, had read and understood the caveat
 15 within the marketing literature, you wouldn't be
 16 discussing different build-ups, would you?
 17 A. I can't be sure.
 18 Q. Well, the answer must be no.
 19 A. Sorry, could you ask me that question again, please?
 20 Q. Yes, I'll try it a different way.
 21 If you were confident in your own mind that
 22 Mr Anketell-Jones had read the marketing literature and
 23 really understood the caveat in it -- and by caveat,
 24 I mean that you couldn't use RS5000 in any system
 25 different from the one which had been tested -- then you

19

1 wouldn't be discussing different build-ups, would you?
 2 A. Possibly not, no.
 3 Q. No.
 4 Can we then look at the next email up in the chain
 5 at the foot of page 1 {CEL00000024/1}, please. This is
 6 Ben Bailey back to you on 11 February 2015:
 7 "Hi Jonathan,
 8 "The drawings are in a dropbox, does this link work
 9 for you?"
 10 Do you see that?
 11 A. I do.
 12 Q. You say in your witness statement -- let's just go to
 13 that, because you cover this point -- that you
 14 identified two drawings as being particularly relevant.
 15 I can show you that. It's page 22 of your statement
 16 {CEL00010031/22} at paragraph 74. In fact, at 73 you
 17 refer to the Dropbox, and at 74 you identify two
 18 drawings of particular relevance. Do you see that?
 19 Can I just ask you how you identified those drawings
 20 as of particular relevance?
 21 A. I think from just looking through a few, the first few
 22 that I'd found, that showed an indicative use of the
 23 insulation and the build-up behind it.
 24 Q. Let's look at those two drawings that you say were of
 25 particular relevance. You have identified those in the

20

1 sentence about halfway down paragraph 73, where you say:
2 "I identified two relevant drawings which I exhibit
3 as JWRR/35:C_00456 and JWRR/36:C_00457 ..."

4 Now, we have those at {CEL00000456} and
5 {CEL00000457}. We can probably get them both on the
6 screen at the same time, if we can, and if we can't
7 we'll look at them sequentially. Yes, thank you very
8 much.

9 Now, looking at those, why did you consider these
10 drawings to be of especial relevance?

11 A. Just because they showed the insulation and the build-up
12 and something that I could send on to the technical team
13 to review for me.

14 Q. In order to identify these particular drawings, does it
15 follow that you must have opened the Dropbox that
16 Ben Bailey had sent you?

17 A. I did, yes.

18 Q. And looked at all of the drawings in it; yes?

19 A. I don't think I looked at all of them, no, just the
20 first few, and as soon as I found one or two that were
21 relevant, then I could get them sent across.

22 Q. Right.

23 Now, although neither of these two drawings show the
24 cladding material specifically, Harley have been able to
25 identify exactly what the drawings were in the Dropbox.

21

1 Ben Bailey said that Harley kept current drawings in
2 a Dropbox and may simply have sent that link to you
3 rather than selecting any particular drawings. That was
4 his evidence, and I'll just give the reference for the
5 transcript: {Day35/86:21} to {Day35/87:3}. That's for
6 our benefit.

7 Do you recall having to sift through a mass of
8 drawings to find what you were looking for in order to
9 answer Ben Bailey's question about the U-values?

10 A. I knew there was a lot of drawings there, or a lot of
11 files there, I should say, and I just picked the first
12 two that became -- that I thought were relevant.

13 Q. I see. When you say you picked the first two, out of
14 a file description or visually looking at the drawings?

15 A. I think I just clicked on them one by one until I found
16 one or two, as it were, that looked relevant.

17 Q. Right. Just to be very clear, what were you looking
18 for?

19 A. Well, anything that showed the squiggly line, basically,
20 which denotes insulation, and the dimensions that you
21 could see along the right-hand side of each of the
22 images.

23 Q. Yes, I see, thank you.

24 Now, just looking at those drawings, can you see
25 that there is a rainscreen?

22

1 A. I can, yes.

2 Q. Can you look at it closely, because if you do, you see
3 that it's got an outer skin and an inner core, doesn't
4 it? If you look at, for example, the left-hand drawing,
5 there is a rainscreen with a thick black outer coating
6 and an inner core, which is the same as on the
7 right-hand drawing. Do you see that? Do you see that
8 there is an outer skin and an inner core?

9 A. I can see some lines denoting some sort of panel, yes.

10 Q. Yes. Was it not clear to you at the time that the
11 cladding on these drawings proposed for Grenfell Tower,
12 whatever it was, wasn't cementitious fibre board?

13 A. I didn't make that comparison, no.

14 Q. Right.

15 Did it not occur to you that Harley had failed to
16 understand the caveat in the literature about the
17 cladding system needing to be the same as the 8414 test,
18 looking at these drawings?

19 A. No.

20 Q. Look at {CEL00000029}, please. I would like to look at
21 the second email down on that page. This is an email
22 from you back to Ben Bailey the same day,
23 11 February 2015, and you sent him some calculations you
24 had received from your technical department. Do you see
25 that?

23

1 He then responds to you -- perhaps I should just
2 dwell on it a little more. You say:

3 "Looking at the 150mm Concrete as a base you would
4 need 200mm of Celotex RS5000 to meet U-value =
5 0.15W/m2K.

6 "If you are using a build-up of 160mm RS5000 as
7 drawn you will achieve a U-value = 0.18W/m2K.

8 "Are there any further layers internally attached to
9 the 150mm concrete panels that Dan calculated? If so
10 this will have an impact on the calcs."

11 So that's your email to him.

12 He responds to you eight minutes later. You see
13 that at the top of the page:

14 "We think the concrete is 150mm thickness with 100mm
15 concrete & flint stone composition (Dan's latest calcs
16 attached), will this make any difference?"

17 Now, let's look at those calculations, because you
18 can see from the attachments that he attached some
19 images, three of them.

20 {CEL00000030}. Now, this is the BuildDesk
21 calculation carried out by Daniel Anketell-Jones. Can
22 you see that?

23 A. I can, yes.

24 Q. It shows at the top line of the text under the diagram
25 that the cladding would be an ACM cladding panel. Do

24

1 you see that?
 2 A. I can see that now, yes.
 3 Q. Yes, it's item number 1, and under "Manufacturer" it
 4 says "Own catalogue", and under "Name" it says "ACM
 5 Cladding Panel".
 6 Did you realise from this that ACM was going to be
 7 used as the cladding panel at Grenfell Tower?
 8 A. I can't say I did, no.
 9 Q. These documents clearly show that it would, don't they?
 10 A. On reflection, they do, yes.
 11 Q. But you didn't pick that up; is that right?
 12 A. I didn't, no.
 13 Q. So does it follow that you didn't point this out to
 14 Ben Bailey?
 15 A. I didn't, no.
 16 Q. Had you noticed that the cladding panel was going to be
 17 ACM, would you have done?
 18 A. I would have done, yes.
 19 Q. Yes. So, on your evidence, you didn't because you
 20 didn't spot that the cladding panel was going to be ACM?
 21 A. That's correct, yes.
 22 Q. Was it not an important thing for you to do, to make
 23 sure that the build-up was exactly the same as that
 24 which had been tested?
 25 A. On reflection now, with hindsight, yes, but not at the

25

1 time.
 2 Q. Again, can I suggest to you that the reason you didn't
 3 go back to him was because you'd rather make the sale
 4 and leave it to him to work out whether or not the
 5 addition of ACM cladding panels meant that the caveat
 6 was caught or not?
 7 A. No, that wouldn't be the case, no.
 8 Q. Can I just show you what Ray Bailey says in his
 9 evidence. Can I show you {Day33/27:18}, and this is in
 10 response to a question I asked him about:
 11 "Question: Which route to compliance for limited
 12 combustibility did you think was being followed on the
 13 Grenfell Tower project?"
 14 And his answer was at line 18:
 15 "Answer: I thought we were covered in two ways,
 16 that -- and our thoughts were the material was of
 17 limited combustibility, and if that's incorrect, we
 18 accept that. In addition, there was a BS 8414 test, so
 19 it was a material that had had a whole series of tests,
 20 it was a fantastic product. On the certificate, we saw
 21 that it said it had been tested with different facing
 22 material. We sent our details to Celotex to get them to
 23 sign off that it was safe. So I suppose we're saying we
 24 believed that Celotex had carried out a study on it.
 25 "Question: You say, 'We sent our details to Celotex

26

1 to get them to sign off that it was safe?
 2 "Answer: Yes.
 3 Then he qualifies that at line 7:
 4 "... that was a poor choice of words. To confirm
 5 that it was the -- they were happy for us to use it in
 6 that situation."
 7 Then at line 15 he says:
 8 "Answer: Yeah. We wanted Celotex's confirmation
 9 that they were happy for us to use it.
 10 "Question: Was it not up to Harley to satisfy
 11 itself that it was safe to use by making the appropriate
 12 investigations?
 13 "Answer: Well, we made the investigations with the
 14 manufacturer."
 15 Then if you go on, he goes on to say at the bottom:
 16 "... the product was specified by Studio E. Exova
 17 were their fire consultant."
 18 Et cetera, et cetera.
 19 Then at line 3 he says:
 20 "We were doing a -- our own back-up check to stuff
 21 that had already been signed off by them. So we did our
 22 own checks, as ... and took all proper and necessary
 23 means, in our view, to confirm that what they had
 24 specified for us was correct."
 25 Now, was it your understanding, Mr Roome, that you

27

1 were being asked by Harley to comment on the compliance
 2 of the rainscreen system to be used at Grenfell Tower?
 3 A. No.
 4 Q. Or to advise on whether RS5000 was safe for
 5 Grenfell Tower from a fire safety perspective?
 6 A. No.
 7 Q. Did you not realise at this point or by this point that
 8 Harley were going to be using RS5000 above 18 metres in
 9 a system which was different from the system test?
 10 A. I wasn't, no.
 11 Q. Now, let's look back at your email of 11 February to
 12 which Ben Bailey was responding at {CEL00000025},
 13 please. You can see there that you say:
 14 "Looking at the 150mm Concrete as a base you would
 15 need 200mm of Celotex RS5000 to meet U-value =
 16 0.15W/m2K."
 17 Is it right that, at this stage, the specific width
 18 or depth, if you like, of the Celotex product was still
 19 under consideration?
 20 A. It looks to be the case, yes.
 21 Q. Now, there were various attachments to this email and
 22 I just want to look at one or two with you. Before I do
 23 that, can we just look back at the product datasheet,
 24 {CEL00007961/3}, please, which is its last page. You
 25 will recall, Mr Roome, we looked at this yesterday.

28

1 This is the shortest of the marketing documents, which
 2 has the pink banner on every page which says "suitable
 3 for buildings above 18 metres in height", we looked at
 4 that yesterday. This is the last page.
 5 Under "Certification", and the system tested, it
 6 lists the insulation, if you see that, as the third item
 7 down, "100mm Celotex RS5000".
 8 Now, as we've discussed before, it then goes on,
 9 underneath the list of components, to say:
 10 "The fire performance and classification report
 11 issued only relates to the components detailed above.
 12 Any changes to the components listed will need to be
 13 considered by the building designer."
 14 Did you realise that as soon as you started
 15 discussing depths of Celotex other than 100 millimetres,
 16 they fell outside the system that had been tested?
 17 A. I didn't, no.
 18 Q. How could you possibly not have noticed that?
 19 A. Because I read that that the components included the
 20 material. It wasn't a reference to the thickness.
 21 That's the way I understood it.
 22 Q. I don't understand that answer, with great respect,
 23 because surely the thicker the material, the more
 24 Celotex you put into a system, the more combustible
 25 material you're adding to the system?

29

1 A. It's something I learnt later, that that's how it was
 2 interpreted.
 3 Q. Well, did you realise there was no valid BR 135
 4 classification in place justifying the use of any
 5 thickness of Celotex RS5000 other than 100 millimetres?
 6 A. I didn't, no.
 7 Q. Do you accept that, given you were discussing a depth of
 8 Celotex greater than 100 millimetres, that meant that
 9 you were discussing a rainscreen cladding system which
 10 would involve a much greater quantity of combustible
 11 material being used without any valid approval in place?
 12 A. I do now, yes.
 13 Q. You didn't then?
 14 A. I didn't, no.
 15 Q. Was your logic that you thought that it related to the
 16 components, so you could use any amount of any of this
 17 material --
 18 A. That's correct.
 19 Q. -- and that it would pass or it would be covered by the
 20 test?
 21 A. Yes.
 22 Q. I have to put to you that that is not a credible line of
 23 thinking, and that you can't have thought that at the
 24 time.
 25 A. Well, that's the way I did, unfortunately.

30

1 Q. Did you not ask yourself why Harley thought that it was
 2 all right to use 150 or 160 millimetres of
 3 Celotex RS5000 as opposed to the 100 millimetres of
 4 Celotex RS5000 the subject of the test and the caveat?
 5 A. I don't, no.
 6 Q. 11 February 2015 was the same day as we see that you
 7 sent your traffic light coloured three tiers slides to
 8 Ms Berger, wasn't it? It was a busy day for you.
 9 Did you not, in your working day on that day, put
 10 two and two together and work out in your own mind that
 11 Harley was a green?
 12 A. I didn't, no.
 13 Q. You really didn't?
 14 A. No.
 15 Q. You see, they had clear ignorance of the requirements
 16 and they had no specialist consultant helping them. You
 17 really didn't think that these were a green for go,
 18 "Use", in accordance with your tier 3?
 19 A. No, because I had no reason to know that they didn't
 20 have any speciality consultancy behind them or
 21 fire consultant.
 22 Q. Can we look at {CEL00000027}. Now, this is a Celotex
 23 U-value calculation that I think you carried out on
 24 11 February 2015, isn't it?
 25 A. It's not something that I could carry out, it's

31

1 something that the technical team would carry out, so --
 2 Q. I see.
 3 A. -- I'd sent the correspondence from -- that I received
 4 from Ben Bailey to the Celotex technical team to run the
 5 calculation.
 6 Q. I follow, and you got the result back on 11 February and
 7 you were their client, effectively; is that the way that
 8 worked?
 9 A. I think that's the way that it is recorded within their
 10 system, yes.
 11 Q. I see. So although you're Celotex, you are effectively
 12 the technical team's client?
 13 A. As it were, yes.
 14 Q. As it were, yes, absolutely. Right.
 15 Let's just look down. It contains a number of
 16 statements and I'm going to look at the paragraphs of
 17 next just underneath the columns of figures. You can
 18 see that Celotex RS5000 is referred to there, and
 19 there's nothing in there for rainscreen cladding, if you
 20 look at the second item in that column.
 21 A. Yeah.
 22 Q. So they've allowed 0 for thermal resistance.
 23 But then it goes on in the text to say:
 24 "This calculation is for the purposes of
 25 demonstrating the thermal transmittance (U-value)

32

1 through the modelled construction.
 2 "It should not be construed as demonstrating
 3 compliance with other areas of the Building Regulations
 4 such as Approved Document B (fire).
 5 "It is critical that all areas of the design are
 6 agreed with the relevant building control body before
 7 being finalised. For buildings with a storey height
 8 above 18m please refer to our Rainscreen Cladding
 9 Compliance Guide, which is available from
 10 www.celotex.co.uk or from the Celotex Technical Centre."
 11 Then you have got the U-value of 15 underneath that.
 12 Now, I just want to highlight the words:
 13 "It should not be construed as demonstrating
 14 compliance with other areas of the Building Regulations
 15 such as Approved Document B (fire)."
 16 Do you know why this document mentions Approved
 17 Document B specifically?
 18 A. I don't, no.
 19 Q. Is it standard wording on a Celotex U-value calculation?
 20 A. It could possibly be, yes.
 21 Q. Had you discussed Approved Document B with Mr Bailey?
 22 A. I hadn't, no.
 23 Q. Or with Dan Anketell-Jones?
 24 A. No, I don't think so.
 25 Q. In relation to the use above 18 metres, why were you

33

1 offering U-value calculations for Grenfell Tower unless
 2 you were confident that the build-up was compliant with
 3 Approved Document B?
 4 A. I think the only thing that we were doing was validating
 5 the calculations that Dan had performed to achieve 0.15
 6 U-value based upon his BuildDesk calculation.
 7 Q. Was it common practice for Celotex to carry out U-value
 8 calculations without knowing what the cladding material
 9 would be?
 10 A. I couldn't tell you.
 11 Q. Well, had you come across it in your own work for
 12 Celotex at or by this time?
 13 A. I can't be certain.
 14 Q. Was it common practice to carry out U-valuations without
 15 knowing that the cladding system into which the
 16 insulation material was going to be installed above
 17 18 metres was exactly the same as that tested under the
 18 BS 8414 test?
 19 A. I can't be sure.
 20 Q. Was there not an obvious risk in pursuing an approach
 21 like that?
 22 A. Looking back with hindsight, yes, possibly.
 23 Q. And the risk didn't occur to you at the time?
 24 A. It didn't, no.
 25 Q. Even though you were privy to all the material that had

34

1 come from the technical department and the marketing
 2 literature and the details about the test?
 3 A. No.
 4 Q. Can we look at {CEL00000028}, please. This is another
 5 calculation, also attached to the email of 11 February
 6 that you sent to Ben Bailey we've just seen, and this is
 7 the calculation showing that 160 millimetres of RS5000
 8 would result in a U-value of 18. I'm summarising the
 9 effect of the document, but do you agree that that is
 10 what it says, effectively?
 11 A. Correct.
 12 Q. Now, this document doesn't have the disclaimers that
 13 we've seen on the previous example we were looking at.
 14 Why is that?
 15 A. I couldn't tell you.
 16 Q. Given that 160 millimetres was not as tested, again, why
 17 not tell Ben Bailey that 160 millimetres wasn't what was
 18 tested and it shouldn't be even considered?
 19 A. I can't tell you.
 20 Q. For the same reason as before?
 21 A. Yes.
 22 Q. Were calculations such as this without disclaimers about
 23 ADB often sent out, in your experience as it stood at
 24 the time?
 25 A. I can't recall.

35

1 Q. Can we look at {CEL00000031/4}, please. This is your
 2 email to Ben Bailey, and it starts at the foot of
 3 page 4, on 12 February 2015, "Hi Ben", and if we go over
 4 to page 5 {CEL00000031/5}, we can see the text:
 5 "I have spoken to our technical team and they have
 6 pointed out that Dan had failed to take into account the
 7 negative impact of the helping hand brackets cold
 8 bridging the insulation.
 9 "This is why the build desk data is showing
 10 favourable U value results.
 11 "I will leave it to you to decide which thickness of
 12 RS5000 you will need to achieve your desired U value."
 13 Would you agree that you were effectively advising
 14 that you couldn't get a U-value of 15 with
 15 160 millimetres of RS5000?
 16 A. The two calculations that I'd sent back from our
 17 technical team were a model representation of the
 18 different thicknesses and the resultant U-values, so the
 19 technical team were basically telling me that what Dan
 20 had modelled could not be achieved apparently.
 21 Q. Then if we go on to {CEL00000031/4}, so back a page, we
 22 see Ben Bailey's response, and I'm afraid it's quite
 23 small, it may have to be blown up. This is a month
 24 later on 13 March. Ben Bailey writes to you and says
 25 "Hi Jonathan". Can you see that? It's in a mass of

36

1 text there.
 2 A. I can, yes.
 3 Q. Thank you:
 4 "Hi Jonathan,
 5 "I'm getting to the stage now of ordering the
 6 insulation. The calcs Dan did before with 160mm of
 7 insulation to get a U value of 0.15 may be correct after
 8 all as the cladding supports don't break through the
 9 insulation.
 10 "Would celotex be able to offer sheets in 160mm
 11 thickness (to reduce the amount of cutting on site)?"
 12 Did you check that? Did you check the calculations
 13 again?
 14 A. I don't think any further calculations were ever carried
 15 out, no.
 16 Q. Again, why didn't you draw to their attention the fact
 17 that if they were going to use 160 millimetres, as you
 18 now clearly knew they were going to, of RS5000, that
 19 would be different from the system tested, which only
 20 used 100?
 21 A. I didn't think that was an issue.
 22 Q. Presumably you thought that Daniel Anketell-Jones didn't
 23 think it was an issue either; is that right?
 24 A. Correct.
 25 Q. I would like to turn to the topic of case studies. You

37

1 will recall that we had a discussion about that,
 2 I think, yesterday.
 3 Can we go on, then, to {CEL00000039}. This is
 4 a meeting reminder to yourself, I think, for a meeting
 5 on 7 May 2015 with Ben Bailey, and it says:
 6 "Meeting with Ben Bailey to review installation of
 7 RS on Grenfell Tower.
 8 "Potential Case Study."
 9 First, what did you mean by "review installation"?
 10 A. I think this was just to fact-find the details of the
 11 project for one of the one-page A4 flyers that were
 12 produced by Celotex.
 13 Q. Were those the flyers that we talked about yesterday?
 14 You would have a case study to send to potential
 15 customers to show potential customers what actual
 16 projects you had used RS5000 on?
 17 A. Correct, yes.
 18 Q. You say "Potential Case Study"; was that because you
 19 viewed Grenfell Tower as a potential for such a case
 20 study that you have just described?
 21 A. Yes.
 22 Q. Can we look at {CEL00001443}, please. This is
 23 a Salesforce entry which looks like it relates to
 24 a meeting between Ben Bailey and you, I think -- would
 25 that be right? -- in the office to discuss progress on

38

1 Grenfell Tower.
 2 A. It seems to be, yes.
 3 Q. The due date there is 8 April 2015, and that looks the
 4 same as all the other dates in the document.
 5 Was there a meeting on 8 April 2015?
 6 A. I think if I'd written that up, then that's likely, yes.
 7 Q. So that would have pre-dated your Outlook diary entry of
 8 17 April for a meeting on 7 May, wouldn't it?
 9 A. It would have done, yes.
 10 Q. Yes, I see.
 11 We can see that it records:
 12 "Met Ben in the office to discuss progress on
 13 Grenfell Tower.
 14 "Rydons are the MC [main contractor] and although
 15 they have started to take RS they have not actually
 16 started installing.
 17 "Discussed the potential to use as a case study and
 18 Ben is happy. Thinks that Rydons will get on board
 19 also.
 20 "Arrange to visit site the next time in area."
 21 Now, you can see that it refers to discussing
 22 a potential case study of Grenfell Tower.
 23 First, is this an accurate note of your discussion
 24 with Ben Bailey?
 25 A. If I wrote it, then that's correct, yes.

39

1 Q. Secondly, when you proposed that Grenfell Tower should
 2 be a case study there, what exactly were you proposing
 3 to study?
 4 A. Well, like the other sort of A4 flyers, it was literally
 5 just a synopsis of the product and the project.
 6 Q. And what did you at that stage intend the synopsis of
 7 the project would say?
 8 A. It was prescriptive, so whatever the layout had been on
 9 the case study documents, those flyers, it would have
 10 been followed.
 11 Q. Were you proposing to use it, it being Grenfell Tower,
 12 as a case study example of an 18-metre-plus building
 13 where RS5000 had been used with a system different from
 14 the BS 8414 test?
 15 A. I think it was just a case study of an 18-metre building
 16 with RS5000. I didn't reflect on the choice that it was
 17 a different build-up, as you say.
 18 Q. If it hadn't shown what build-up had been used in the
 19 rainscreen cladding, why would it have been any use to
 20 a potential customer considering the use of RS5000?
 21 A. I don't know.
 22 Q. Well, it wouldn't have been, would it? Because any
 23 potential customer would ask you, as their first
 24 question: what's the rainscreen?
 25 A. Possibly, yes.

40

1 Q. So without knowing precisely what the rainscreen was,
 2 the case study would have been all but useless.
 3 A. Potentially.
 4 Q. Did you ask Ben Bailey at this stage -- this is early
 5 April 2015 -- what the rainscreen was?
 6 A. I didn't, no.
 7 Q. If you didn't ask that question, how could you have put
 8 forward a sensible and intelligible and useful case
 9 study?
 10 A. I don't know, I didn't think about it.
 11 Q. Let's look at Ben Bailey's evidence about this. This is
 12 at {Day39/93:12}, please. He was asked:
 13 "Question: ... what did you understand that
 14 Grenfell Tower being a case study for RS5000 would
 15 involve, or what did it mean?
 16 "Answer: I suppose, being an insulation supplier,
 17 they might be interested in what U-value was achieved
 18 with their product on a building.
 19 "Question: Did you get the impression that
 20 Grenfell Tower was, as it were, a guinea pig for RS5000?
 21 "Answer: That's not a thought that crossed my
 22 mind."
 23 Why would Celotex need a case study of how RS5000
 24 performed from a thermal point of view?
 25 A. It's one of the criteria within the flyers that they

41

1 would put down.
 2 Q. But it wouldn't be a case study of actual performance,
 3 would it, because these boards were only just going to
 4 go on to the building?
 5 A. Sorry, could you elaborate?
 6 Q. Well, a case study which simply identified what the
 7 thermal value was would say no more than the marketing
 8 literature, would it?
 9 A. Well, that's generally what these documents were.
 10 Q. Yes, but a potential customer would know what the
 11 thermal values were for RS5000 and wouldn't need to look
 12 at a case study for that.
 13 A. Potentially, but not always. I suppose they would have
 14 to -- it would give them an indication of the thermal
 15 performance of a particular thickness of material.
 16 Anything other than that, they would need to go to the
 17 technical team to get a specific calculation done to
 18 give an indication.
 19 Q. Was the reality that Grenfell Tower was a potential case
 20 study in the sense that you have expressed it because
 21 Grenfell Tower was one of the first major projects where
 22 RS5000 was being used in a building over 18 metres?
 23 A. Yes.
 24 Q. Indeed, as at 8 April 2015, I should ask you, were there
 25 any other projects involving buildings over 18 metres

42

1 for which you had sold RS5000?
 2 A. I can't say for others within the team or teams in the
 3 UK.
 4 Q. All right. What about you?
 5 A. Not for me, personally, no.
 6 Q. So this was your first?
 7 A. I think so, yes.
 8 Q. Is there a sense in which Grenfell Tower was being used
 9 as a guinea pig, an experiment, for RS5000?
 10 A. I didn't see it that way, no.
 11 Q. Can we go to {CEL00000558}, please. This is an email of
 12 9 April 2015 to the Salesforce team from you regarding
 13 a draft template for Grenfell Tower. "Case Study
 14 Template for Grenfell Tower" is the subject line.
 15 Did you draft this text?
 16 A. This is a sort of prescribed document which the
 17 information was put against the bold text there, so
 18 I was literally just filling in components that I was
 19 being asked for from that document.
 20 Q. So this is a draft template case study going the rounds
 21 in Celotex at the time?
 22 A. This is sort of a standard document, yes.
 23 Q. We can see if we go to page 1 at the bottom, it says:
 24 "What application was Celotex used in."
 25 You have just put "Rainscreen". I suppose that's

43

1 a pithy way of describing it, but wouldn't it be obvious
 2 to anybody that RS5000 was going to be used in
 3 rainscreen, given that RS stood for rainscreen?
 4 A. No, not necessarily. These type of documents often said
 5 the application quite simplistically like that and then
 6 the product used in that application.
 7 Q. Right. I see.
 8 If you go five bullet points down, you can see
 9 there's a question, "Why Celotex was used". Do you see
 10 that?
 11 A. Correct, yes.
 12 Q. It says, "Performance & Value".
 13 Would that include fire performance, or would it
 14 only include thermal performance?
 15 A. I think the idea there, it's the thermal performance.
 16 Q. Now, let's look at {CEL00000566}. This is a fuller
 17 version of the Celotex case study for Grenfell Tower,
 18 which I think was sent -- is this right? -- to Celotex
 19 by the CFA Group. Do you remember the CFA Group?
 20 A. I can't recall seeing this document, no.
 21 Q. Right, okay. Let's see if we can do a bit better.
 22 Can we go to {CEL00000564}, please. This is
 23 an email from somebody called Kelly Slociak to
 24 Daniel Steed dated 5 June 2015, and she says:
 25 "Hi Dan

44

1 "Please see attached 2 x case studies for your
2 approval so far. Just waiting on quotes (as usual)!"
3 "I look forward to hearing your thoughts."
4 Did you see this email or the attachment at the
5 time?
6 A. No, I didn't.
7 Q. Was the production of case studies normally outsourced
8 to Kelly Slociak or the CFA Group?
9 A. I can't be sure. That would have been dealt with by the
10 marketing/product management team.
11 Q. Right. Going back to the document, if we can -- it's at
12 {CEL00000566}, please -- were you involved in producing
13 the text in this document?
14 A. No, I wasn't.
15 Q. Are you or were you familiar with this kind of document,
16 this detailed case study?
17 A. No, I wasn't.
18 Q. Right. Do you know who was?
19 A. I can only think it would have been the marketing and
20 product management team.
21 Q. Right. Which particular individuals within that team
22 would have been responsible for this document?
23 A. I can't be certain.
24 Q. This is more than a flyer, isn't it? This is a detailed
25 document.

45

1 A. It has more in it than, yes, my simple document that
2 I completed.
3 Q. Right.
4 Did you know at the time that, in addition to your
5 simple document that you completed that we've just seen,
6 Celotex was sending out more detailed case studies to
7 potential customers, such as this?
8 A. No, I didn't.
9 Q. You didn't? Right.
10 Can you give me the name of the person who would
11 have been responsible for this document, to the best of
12 your recollection?
13 A. If you go back to the email that this is attached to --
14 Q. Daniel Steed.
15 A. It's Daniel Steed, then he may have been the person as
16 part of the marketing team who was tasked with this
17 role.
18 Q. Who was Daniel Steed's line manager?
19 A. Can you refer back to my organogram again?
20 Q. Certainly, {CEL00012298}, please.
21 A. So the second column there.
22 Q. Okay, we can see him on the left-hand side, immediately
23 underneath Lizzie Seaton. So she answers to
24 Bex Hartlebury, who answers to Paul Evans. I see. So
25 in the end this is Paul Evans' responsibility, is it,

46

1 this document?
2 A. That's correct.
3 Q. Thank you very much.
4 Can we then go to {CEL00000041}, please. This is
5 another meeting reminder in your Outlook diary for
6 a meeting on 20 May 2015 with Harley on the subject of
7 Grenfell Tower, and indeed at the site. The subject is:
8 "Meeting with Ben Bailey to review progress and
9 forward order schedule.
10 "[Rydons] - Main Contractor."
11 That meeting took place, I think, didn't it?
12 A. No, it didn't. I think the two times I attempted to
13 meet Ben -- with Ben on site, he was unavailable.
14 Q. I see.
15 Can we go back to {CEL00001444}, please. I say
16 "back to"; I don't think in fact I've shown you this
17 document. But if you look at it, it is a Salesforce
18 entry, and there is a due date there of 20 May 2015,
19 relating to Grenfell Tower, and the name on the
20 right-hand side is Mark Harris. You can see that it
21 says:
22 "Comments: Products starting to be installed."
23 "Mark wanted to know if we could offer any letter
24 detailing that Harley are an approved installer of
25 Celotex products.

47

1 "Reason being is that he has been asked by the MC
2 Rydons who in turn have been asked by Kensington &
3 Chelsea Council as they wish to apply for drawing down
4 money from an eco fund.
5 "Emailed ..."
6 Is that "Jonno"?
7 A. That's correct, yes.
8 Q. Is that Jon Roper?
9 A. No, that's Richard John, who was a business development
10 manager.
11 Q. Oh, I see. Right:
12 "... & Paul Evans to explore options and will
13 feedback to Mark."
14 Did you actually in the end offer Harley any letter
15 to the effect that they were an approved installer?
16 A. I didn't, no.
17 Q. Was there a meeting on site at Grenfell Tower at this
18 time?
19 A. No, I think it's likely that the -- as you see, the task
20 topic, it says "Site Visit" there.
21 Q. Yes.
22 A. It's likely, being that it was a conversation with
23 Mark Harris, it's more likely that this was -- I'd pre
24 sort of fixed the meeting record in the database and
25 I just hadn't updated the task topic to something like

48

1 "phone call".
 2 Q. Right. So you didn't have a site visit --
 3 A. No, I didn't.
 4 Q. -- despite this document?
 5 A. That's correct, yes.
 6 MR MILLETT: Right.
 7 Can we then turn to a different topic.
 8 Mr Chairman, this topic will probably take about
 9 ten minutes, but I can make decent progress on it.
 10 SIR MARTIN MOORE-BICK: Yes, all right. If you would like
 11 to start, that would be all right.
 12 MR MILLETT: Thank you.
 13 The topic is the promotion of RS5000 for
 14 Grenfell Tower.
 15 I think, given everything we have looked at so far,
 16 Mr Roome, it is right to say, isn't it, that Celotex,
 17 through you, was seeking to promote RS5000 for use on
 18 Grenfell Tower?
 19 A. That's correct.
 20 Q. Could we look at {CEL00000031/2}, please. This is
 21 an email from you to Ben Bailey on 16 March 2015 at 9.42
 22 in the morning, and it says:
 23 "Re: Grenfell Tower - Celotex.
 24 "Hi Ben,
 25 "As this would be a special order do you need

49

1 exactly 1,900m2 or would you need more to be safe
 2 (Mindful that we would have to produce in one complete
 3 run)
 4 "Please let me know and I will speak to our factory
 5 about lead times."
 6 Then you say:
 7 "Please can you also let me know who you would be
 8 buying this through and I will arrange a list price for
 9 the distributors involved so you can get the best
 10 (Competitive price)."
 11 Were you offering to arrange the best competitive
 12 price, as you put it, to seek to clinch a deal for the
 13 use of RS5000 at Grenfell Tower?
 14 A. I think it was just a phrase I'd used, but it just meant
 15 that I would be able to get the pricing sorted out for
 16 him, really.
 17 Q. Right, in order to clinch the deal?
 18 A. Well, I think the deal was already there, he'd already
 19 or Harley had already made the decision to purchase the
 20 material.
 21 Q. I see. But as a special favour, then, to a customer who
 22 had shown willing and bought the product?
 23 A. No favour given, no.
 24 Q. Why did you tell him that you were going to arrange
 25 a list price for the distributors so that Harley could

50

1 get the best, most competitive price, or competitive
 2 price? Why did you do that?
 3 A. I suppose it's just a phrase I used to say that,
 4 you know, if we'd spoken to the distributor beforehand,
 5 then they would be more aware of the quantity and the
 6 company would therefore give them the appropriate
 7 discount.
 8 Q. Why did you want Harley to get the best price?
 9 A. Just to give them any price, to be honest.
 10 Q. Well, to get any price you wouldn't have had to have
 11 gone through the trouble of arranging a list price for
 12 the distributors in order to produce the "best
 13 (Competitive price)", as your email states.
 14 A. Well, the company, I think, with some of these types of
 15 products, they didn't necessarily have a list price as
 16 such.
 17 SIR MARTIN MOORE-BICK: And this was going to be a bespoke
 18 product, wasn't it?
 19 A. I think a bespoke size.
 20 SIR MARTIN MOORE-BICK: Well, all right.
 21 A. That was the thing. So if it was a non-standard size,
 22 which I think that's -- this is what they were going to
 23 have to produce, they would need an appropriate list
 24 price --
 25 MR MILLETT: I see.

51

1 A. -- discount.
 2 Q. I see. So by list price, you had to arrange a specific
 3 price for the distributors for this thickness because
 4 they didn't have one?
 5 A. I think that was the case, yes.
 6 Q. I follow.
 7 Why would that result in Harley getting the best
 8 price?
 9 A. I think it was just a term that I'd used.
 10 Q. Well, I know, I just want to know why you used it.
 11 A. I can't be sure, unfortunately.
 12 Q. Okay.
 13 Can we then look up this email string to page 1
 14 {CEL00000031/1}, please, which is a little bit later on
 15 that day. You're told by Ben Bailey -- and I've skipped
 16 over it -- that they were using SIG as their
 17 distributor, and you say to Ben Bailey on 16 March:
 18 "Perfect.
 19 "The 80mm are a standard size so should be easy
 20 enough to get hold of."
 21 Then you say:
 22 "Do you know which SIG Branch that you are using and
 23 who you speak to. It will then be easier for me to make
 24 sure that the pricing and supply chain is looked after
 25 for you."

52

1 What did you mean by "looked after"?

2 A. Well, I think it was just because the -- if we knew

3 which or Celotex knew which SIG branch was being used

4 then they could be in contact with them directly to make

5 sure that sort of process, the supply chain process,

6 went more smoothly.

7 Q. Then at the top of the page, we can see Ben Bailey comes

8 back to you and says:

9 "We've been speaking to a lady called Gill Walker at

10 the Maidstone branch."

11 Do you see that?

12 A. I do.

13 Q. We can see then the next document, {CEL00000032},

14 Gill Walker sends an email essentially to herself and

15 then to you on 17 March, "As promised", with

16 a quotation. She's got "RS5160 for harley curtain

17 wall". We will look at the actual quotation in

18 a moment.

19 Was it common practice for third-party distributors

20 such as SIG to send you, Celotex, the quote that they

21 were providing to their customer?

22 A. I can't be sure, no.

23 Q. You say you can't be sure; I mean, is that a no or

24 a don't know?

25 A. For me personally, no.

53

1 Q. No.

2 A. But I can't say for others.

3 Q. No. Do you know why she did so on this occasion?

4 A. I think it may be because I'd asked to be, you know,

5 kept up to speed about the project, so she was just

6 reciprocating an email to me.

7 Q. Let's look at the actual quotation. {CEL00000035},

8 please. This is a formal SIG quotation to Harley, as

9 you can see, dated 17 March 2015, for the attention of

10 Ben Bailey, and it says:

11 "Dear Sirs,

12 "RE: Ten-Grenfell Tower-W11 rs5160."

13 Is that a mistake or is that something?

14 A. No. So the nomenclature there would be the RS5, as in

15 5000, and then the 160 refers to the thickness.

16 Q. I follow.

17 Then it says:

18 "Supply & delivery only:

19 "Product: Celotex RS5000 specials.

20 "Quantity: 660 each.

21 "Price: £132.19 per each.

22 "Discount: -47.50%."

23 With a total price of £45,803.84.

24 Did you arrange or authorise that discount?

25 A. No, that's a discount that is between the SIG branch,

54

1 the distributor, and their customer, so we would not

2 have any input into that.

3 Q. You could nonetheless see that it was happening, could

4 you?

5 A. I could see what it is, yes.

6 Q. Did the discount that SIG was offering affect the amount

7 that SIG would account to you for or buy from you for?

8 A. I couldn't say. I mean, it's -- with construction

9 materials generally, discounts are given, and even as

10 far back as when I had a tenure with General Electric,

11 we offered discounts as high as 80, 90% on some

12 products. It just really depends on the net price and

13 the list price, really. It just -- the higher the list

14 price, the more scope or tweaking of, I suppose, the

15 discounts, really.

16 Q. Right. You say, "We would not have any input into

17 that". Can we just look at {CEL00000463/2}, please,

18 which is an email run on 16 March, the day before, and

19 I would like to start at the bottom of page 2. It runs

20 over to page 3, but let's start at the bottom of page 2.

21 This is an email from you to Claire Terry on 16 March:

22 "Morning Claire,

23 "Hope you had a lovely weekend ..."

24 And at the bottom it says:

25 "Please can you let me know if we can do the

55

1 following for Harley."

2 Over the page to page 3 {CEL00000463/3}:

3 •" Manufacture of 160mm Special RS5000 (1,900m2)

4 •" List Price for the Distributor.

5 •" Lead Time.

6 "I will then get the order through the distributor

7 and confirm."

8 If we scroll up to page 1 {CEL00000463/1}, we can

9 see that Paul Evans sets out, the same day:

10 "Hi Claire

11 "List price of £45.90/m2 less standard terms,

12 minimum order of 6000m2 and 10-15 working day lead

13 time."

14 So just looking at that, Paul Evans set the terms,

15 didn't he?

16 A. That was common practice, yes. So Claire Terry worked

17 in the customer services team, and they would be dealing

18 with sort of deliveries to distributors and pricing, and

19 if there was something -- a price that was needed or

20 a list price, for instance, for something that's

21 non-standard, then it would be her job to go back to the

22 head of product management or part of the commercial

23 team to set that price.

24 Q. Is the correct sequence here that you asked Ben Bailey

25 who their distributor was, he told you it was SIG, you

56

1 then asked Claire Terry, who is SIG, internally what
 2 could be done by way of offering list price --
 3 A. No, sorry, Claire Terry was in the Celotex customer
 4 services team. So it's Gill Walker who was at SIG.
 5 Q. Gill Walker was at SIG, I see. Claire Terry was Celotex
 6 as well, was she?
 7 A. In the customer services team.
 8 Q. I follow. Mr Evans, Paul Evans, authorised the price
 9 and you then relayed that to SIG?
 10 A. I think -- yeah, I think Claire may have done that,
 11 because she had that direct connection with SIG, that
 12 was her role.
 13 Q. How would SIG make any profit if it was going to offer
 14 a discount of 47%-odd?
 15 A. I can't tell you. I don't know what their terms are,
 16 I don't know what their discounts from Celotex would be.
 17 That would be part of the commercial team.
 18 Q. Was the practice of offering substantial discounts off
 19 list price one which Celotex adopted for marketing
 20 RS5000?
 21 A. Not that I know of, no.
 22 Q. Now, in the end, we know that Harley didn't actually
 23 order this run; instead, it used 80 millimetres doubled
 24 up, didn't it?
 25 A. I think that's correct, yes.

57

1 Q. Let's look at {SIG00000022}, please. This is the first
 2 invoice for the RS5080, which I think, as you have
 3 explained, is RS5000 with depths of 80 millimetres.
 4 This is a SIG invoice to Harley, 1 April 2015, where we
 5 see the order for that, 80 millimetres times
 6 1,200 millimetres times 2,400 millimetres, and the price
 7 there -- do you see that?
 8 A. I do.
 9 Q. -- of 23.37, which again represents a discount of 47.5%.
 10 Now, we don't think this was sent to you, but we can
 11 see that the same discount was applied, as I've shown
 12 you.
 13 Did you arrange that discount or was that solely
 14 something that SIG was offering?
 15 A. This is the terms that Harley would have had with the
 16 distributor, which is SIG. So that is solely what they
 17 offered to --
 18 Q. I see.
 19 A. -- Harley.
 20 Q. Right. So I think what you're telling us is that the
 21 discount arrangements were nothing to do with Celotex;
 22 that was purely a matter as between SIG, your
 23 distributor, and Harley as the end customer?
 24 A. That's correct.
 25 MR MILLETT: Right.

58

1 Mr Chairman, I think that's an appropriate moment
 2 for a break.
 3 SIR MARTIN MOORE-BICK: Yes, all right.
 4 Mr Roome, we'll have a short break at this point,
 5 and we'll come back at 11.40, please. No talking about
 6 your evidence, please, while you're out of the room.
 7 THE WITNESS: Okay.
 8 SIR MARTIN MOORE-BICK: Thank you very much, if you would
 9 like to go with the usher, please.
 10 (Pause)
 11 Good, 11.40, please. Thank you.
 12 (11.25 am)
 13 (A short break)
 14 (11.40 am)
 15 SIR MARTIN MOORE-BICK: Right, Mr Roome, ready to carry on?
 16 THE WITNESS: I am, yes.
 17 SIR MARTIN MOORE-BICK: Thank you.
 18 Yes, Mr Millett.
 19 MR MILLETT: Thank you, Mr Chairman.
 20 Mr Roome, can I ask you to go to your witness
 21 statement, please, at page 21 {CEL00010031/21}. I would
 22 like to look with you, please, at paragraphs 69, 70 and
 23 71, which is about an email you got from
 24 Daniel Anketell-Jones on 16 January 2015. I'll show you
 25 the email in a moment. You say:

59

1 "69. On 16 January 2015 I received an email from
 2 Daniel Anketell-Jones regarding RS5000 which I exhibit
 3 ... It does not mention Grenfell Tower and I do not know
 4 or recall who the clients referred to were.
 5 "70. Daniel Anketell-Jones's email states:
 6 "'We have been asked by one of our clients to see
 7 the test results and certificates for the RS 5000
 8 insulation. They want to know exactly how it was
 9 installed when it was tested to BS 8414-2:2005, who
 10 carried out the testing, how it was fixed, what it was
 11 covered with, what cladding was used, what support
 12 structure, etc, and most importantly the results.
 13 Drawings or photos of the test set up would help show
 14 how it was installed, but I imagine these form part of
 15 the test results anyway.
 16 "'They also want to see the certificates and results
 17 for the test to BS476 Pt 7 (fire class rating), showing
 18 the index rating achieved during the test. Could you
 19 sort this out for us please ...?'"
 20 "71. I forwarded this request on to Jamie Hayes,
 21 Celotex Technical Services Team Leader."
 22 Now, I've shown you that because I want to show you
 23 the actual email, which is at {CEL00000019/2}. Now, we
 24 can see the email halfway down that page, and your
 25 response to him just above it. He starts by saying:

60

1 "Good Morning Jon,
 2 "Sorry - but got a headache for you!"
 3 Now, as you will have seen from the quotation that
 4 you put in your witness statement, you omitted that part
 5 of the email which said, "Sorry - but got a headache for
 6 you", why was that?
 7 A. I don't know.
 8 Q. Did you agree in your own mind at the time that the
 9 question that he then asked you was a headache?
 10 A. Not particularly, no, he's just asking for some
 11 documents.
 12 Q. Did you ask yourself why Daniel Anketell-Jones might
 13 have thought that the request he was making of you would
 14 be a headache for you?
 15 A. No, I can't think why.
 16 Q. Was it a headache because it was a penetrating request
 17 that had come from one of Harley's customers for details
 18 that Celotex did not wish to make public?
 19 A. I didn't read it like that, no. I'd had emails from
 20 other contractors asking for information, data, and
 21 again I'd sent those to the product management team in
 22 the past, so it wasn't a strange thing to receive.
 23 Q. It's right, isn't it, that answering these questions
 24 fully and honestly would expose the very limited basis
 25 on which RS5000 could actually be used compliantly above

61

1 18 metres?
 2 A. I mean, looking at that now and understanding it now,
 3 I would say yes.
 4 Q. Why didn't you understand it that way at the time?
 5 A. I don't think I fully understood the whole way that the
 6 system worked, or the testing regime worked, and how it
 7 was interpreted.
 8 Q. Well, you must have understood, surely, given what you
 9 knew about the build-up and the caveat in the marketing
 10 literature which related to the build-up, that, by
 11 answering all of these detailed questions, that would
 12 give Celotex the headache, because it would expose the
 13 fact that the use of RS5000 to which it could be put
 14 above 18 metres in compliance with the
 15 Building Regulations was extremely limited; no?
 16 A. I suppose yes.
 17 Q. And that must have occurred to you at the time, given
 18 what you knew at the time; no?
 19 A. I can't be certain.
 20 Q. No, I'm not asking you to be certain, but I'm asking you
 21 to accept what I'm putting to you as really obvious.
 22 A. Yes.
 23 Q. And that it actually occurred to you at the time.
 24 Then if you look at the penultimate paragraph, he
 25 asks about BS 476, and then says in the last paragraph:

62

1 "We are hoping to put this forward on most of the
 2 cladding jobs, so having this information to hand would
 3 be most useful."
 4 Now, again, your quotation in paragraph 70 of your
 5 witness statement has omitted that part of
 6 Mr Anketell-Jones' email. Why was that?
 7 A. I don't know.
 8 Q. Was it because you knew at the time that this was
 9 a serious problem and that, if this data was made
 10 public, it would make your job in selling RS5000 all the
 11 harder, and you didn't want to draw attention to it?
 12 A. Well, no, because I didn't know what Celotex would -- or
 13 what documents that they would release.
 14 Q. Now, Mr Anketell-Jones told us that this request that he
 15 was making of you was not in relation to the
 16 Grenfell Tower project. Did you understand it that way?
 17 A. As far as I could see there, there was no reference to
 18 Grenfell Tower in this email.
 19 Q. No. Did you not wonder why Mr Anketell-Jones had not
 20 asked you those questions in relation to the
 21 Grenfell Tower project itself?
 22 A. I didn't, no.
 23 Q. Why is that?
 24 A. I couldn't tell you. I don't know.
 25 Q. Did you think it was unusual that Mr Anketell-Jones was

63

1 expressing his customers' or potential customers' desire
 2 for these detailed matters?
 3 A. Sorry, could you pose that question again, please?
 4 Q. Did you think it was unusual that Mr Anketell-Jones was
 5 asking these questions?
 6 A. I didn't think it unusual, no.
 7 Q. Had you been asked these sorts of questions before the
 8 middle of January 2015 by any other cladding
 9 subcontractor, main contractor or other kind of
 10 customer?
 11 A. I can't be sure.
 12 Q. Was this the first time, to the best of your
 13 recollection, that somebody had actually asked for these
 14 detailed matters, these detailed questions in relation
 15 to the building up of what the actual system tested was?
 16 A. I can't be sure, I'm afraid.
 17 Q. Nonetheless, when this request came through, did it not
 18 go through your mind as to why it was that
 19 Anketell-Jones was not asking the same questions in
 20 relation to the Grenfell Tower project?
 21 A. No, it didn't.
 22 Q. I mean, they're good questions, aren't they?
 23 A. Yeah.
 24 Q. Did you not think that Mr Anketell-Jones was somehow
 25 labouring under a misapprehension or an illusion about

64

1 RS5000, given that he was asking these questions for
 2 a non-Grenfell Tower customer but had not actually asked
 3 the questions in relation to Grenfell Tower itself?
 4 A. No, I think he was, you know, being asked by
 5 a specialist, a consultant, about the documents, and he
 6 was -- I don't understand why he had not asked these
 7 before for -- before, for Grenfell.
 8 Q. No, and did it not occur to you that one of the reasons
 9 why he hadn't asked these questions is because he wasn't
 10 a specialist?
 11 A. It didn't cross my mind, no.
 12 Q. Or alternatively, that although he knew that one of his
 13 customers wanted to know these details, he didn't want
 14 to know it and his customer didn't want to know it in
 15 relation to the Grenfell Tower project? Did that not
 16 cross your mind?
 17 A. It didn't, no.
 18 Q. Did you think about it at all?
 19 A. I can't say I did, no.
 20 Q. You say at paragraph 71 of your witness statement, as
 21 we've seen, that you forwarded this to Jamie Hayes, who
 22 was Celotex's technical services team leader. If we go
 23 to {CEL00000453}, we can look at the email halfway down
 24 the page. "Hi Jamie", you say to him, and this is
 25 19 January 2015:

65

1 "Do we have test results for RS5000 for the BS476
 2 Pt 7 (fire class rating) as Dan mentions below.
 3 "I can always go and visit Dan to discuss the
 4 BS8414:2 test results in person."
 5 Why would you need to go to see him to discuss those
 6 results in person?
 7 A. I think this is in relation to -- going back to one of
 8 your questions yesterday about the release of documents,
 9 and the word I was looking for is confidential documents
 10 within Celotex, that if Celotex weren't to provide sort
 11 of a document that would be sent by email, then I could,
 12 if I was allowed, take a document directly to Dan in
 13 person, as a suggestion, that was.
 14 Q. Leave aside the question of the confidentiality of the
 15 test results. It's clear from this email that you
 16 thought that it might be necessary to go and have
 17 a detailed conversation with Daniel Anketell-Jones about
 18 the BS 8414 test. Is that right?
 19 A. That's correct, from this, yes.
 20 Q. What were you contemplating you would tell him about the
 21 test if you did go and visit him and have that
 22 discussion?
 23 A. I don't know what questions were going to be posed, so
 24 it would be me showing him the documents for him to
 25 review himself and answer any questions that he or his

66

1 specialist consultant would have had.
 2 Q. Right. And that conversation, had you had it, would
 3 have revealed the very limited basis on which RS5000
 4 could safely be used above 18 metres, compliant with the
 5 Building Regulations and Approved Document B; no?
 6 A. It would have done, yes.
 7 Q. Yes. Therefore, it's unlikely, isn't it, that it's
 8 a conversation you would have wanted to have with
 9 Daniel Anketell-Jones?
 10 A. No, I would have had that conversation with him, yes.
 11 Q. I suggest that it's unlikely that you would have wanted
 12 to do that because it would have revealed to
 13 Mr Anketell-Jones, a potentially useful customer, that
 14 RS5000 was not actually a material you could market very
 15 widely.
 16 A. It's difficult to say, because it was a new product and
 17 it was, I suppose, in development, I suppose. So that
 18 particular test would probably have not helped, no.
 19 Q. No.
 20 I take it you didn't go and visit Dan and discuss
 21 the 8414 test?
 22 A. I didn't, no.
 23 Q. Why is that?
 24 A. I think later up the email it will explain that those
 25 documents would not be released.

67

1 Q. You are right, you know the documents well, and let's go
 2 to that. Can we please go to the top of page 1. This
 3 is the email back to you on 19 January 2015, same day,
 4 an hour and a half or so later:
 5 "Hi Jonathan,
 6 "I am afraid I do not have access to that document.
 7 "I imagine that this will be a controlled document
 8 and only available through marketing. I am not sure if
 9 there would be a requirement for a non-disclosure
 10 agreement etc?
 11 "Please speak to Debs in the first instance [and she
 12 is copied, of course] and if necessary she will have
 13 a chat with Paul."
 14 And that would have been Paul Evans, wouldn't it,
 15 the "Paul" there?
 16 A. That's correct, yes.
 17 Q. And Debs is clearly Debbie Berger.
 18 Do you know what happened to this discussion,
 19 whether it went further than this after 19 January 2015?
 20 A. I can only recall that nothing -- well, not nothing
 21 happened, but I wasn't released any documents to send
 22 across. I think the only thing that I had was the --
 23 I think it was the 12-page document that we looked at
 24 yesterday.
 25 Q. Let's go back to {CEL00000019}, please.

68

1 You can see from the bottom of page 1 that he,
 2 Mr Anketell-Jones, comes back to you on 20 January:
 3 "Subject: Re: RS5000.
 4 "Morning Jon."
 5 Then over the page at page 2 {CEL00000019/2}, he
 6 says to you:
 7 "Fingers crossed you can get this for us. I am
 8 worried that if this can't be cleared up, then we will
 9 have to change to rockwool duo slab as this has the
 10 necessary backup to appease the 'specialists'!"
 11 When you got that email, what did you understand
 12 Mr Anketell-Jones meant by the "necessary backup"?
 13 A. I can only think that it was information that people
 14 like fire specialists were requesting.
 15 Q. What was that?
 16 A. I suppose test data that had been used to bring the
 17 product into the marketplace.
 18 Q. Were you concerned that RS5000 might not have that?
 19 A. No.
 20 Q. Were you concerned that your customer on a project or
 21 potential customer on a project, and indeed other
 22 projects, including Grenfell Tower, would go elsewhere
 23 in the absence of the back-up that Mr Anketell-Jones was
 24 after?
 25 A. I expect that was what could be deemed from that

69

1 statement, yes.
 2 Q. Who were the "specialists" that he meant, did you think?
 3 What was your understanding about what he meant there?
 4 A. It could be anyone in an advisory capacity, like a fire
 5 specialist or a structural specialist, I suppose,
 6 someone who has been employed on a project as
 7 consultant.
 8 Q. Did you work out from that that the questions that had
 9 been posed to you in his "headache" email, which we can
 10 see lower down the page, of 16 January 2015, would have
 11 originated with a specialist, and that the reason they
 12 hadn't been asked on the Grenfell Tower project is
 13 because on that project there was no specialist?
 14 A. I didn't know there was no specialist involved.
 15 Q. And it didn't occur to you that these questions had
 16 originated from specialists and that explained why there
 17 wasn't any such set of questions being posed to you in
 18 relation to the Grenfell Tower project itself?
 19 A. No. No.
 20 Q. Why didn't you just level with him at that stage and
 21 tell him that, back-up or no back-up, he simply couldn't
 22 use RS5000 on any of his projects unless the cladding
 23 systems were, in each case, exactly as tested by Celotex
 24 under the 8414 test that had been passed in May 2014?
 25 A. I don't know.

70

1 Q. Given these questions that were being posed, surely you
 2 realised at that time, if not earlier, that
 3 Daniel Anketell-Jones hadn't read the caveat in the
 4 literature, or else had done and either hadn't
 5 understood it or was proposing to ignore it; that must
 6 be right, surely?
 7 A. I didn't take that view, no.
 8 Q. If he had read the caveat in the marketing literature,
 9 and we have been through that a number of times, he
 10 couldn't possibly have asked these questions, could he?
 11 A. Possibly not, no.
 12 Q. Therefore I'm putting to you that you must have realised
 13 that either he hadn't read the caveat, hadn't understood
 14 the caveat, or was proposing to ignore the caveat?
 15 A. I couldn't answer that, no.
 16 Q. Well, is there any other explanation for these
 17 questions?
 18 A. No.
 19 Q. But it didn't occur to you at the time?
 20 A. It didn't, no.
 21 Q. If we look at your response to the Dan email, the
 22 "fingers crossed" email, at the bottom of page 1 of this
 23 email chain {CEL00000019/1}, please, you send him --
 24 this is the top of page 1 now -- on 21 January 2015 the
 25 12-page BS 8414 report showing the build-up and

71

1 components used. Can you see that?
 2 A. I can, yes.
 3 Q. You say:
 4 "In addition I am sending you the thermocouple
 5 graphs showing the temperatures at each level of the
 6 test."
 7 You say:
 8 "I am not able to send you the BS476 test document
 9 as this is confidential. I would be surprised if you
 10 were able to get this or any other report from the
 11 manufacturer to be honest.
 12 "In lieu of this I have attached the data sheet
 13 showing confirmation of the products having BS476 part 6
 14 & 7 which gives it its Class 0 performance in addition
 15 to the BS8414 test.
 16 "I would ask that these documents are not shared
 17 outside of the network of you and your specialist
 18 advisor for this project.
 19 "Please give me a call when you have a moment to
 20 discuss."
 21 Before you sent this, did you have or had you had
 22 any discussion internally within Celotex about what you
 23 should send Daniel Anketell-Jones in response to his
 24 request?
 25 A. I think I must have done, yes.

72

1 Q. Do you know who that was with?
 2 A. I suppose the only parties that would have been able to
 3 give me any sort of response would have been, I suppose,
 4 Jamie Hayes, who was the first email recipient, and it
 5 may have been someone like Debbie Berger or Paul Evans.
 6 I can't be sure.
 7 Q. Now, we can see that you sent him the 12-page document.
 8 That's the first time you've sent him that because, as
 9 we saw yesterday, you only sent him the four-page
 10 filleted version at the end of August 2014, didn't you?
 11 A. Yes.
 12 Q. Do we take it it wasn't until January 2015, some
 13 four months later, that you got round to sending him the
 14 12-page document, and only when he asked?
 15 A. I think this must have been the case. I can't recall
 16 sending him the 12-page before that, no.
 17 Q. Right. Even though you're sending him the 12-page
 18 classification report, why didn't you send him the full
 19 33-page BS 8414 test report itself?
 20 A. That wasn't made available to myself or anyone else
 21 within the sales team, and I think it was deemed
 22 confidential.
 23 Q. Right.
 24 If we go to that, that's at {CEL00001109}. That's
 25 the 1 August 2014 issue 1 of the actual BRE Global test

73

1 report, report number 295369. Do you see that?
 2 A. I do.
 3 Q. Had you seen that document at this time, so
 4 January 2015, yourself?
 5 A. Never, no.
 6 Q. You say never; did you never see it during your time --
 7 A. No, I didn't.
 8 Q. -- at Celotex? I see. Then there is probably only
 9 a limited amount I can ask you about it.
 10 Can we look at page 29 {CEL00001109/29}. This is
 11 figure 19, which is a "Photograph showing the condition
 12 of the cladding system post-test (Insulation layer)".
 13 Is that a photograph that you had ever seen before?
 14 A. No. I think this, from what we know now, was the first
 15 test that failed. But it's not a document that I'd ever
 16 seen.
 17 Q. Well, you say from what you know now it was the first
 18 test that failed.
 19 A. Just by looking at the first page.
 20 Q. By looking at the first what?
 21 A. If you look at the first page of that document --
 22 Q. Yes, let's go --
 23 A. I'm just surmising, because it says there issue 1, and
 24 on the four-page and the 12-page documents that we were
 25 sending out, it said issue 2. So I can only surmise

74

1 that this must have been the report from the first
 2 failed test. I might be wrong.
 3 Q. You are wrong.
 4 A. Am I? Okay.
 5 Q. You are wrong about that. And the surmise you have made
 6 is wrong, because issue 2 happened only because there
 7 was an error, essentially a typographical error, in
 8 issue 1 of the classification report of 12 pages.
 9 A. Okay, apologies.
 10 Q. So my question again, then, coming back to page 29.
 11 This is a photograph showing the rig after the May 2014
 12 test, after the test. Is that a photograph you had ever
 13 seen before?
 14 A. It's not, no.
 15 Q. I see.
 16 Can we then go to {CEL00000023}, please. Now, this
 17 is Mr Anketell-Jones' response to your email. It's at
 18 the foot of page 1.
 19 "Morning Jon,
 20 "Thanks for this, sorry I didn't call back
 21 yesterday. We didn't finish till 6 ...
 22 "I will look through it and try and give you a call
 23 back."
 24 Did you leave a message the day before to call you?
 25 A. I must have done, looking at the text there, yes.

75

1 Q. Were you very keen to speak to him?
 2 A. I think -- well, it was just courtesy that I followed it
 3 up with a conversation, yes.
 4 Q. We can then see from the top of the page, you respond to
 5 him about an hour later on the same day,
 6 21 January 2015, and you say:
 7 "Give me a call whenever you have a moment."
 8 Did you have a conversation, do you think?
 9 A. I can't recall, no.
 10 Q. Can we look at {CEL00003628}, please. This is later in
 11 the year, April 2015, and it's an email from you to
 12 Mr Anketell-Jones on 8 April that year, attaching the
 13 BCA guidance note entitled "Technical Guidance Note 18
 14 (issue 0 June 2014)", and we've seen that I think
 15 before.
 16 You start by thanking him for his time today. You
 17 say:
 18 "Hi Dan,
 19 "Thanks for your time today to get an update on
 20 projects and family."
 21 Then in the third line you say:
 22 "I have attached the Building Control Guidance notes
 23 for insulation products above 18m which seem to be doing
 24 the rounds at the moment.
 25 "If you do find that you are entering into

76

1 conversations regarding this subject please let me know
2 what is being said, and by whom."

3 Do you recall the conversation on 8 April 2015
4 particularly?

5 A. I don't, no, but like everything, I often wrote down
6 notes to refresh my memory.

7 Q. Are there any notes of that conversation that you've
8 seen?

9 A. No, only what we can see there.

10 Q. Right. So can we take it that this email followed
11 a conversation between you and Mr Anketell-Jones of
12 which there is no other note?

13 A. I should imagine so, unless there's a reference that
14 I made in the database to elaborate on that
15 conversation.

16 Q. Right.
17 Did you discuss Grenfell Tower, do you think, during
18 that discussion, or was it more general?

19 A. I can't be sure.

20 Q. It looks as if you might have discussed Premier House
21 because that's referred to in the second line.

22 A. Yes.

23 Q. But you can't recall?

24 A. No.

25 Q. At this point, just for your information, Harley had

77

1 already ordered and been invoiced for a quantity of
2 RS5000 for Grenfell Tower in mid-March.

3 You say here that the BCA technical guidance note
4 was doing the rounds. What did you mean, "doing the
5 rounds"?

6 A. I think this was a document which a lot of installers
7 or -- I don't know if specialists, but a lot of people
8 in that industry had been referring to or mentioning.

9 Q. When did you first see it?

10 A. I can't be sure.

11 Q. When you saw it, did you read it thoroughly?

12 A. I read through it. I can't say I read through it
13 thoroughly, but I definitely referred to it, yes.

14 Q. Was there anything in it which concerned you, do you
15 remember?

16 A. I don't think so, no.

17 Q. Would you not have expected Harley to be aware of it,
18 being a specialist cladding subcontractor in the
19 industry?

20 A. Yes, I would have thought so, yes.

21 Q. Why were you sending it to him, then?

22 A. Because I think Dan hadn't seen it, so I think when we
23 spoke he may have asked me to send it to him.

24 Q. Did it surprise you that he hadn't seen it, as you say?

25 A. I suppose it was a document that I would have thought he

78

1 would have seen, being in the industry, so I suppose --

2 Q. Yes.

3 A. -- yes, would be the answer, simple answer.

4 Q. Yes. I mean, do you recall being surprised that, being
5 a specialist, or being involved with a specialist
6 subcontractor in the cladding industry, he hadn't seen
7 it?

8 A. I suppose yes is the answer.

9 Q. Yes. Did that not alert you to the fact that, whatever
10 other skills and expertise Daniel Anketell-Jones had, it
11 wasn't in relation to cladding?

12 A. It didn't, no, it didn't cross my mind.

13 Q. And that he didn't have specialist consultant or
14 subconsultant assistance?

15 A. It didn't cross my mind, no.

16 Q. You go on to say, as you do at the end there:

17 "If you do find that you are entering into
18 conversations regarding this subject please let me know
19 what is being said, and by whom."

20 "This subject", what was that?

21 A. I think it was going back to my sort of gleaned
22 information from the industry to pass up the chain of
23 command, as it were, to look at what was being said, by
24 which specialists, and that could be fed back to the
25 management team to look at maybe contacting someone or

79

1 consulting with someone to help with the further
2 development or further testing of the product.

3 Q. Were you keen to keep your finger on the pulse because
4 you needed to make sure precisely how variable the
5 cladding systems were into which RS5000 was being sold?

6 A. I think it was more that I wanted to be -- sorry, as you
7 say, yeah, understand the processes, understand the
8 systems, because if then I could feed that back to the
9 management teams, then they could look at further
10 testing.

11 Q. Right. Thank you.

12 You having received or seen the BCA,
13 Building Control Alliance, technical guidance note at
14 this point, you could see that it set out -- and I don't
15 need to take you back to it, I don't think, unless you
16 want to see it -- three routes to compliance: either
17 limited combustibility or what's been called the linear
18 route, a full-scale test under BS 8414, or a desktop.

19 A. A desktop study, yes.

20 Q. Desktop study.

21 At this point, 8 April 2015, which route to
22 compliance did you think Grenfell Tower was following?

23 A. I would have thought it would have followed the third
24 route to compliance there.

25 Q. You say you would have thought; did you think?

80

1 A. I can't say.
 2 Q. Again, we've covered this this morning, but you hadn't
 3 seen a desktop study for RS5000.
 4 A. Not internally at Celotex, no.
 5 Q. And you hadn't seen one from Harley.
 6 A. No, I hadn't.
 7 Q. And to your knowledge, did one exist at all?
 8 A. Not at that time, no.
 9 Q. So how could it be a route to compliance?
 10 A. The option was there, but I didn't see any back-up, any
 11 evidence.
 12 Q. No, so how could it be a route to compliance, in your
 13 mind?
 14 A. On reflection, it couldn't be.
 15 Q. No.
 16 I would like to turn to Celotex's relationship with
 17 the BRE. Can we go to {BRE00003742}, please. This is
 18 an email -- and I would like to look at the second email
 19 down on that page first -- from you to Sarah Colwell of
 20 15 October 2014, and you say:
 21 "Hi Sarah,
 22 "It was lovely to finally meet you at the CWCT
 23 conference last week.
 24 "I would like to take you up on your offer of a copy
 25 of the BR135 document as the one that I have managed to

81

1 find in the office is a little too well thumbed.
 2 "I would also like to read back through your
 3 presentation if you are able to send me a copy.
 4 I attempted to scribble down a number of notes during
 5 your presentation but being able to read back through
 6 the pages I feel would be beneficial.
 7 "I think the conference showed that there is still
 8 a great deal of uncertainty over the choice of materials
 9 for a façade build-up and I myself (and I am sure
 10 everyone) is eagerly awaiting the final publication of
 11 the guidance documents.
 12 "If and when I am up in your neck of the woods
 13 I will make a point of giving you a call for a coffee
 14 and a catch-up if you are free."
 15 Now, just pausing there, we can see she responds to
 16 you not much later in that afternoon on 15 October 2014,
 17 but I just want to ask you about your email.
 18 You say, "It was lovely to finally meet you". Was
 19 that at the CWCT conference earlier in October that we
 20 discussed earlier in your evidence?
 21 A. I think it was, yes.
 22 Q. Had you corresponded with her before this email to her?
 23 A. I don't think so, no.
 24 Q. So is it right that you therefore simply knew her
 25 through her work and her presentation?

82

1 A. I think that's correct, yes.
 2 Q. Did you know her by reputation?
 3 A. No, it was literally just her name was on the document,
 4 I think, or I later found that she was the co-author of
 5 the BR 135.
 6 Q. Yes. You say you will make a point of giving her a call
 7 for coffee and a catch-up if she was free. Was Celotex
 8 trying to cultivate the BRE?
 9 A. No, it was just a -- like I said before, it was just
 10 trying to glean information that would help Celotex or,
 11 you know, whether it was from me or from others, that
 12 I could put people in touch with Celotex to better
 13 instruct them as to how to better develop that product
 14 or test the product.
 15 Q. What information were you trying to glean from her?
 16 A. I don't know, any information that would help Celotex,
 17 really. Nothing --
 18 Q. What sort of information did you think at the time would
 19 help Celotex that the BRE could give you?
 20 A. I suppose a guide as to the systems that were often
 21 tested, maybe.
 22 Q. Were you looking to find out whether there was any room
 23 for manoeuvre in relation to your 8414 test that you had
 24 done so that you could, for example, sell it into
 25 systems using different components?

83

1 A. No, because I was not involved in the testing or
 2 development or release of that product.
 3 Q. In the penultimate paragraph, as I've shown you, you
 4 refer to a "great deal of uncertainty over the choice of
 5 materials for a façade build-up". What were you
 6 referring to there? What was that uncertainty?
 7 A. I think it's -- again, it was, you know, the choice of
 8 the materials that would be, you know, used in future
 9 tests. I think that was the information I was looking
 10 for.
 11 Q. You say uncertainty in relation to material for future
 12 tests; is that right, or did you mean there was
 13 uncertainty about what materials you could choose to use
 14 in a cladding system where RS5000 had passed an 8414
 15 test?
 16 A. I can't be certain what I meant by that text there.
 17 Q. Let me try and get at this a different way.
 18 When you said "uncertainty over the choice of
 19 materials for a façade build-up", did you really mean
 20 choice of materials for a successful test under 8414, or
 21 did you mean what materials a designer could choose in
 22 the light of a BS 8414 test?
 23 A. I suppose a bit of both, really.
 24 Q. Right. Does that tell us that you in your own mind were
 25 uncertain about how far you could depart in choosing

84

1 materials for a façade build-up from the 8414 test that
 2 RS5000 had passed in May 2014?
 3 A. Possibly, yes.
 4 Q. Can we look at {CEL00001036}. This is an email we
 5 looked at earlier relating to the CWCT seminar, and this
 6 was in relation to your contact with Mr Anketell-Jones.
 7 We looked at it before. Do you remember? We saw it
 8 yesterday.
 9 A. Yes.
 10 Q. We can see Sarah Colwell's name prominently in bold in
 11 the middle of the page.
 12 At the end of the email, or towards the end of the
 13 email before the reference to Chris Lewis, I showed you
 14 the sentence that says:
 15 "As we have nearly all found out the whole issue
 16 around BS8414 is far more complex than we first
 17 thought."
 18 Looking back on what we've now looked at between
 19 yesterday and today, the whole issue -- is this
 20 right? -- was actually the extent to which a cladding
 21 system could depart from the precise components and
 22 dimensions of the system as tested?
 23 A. Yes.
 24 Q. Going back, if we can, to the question of the meeting
 25 with Sarah Colwell, I think you told us yesterday that

85

1 there actually was a meeting that you attended with
 2 Debbie Berger which was potentially going to happen with
 3 Sarah Colwell, but in fact in the end was with
 4 Stephen Howard; yes?
 5 A. That's correct.
 6 Q. And that happened on 4 November 2014, I think,
 7 didn't it?
 8 A. I think so, yes.
 9 Q. Did you fix that meeting after your email exchange with
 10 her on 15 October where you offered to come up and have
 11 coffee?
 12 A. I think I must have done, yes.
 13 Q. Let's look and see how this was set up.
 14 Can we go to {BRE00003744}, please. This is
 15 an Outlook diary entry, and it looks like it's
 16 Debbie Berger's.
 17 A. I stand corrected, yes, it looks like Debbie was the
 18 organiser.
 19 Q. Right, okay, and the start and end was 4 November,
 20 Tuesday, 4 November 2014. She says:
 21 "Hi Steve
 22 "Thank you for your call last week.
 23 "Both Jonathan and I would like to visit you at the
 24 BRE to discuss the fire test report BR135."
 25 It looks like she spoke to Steve, being

86

1 Stephen Howard. Do you remember whether she did or not
 2 or what she said to him or he said to her?
 3 A. I don't, no.
 4 Q. Can we then look at {CEL00002131}. This is an email
 5 string in mid-October, which I think we need to look at
 6 page 2 for, to start with. That's the end of it. So it
 7 starts with an email from Stephen Howard, and if we go
 8 to page 1, we can see that he's writing to her, at the
 9 foot of page 1, 17 October 2014, to Debbie Berger and
 10 Jon Roper. So you didn't see this email until it was
 11 copied to you a few days later, but he says to her:
 12 "We had a conversation a while ago regarding the
 13 content of the classification reports and the level of
 14 technical detail they contained (we need to put a lot of
 15 info in, but you don't want your competitors to see it).
 16 "We have come up with a way of doing it.
 17 "So if this is of interest, can you remind me of
 18 what you were hoping to achieve (sorry it has been a
 19 while) and I will see if we can do it."
 20 Then that email goes to you, because Debbie Berger
 21 forwards it to you, on 20 October, as you can see from
 22 the top of the page. Yes?
 23 She says:
 24 "Hi
 25 "I'm going to set up a meeting with Steve Howard

87

1 early next week to talk about how to detail our BRE
 2 RS5000 fire report so as it gives the relevant
 3 commercial info without the sensitive stuff. He's got
 4 some ideas that could help us.
 5 "Would you like to come to this meeting. I would
 6 value your input.
 7 "If so will you give me access to your diary so
 8 I can schedule a meeting?"
 9 Was that the meeting that took place? It seems as
 10 if it was.
 11 A. It must have been, yes.
 12 Q. Yes.
 13 Now, there is no reference to this meeting at all in
 14 your witness statement. Can you explain why that is?
 15 A. No, I don't.
 16 Q. Had you forgotten about it?
 17 A. No, I remember the meeting. I don't know why I didn't
 18 put it into the notes.
 19 Q. Right.
 20 Sarah Colwell I think you told us earlier wasn't
 21 there, but Stephen Howard was. Do you know whether
 22 there is a note of the meeting?
 23 A. I don't know, unless it's in the Salesforce system. For
 24 myself, notes for myself.
 25 Q. I follow. So you would take a note of that meeting by

88

1 putting your takeaway, if you like, from it into the
 2 Salesforce database?
 3 A. Or maybe a return email to Debbie.
 4 Q. Right.
 5 A. Yes.
 6 Q. Do you remember, sitting in the meeting, whether anyone
 7 took notes, whether Debbie or Stephen Howard?
 8 A. I don't, no.
 9 Q. Did you yourself take notes?
 10 A. I might have done at the time, yes, to refresh my memory
 11 afterwards.
 12 Q. Right. Where would you have kept those notes, do you
 13 think?
 14 A. I just -- in an A4 lined folder, I think, or, you know,
 15 a book.
 16 Q. Right. Do you remember taking notes at this meeting?
 17 A. I don't, no.
 18 Q. Right.
 19 Can we go to {CEL00001034}, please. This is
 20 an Outlook diary entry by Debbie Berger for the same
 21 meeting created, I think, on 20 October 2014. You can
 22 see underneath it the same text that I showed you
 23 before. Then underneath that it says:
 24 "Notes to Discuss Engineering Judgements."
 25 Do you see? It says:

89

1 •" Use of RS5000 with (CLT & Timber Frame).
 2 •" Identify Breadth of Parameters for RS5000 use
 3 with Cladding Types, Insulation Thickness, Helping Hand
 4 Systems, Sheathing Boards."
 5 Was that the subject of the meeting, that
 6 discussion, those topics?
 7 A. I think it's likely, if that's what was written there,
 8 yes.
 9 Q. What did you understand by the "Breadth of Parameters
 10 for RS5000 use"?
 11 A. I suppose, looking at this, it was the -- or trying to
 12 remember, it was the looking at further testing and
 13 relevant build-ups that could be used in further tests
 14 and the scope at which those could be interpreted.
 15 Q. Right. Do you remember whether those matters were
 16 discussed at the meeting?
 17 A. I can't be sure.
 18 Q. And by "breadth of parameters", you've told us further
 19 testing and relevant build-ups that could be used in
 20 further tests, and the scope at which those could be
 21 interpreted. So does that include how far or with what
 22 variety of cladding systems you could use RS5000 and
 23 still be within the parameters of the 8414 test that had
 24 been done?
 25 A. I think it was based upon desktop studies.

90

1 Q. Right.
 2 Was what Celotex was after by this meeting from the
 3 BRE some kind of indication of how wide the range of
 4 different cladding systems RS5000 could be used with?
 5 A. Yes.
 6 Q. Thank you.
 7 Can I then move to a slightly different topic, which
 8 is a short one, and one document in fact.
 9 {CEL00001069}, your month end report from February 2015.
 10 Can we go, please, in that document to page 9
 11 {CEL00001069/9}. This is a slide for market
 12 intelligence.
 13 Just before I ask any more questions about this
 14 document, what was the purpose of this document?
 15 A. I think each month we put in information about the
 16 projects that we were working on, and also any sort of
 17 feedback from the market about competitors, anything
 18 that would be of relevance to the company, I suppose,
 19 and the products that we were selling.
 20 Q. Who did you send this document to, at this time,
 21 February 2015? Would it be Debbie Berger?
 22 A. I'm not sure who was on the round-robin. It's likely to
 23 be the southern sales manager and team --
 24 Q. Right.
 25 A. -- I think. I don't know if -- and maybe senior

91

1 management might have been copied in as well.
 2 Q. I see.
 3 It says, under "Market Intelligence":
 4 "Rumours that NHBC are in the final stages of
 5 issuing a statement that they will no longer offer their
 6 warranties on buildings above 18m using either
 7 a Phenolic or PIR foam Insulation in a façade
 8 application unless specifically tested in the build-up
 9 being used."
 10 Do you know whether NHBC ever did issue such
 11 a statement?
 12 A. No, I can't recall.
 13 Q. What effect did that rumour have on your efforts to sell
 14 RS5000 to potential customers?
 15 A. It didn't change anything.
 16 Q. Is that because the caveat, "unless specifically tested
 17 in the build-up being used", was the same as the caveat
 18 you had set out in your marketing literature, as we've
 19 seen?
 20 A. I suppose so, from Celotex's point of view, yes.
 21 Q. Does that tell us -- and tell me if this is wrong --
 22 from your own experience, before NHBC were considering
 23 issuing this statement, if that is indeed the case
 24 according to the rumours, they would have accepted and
 25 offered warranties on buildings above 18 metres with PIR

92

1 foam insulation in a façade application even though it
 2 wasn't specifically tested in the build-up being used?
 3 A. I couldn't tell you that, that was just feedback that
 4 someone had given me.
 5 Q. Do we get from this that the NHBC were rather behind the
 6 curve, and that they were prepared to give warranties in
 7 respect of the use of RS5000 above 18 metres even though
 8 not specifically tested in the build-up being used?
 9 A. I can't be sure, but this was to do with any foam board,
 10 as it were.
 11 Q. You say any foam board; quite possibly, but not any foam
 12 board above 18 metres.
 13 A. No.
 14 Q. No.
 15 Can we turn to your June 2015 draft email that you
 16 cover at paragraph 60 of your witness statement. Let's
 17 just go to the email. It's {CEL00001126}. This is
 18 a draft email, and you send this email on 18 June 2015
 19 to Richard John, Rob Warren and Debbie Berger, subject:
 20 "RS5000 18+ Statement":
 21 "Jonno, Rob,
 22 "Please can you review my 'Generic' response to
 23 those parties that are awaiting a response on the use of
 24 RS5000 on facades above 18m in height on NHBC Projects.
 25 ""Dear xxxxx,

93

1 "We are currently benchmarking our RS5000 BS8414:2
 2 test data with the NHBC and have submitted a number of
 3 our own desk top studies to them for comment.
 4 "Until this process has been completed we will have
 5 to postpone any further testing or desk top studies
 6 until the initial process has been completed with the
 7 NHBC.
 8 "So as not to delay your projects at the critical
 9 Design and Build stages Celotex will have to ask you to
 10 explore other avenues for insulation products to be used
 11 specifically in facades that are over 18m in height,
 12 insured by the NHBC.
 13 "I can only offer my apologies at this time as
 14 I thought that the process would be far more advanced by
 15 this stage.
 16 "I will of course inform you as soon as I have more
 17 positive news."
 18 Now, at paragraph 61 of your witness statement
 19 {CEL00010031/24} -- and there is no need to see it --
 20 you were told not to send this email, weren't you?
 21 A. That's correct, yes.
 22 Q. Who told you not to send it?
 23 A. Erm ... it must have been one of the people that were
 24 copied in on that or sent to in that email.
 25 Q. Let's go to {CEL00002042/4}, please. Here we have

94

1 an email from Rob Warren to you in response, and he
 2 says:
 3 "Hi Jonathan
 4 "I would not be comfortable for this to go out to
 5 our customers in this form."
 6 Do you see that?
 7 A. I do.
 8 Q. It goes on:
 9 "I suggest that you wait until Monday when
 10 Paul Evans returns from holiday rather than risk
 11 potentially sending out a message that may not be in
 12 line with our communications strategy on RS5000.
 13 "As we discussed on the phone, I believe that we
 14 should look to potentially allowing some customers to
 15 request desk top studies. However, this would depend
 16 upon the kind of systems they are proposing to use.
 17 Therefore, ahead of a discussion with Paul, perhaps you
 18 could summarise a list of customers who are chasing us
 19 along with proposed build-ups. This may allow us to
 20 give the green light to proceed on those projects where
 21 we feel there is a better chance of a successful
 22 conclusion to the desk top study and be able to respond
 23 in some cases with a more positive message.
 24 "I have copied Paul in so that he is aware of the
 25 situation prior to his return from holiday next week.

95

1 "Thanks for including me in the discussion. I hope
 2 my contribution has been useful. If not, feel free to
 3 use colourful language at the screen and start making an
 4 effigy with no hair ..."
 5 Now, in an email further up the chain, at the bottom
 6 of page 3 {CEL00002042/3}, we can then see Ms Berger's
 7 response. She follows up, and she says in the second
 8 paragraph:
 9 "We are working with NHBC to better understand their
 10 concerns with RS5000 and its use on their projects and
 11 although you may be correct with the details Jonathan,
 12 this is very much work in progress with them until we
 13 come to an agreement and therefore NOT the message to go
 14 into the market.
 15 "Once we have come to an agreement, then I agree
 16 with Rob, we can get together, when Paul is back, to
 17 decide a strategy and message for NHBC projects.
 18 "I know you gave me a list of projects before our
 19 meeting with NHBC but an updated one as Rob suggests
 20 would be a useful [something]."
 21 Then we can see Richard John's response above that,
 22 but just pausing there, at this stage, what did you
 23 understand, in a nutshell, the reasons you were being
 24 told not to send the email out were?
 25 A. Probably from a commercial reason that it was the wrong

96

1 statement to be made on behalf of the company at that
 2 time, or they didn't want that to be issued in that
 3 form.
 4 Q. Right. Were there any desktop studies then available
 5 that you had seen? This is mid-June 2015.
 6 A. Yeah, I think this was very close to the end of the
 7 tenure -- my tenure within the company. I have
 8 a feeling there was -- I think there was two that we
 9 were doing for the Berkeley Group at one point.
 10 Q. Right.
 11 We can see then Mr Richard John's response if we go
 12 up to page 2 {CEL00002042/2}. It's quite long. Just
 13 pick it up, I think, at the third paragraph:
 14 "JR has been promoting RS5000 since we went to
 15 market and with big players like Berkeley Group and
 16 Barratt London, the pressure for answers is immense.
 17 However, as both Rob and Debbie have pointed out, we
 18 have to be very careful with any wording that may leave
 19 us in a vulnerable position or worse still, open to
 20 legal exploitation."
 21 Then he says:
 22 "My suggestion is as follows
 23 "- Continue to communicate by 'word of mouth' as you
 24 did with Jordan today with honesty and openness. As you
 25 agreed earlier, this will uphold our integrity during

97

1 this process.
 2 "- Agree a soonest date possible for an internal
 3 RS5000 review meeting to include ALL persons on this
 4 email, plus Sir Chris Nicholls."
 5 Then it goes on over the page {CEL00002042/3}:
 6 "- In preparation for this meeting, JR and I will
 7 compile a full list of parties as Rob has suggested with
 8 as much technical information as possible, and perhaps
 9 Product Management can compile all up-to-date NHBC
 10 information."
 11 Then he talks about the meeting:
 12 "... we should all agree on our next course of
 13 action to protect our brand and product, but also help
 14 retail JR's name and integrity."
 15 Just that last point there, "help retail JR's name
 16 and integrity", who was the JR there? Was that you?
 17 A. I think it might have been, yes.
 18 Q. Was there a sense that your integrity in selling RS5000
 19 was being undermined?
 20 A. I don't know. I don't know what he meant by that.
 21 Q. Right.
 22 Why would being open about the difficulties that you
 23 were encountering with NHBC leave Celotex open to legal
 24 exploitation?
 25 A. I can't tell you that.

98

1 Q. Which is what Mr John's views were.
 2 Who is Sir Chris Nicholls?
 3 A. I think that's just a flippancy, but Chris Nicholls, if
 4 you look back at the organogram, is one of the --
 5 Q. Right. It's the same --
 6 A. Yeah.
 7 Q. I see. I was wondering whether the accolade meant that
 8 it was somebody else, but it's a piece of sarcasm, is
 9 it?
 10 A. It is, yes.
 11 Q. I see.
 12 Now, we know that you resigned from Celotex very
 13 shortly after this.
 14 A. Correct, yes.
 15 Q. Why was that?
 16 A. I was offered a new position in a new company, quite
 17 an exciting position, and I felt that the lack of
 18 progress with investment behind the products like RS5000
 19 weren't making my role any easier, so I decided to take
 20 on this new position.
 21 Q. The new position, was it one that you applied for or you
 22 were headhunted for?
 23 A. I think I was headhunted for.
 24 Q. When you resigned, did you give your line manager and
 25 those more senior to them, him or her, the reasons for

99

1 your resignation?
 2 A. I did, yes.
 3 Q. What were those?
 4 A. I think it was quite clear from my frustration from that
 5 email text that I'd written that the company didn't seem
 6 to be sort of moving forward with further testing to
 7 help my and my colleagues' roles in promoting this type
 8 of product.
 9 Q. At the time you left Celotex, what was your impression
 10 of how Celotex were going to continue successfully to
 11 market RS5000 without any further tests?
 12 A. Well, my personal impression, it would have been quite
 13 difficult. They were doing a few desktop studies, but,
 14 yeah, I couldn't see that it was going to be
 15 particularly easy with the questions that were being
 16 asked and that I was passing up the chain of command for
 17 them to address.
 18 MR MILLETT: Thank you very much.
 19 Well, Mr Roome, I'm sorry it's taken me rather
 20 longer to get to the end of my questions than I had
 21 first planned, but I'm grateful to you.
 22 Mr Chairman, those are my questions for the time
 23 being. There is one reference I fear I need to check
 24 anyway, but it's best if we also give those who are not
 25 in this room a little time to gather their questions for

100

1 me, if there are any.
 2 SIR MARTIN MOORE-BICK: Yes, of course.
 3 Well, Mr Roome, at this point we have to have
 4 a short break because there are other people not in the
 5 room who may want to raise matters or suggest further
 6 questions to counsel, or counsel may find that he has
 7 left some questions out. So we will have a short break.
 8 Is ten minutes enough, Mr Millett?
 9 MR MILLETT: It might be a little bit short, because
 10 I anticipate what will happen if I say ten minutes is
 11 that I will get an email from those outside the room
 12 complaining that it's too short.
 13 SIR MARTIN MOORE-BICK: All right. Well, it would be a good
 14 thing to complete Mr Roome before we break for lunch,
 15 and I'm sure that's what he would like.
 16 MR MILLETT: It would.
 17 SIR MARTIN MOORE-BICK: All right, we will say 15, then.
 18 MR MILLETT: If we say 15, and we will cut our cloth.
 19 SIR MARTIN MOORE-BICK: We will come back at 12.55. There
 20 may well be a few questions, but I think we can be
 21 reasonably confident of getting you away quite soon
 22 after 1 o'clock.
 23 THE WITNESS: Thank you.
 24 SIR MARTIN MOORE-BICK: So if you would like to go with the
 25 usher now, and please remember not to talk to anyone

101

1 about your evidence while you're out of the room.
 2 (Pause)
 3 Right, 12.55, then, Mr Millett. Thank you.
 4 (12.40 pm)
 5 (A short break)
 6 (12.55 pm)
 7 SIR MARTIN MOORE-BICK: Right, Mr Roome, we will see if
 8 there are any more questions for you.
 9 THE WITNESS: Thank you.
 10 SIR MARTIN MOORE-BICK: Yes, Mr Millett.
 11 MR MILLETT: Yes, Mr Chairman.
 12 The references I wanted to check are in fact the
 13 same references that others wanted me to go to, so
 14 I think there is a happy confluence which won't take
 15 long.
 16 Mr Roome, can you please be shown {CEL00001259},
 17 first of all. This is about the 4 November 2014 meeting
 18 that you had with Debbie Berger and Stephen Howard at
 19 the BRE. I'll show you these two emails.
 20 This is, at the bottom of page 1, your email dated
 21 5 November 2014 to Debbie Berger:
 22 "Subject: BRE Meeting/RS5000 Notes and
 23 Follow-up/BBA.
 24 "Importance: High.
 25 "Hi Debs,

102

1 "Here is my understanding and follow-up tasks
 2 following our meeting with Steve Howard at the BRE and
 3 conversations since."
 4 Then in bold you say:
 5 •" RS5000 needs further system testing.
 6 •" We need advice on 'Standard Applications' i.e.
 7 •" Cladding Tile Types - JR to review those that
 8 have A2 rating and BBA Certs."
 9 Do you see that?
 10 A. I do, yes.
 11 Q. Now, was the JR you?
 12 A. It would have been, yes, I think so.
 13 Q. As opposed to Jon Roper?
 14 A. Yes.
 15 Q. And did you actually review those cladding tiles that
 16 had A2 rating and BBA certificates as a result of this
 17 discussion?
 18 A. I didn't, no.
 19 Q. If we turn over the next page {CEL00001259/2}, you can
 20 see that you say there in the second bullet point down,
 21 underlined:
 22 "Further testing will offer better base data for
 23 clients designing rainscreens."
 24 So was that the point, that you needed further
 25 testing so that you could have a better base data?

103

1 A. I think this is what the advice had been given to
 2 Celotex about, you know, further options for the
 3 testing.
 4 Q. Right. Then underneath that it says:
 5 •" BRE.
 6 • Steve Howard would like to meet with a Façade
 7 Consultant to better understand the decision making
 8 process when designing a rainscreen façade.
 9 •" JR to put forward Andrew Jones (Total Façade
 10 Solutions) as a potential advisor."
 11 First question: did you ever actually in the end put
 12 forward Andrew Jones as a potential adviser to the BRE?
 13 A. I can't recall, but I think I may have sent the details
 14 of Andrew Jones to Stephen Howard.
 15 Q. Right.
 16 Did you understand why Stephen Howard needed to
 17 understand better the decision-making process when
 18 designing a rainscreen façade?
 19 A. No, I don't.
 20 Q. Can we go up the page to page 1 again, please, and look
 21 at the top of page 1 {CEL00001259/1}. We can see that
 22 Debbie Berger responds to you the next day, on
 23 6 November 2014, and says:
 24 "Hi Jonathan
 25 "Attached is a short summary I've just put together

104

1 in conjunction with the email you sent.
 2 "Feel freed to add or amend. Once returned I will
 3 keep it as a guide for us and also show Paul Evans.
 4 I've not really discussed anything with him yet. I was
 5 waiting for us to get our heads together and come up
 6 with the plan."
 7 If you go to {CEL00001260}, please, we can see her
 8 short summary that she'd attached to that email. It's
 9 entitled "RS5000 - Summary". It's a one-page document:
 10 "Market: Growing uncertainty - Technical
 11 application."
 12 First bullet point, "Emotional".
 13 Just on that, what did you think she meant by that
 14 when you saw this document?
 15 A. I've got no idea, I'm afraid.
 16 Q. "Life safety", I think that's clear, and then:
 17 "BRE/BBA/NHBC approvals sensitive to insulation
 18 being about sales."
 19 What did you understand that referred to?
 20 A. Again, I'm not sure.
 21 Q. Did it express a concern coming from Stephen Howard of
 22 the BRE that the BRE's approval, so far as he was
 23 concerned, was sensitive to insulation being about
 24 sales?
 25 A. I can't recall, I'm afraid.

105

1 Q. Does it tell us, or did you get the sense from the
 2 meeting perhaps, that these bodies, these approvals
 3 bodies, were alive to the fact that manufacturers of
 4 insulation were about sales?
 5 A. I can't recall that, no.
 6 Q. Then in the last bullet point she says or records:
 7 "Burnt by K15 approvals in the past."
 8 What was that a reference to?
 9 A. Again, I'm not sure.
 10 Q. Was there any discussion at the meeting with the BRE
 11 about K15?
 12 A. Possibly, yes.
 13 Q. In what context?
 14 A. Just in relation to Celotex, I suppose, with regards to
 15 the RS5000 and to maybe further testing. That's the
 16 only thing I can think.
 17 Q. Did you get the sense that Mr Howard was in some sense
 18 disenchanted by K15 getting approvals in the past?
 19 A. I couldn't say.
 20 MR MILLETT: Well, thank you very much, Mr Roome. I have no
 21 further questions for you.
 22 Mr Chairman, I have come to the end of my questions.
 23 Mr Roome, it remains only for me to thank you very
 24 much for coming to the Inquiry and assisting us with our
 25 investigations. We are extremely grateful, thank you.

106

1 THE WITNESS: Thank you.
 2 SIR MARTIN MOORE-BICK: Yes, I would add my own thanks on
 3 behalf of the panel, Mr Roome. I know it's taken quite
 4 a long time for you to answer all the questions we had
 5 for you, and I am sorry we have taken up quite so much
 6 of your time, but we are very grateful to you for coming
 7 to give us your evidence, and now you're free to go.
 8 THE WITNESS: Thank you, sir.
 9 SIR MARTIN MOORE-BICK: Thank you very much.
 10 (The witness withdrew)
 11 SIR MARTIN MOORE-BICK: Well, that is a convenient point at
 12 which to break for lunch.
 13 MR MILLETT: I was going to ask you whether it was, yes.
 14 Good, thank you.
 15 SIR MARTIN MOORE-BICK: Yes, I would say so.
 16 So we will stop now and resume at 2.05, please.
 17 Thank you very much, 2.05.
 18 (1.05 pm)
 19 (The short adjournment)
 20 (2.05 pm)
 21 SIR MARTIN MOORE-BICK: Yes, Mr Millett.
 22 MR MILLETT: Yes, Mr Chairman. Thank you.
 23 I now call Mr Jonathan Roper, please.
 24 MR JONATHAN ROPER (affirmed)
 25 SIR MARTIN MOORE-BICK: Thank you very much, Mr Roper. Do

107

1 sit down and make yourself comfortable.
 2 (Pause)
 3 MR MILLETT: Mr Chairman.
 4 SIR MARTIN MOORE-BICK: Yes, Mr Millett.
 5 Questions from COUNSEL TO THE INQUIRY
 6 MR MILLETT: Mr Roper, can I start by thanking you very much
 7 for coming to the Inquiry today and giving evidence to
 8 us. We are very grateful to you.
 9 If you have any difficulty understanding my
 10 questions or you would like me to put the question in
 11 a different way, I'm very happy to do that or repeat the
 12 question.
 13 If you need a break at any particular point, please
 14 let us know. We will take scheduled breaks halfway
 15 through the morning and afternoon sessions, so there
 16 will be a break coming up at around about 3.20 or so
 17 this afternoon.
 18 A. Okay.
 19 Q. Can I also ask you to keep your voice up so that the
 20 transcriber, who sits to your right, can get down
 21 everything you are saying, and also just warn you that
 22 a nod or shake of the head doesn't go down on the
 23 transcript, so you'll need to say "yes" or "no" as the
 24 case may be.
 25 A. Okay.

108

1 Q. Now, you have made one statement to the Inquiry, dated
2 12 October 2018. Can I take you to that. It will be in
3 a folder on your desk in front of you, but it will also
4 appear on the screen at {CEL00010052}. We're going to
5 be looking at all the documents that I'm going to show
6 you on the screen, as opposed to in hard copy.
7 A. Okay.
8 Q. Can I ask you to go to the first page there you have.
9 Is that the first page of your witness statement?
10 A. It is, yes.
11 Q. Can I ask you to go to page 21, where there will be
12 a signature under the statement. Is that your
13 signature, next to the date?
14 A. It is, yeah.
15 Q. Have you read this witness statement recently?
16 A. I have, yes.
17 Q. Can you confirm that the contents are true?
18 A. It is, yeah.
19 Q. Have you discussed the evidence you're going to give to
20 the Inquiry today with anybody before coming here?
21 A. No.
22 Q. You joined Celotex in May 2012, I think, as an assistant
23 product manager, didn't you?
24 A. Yes.
25 Q. So that was effectively a sales role, was it?

109

1 A. No, it was an analytical role within the marketing
2 department.
3 Q. An analytical role within the marketing department.
4 I think I'm right in saying that -- is this
5 right? -- that this was your first job since leaving
6 university.
7 A. Correct, yes.
8 Q. And I think at university you had studied business
9 studies, hadn't you?
10 A. That's right, yes.
11 Q. At the University of East Anglia.
12 A. Correct.
13 Q. Did you have any relevant experience in the insulation
14 industry?
15 A. No, none at all.
16 Q. Did you have any specific scientific qualifications?
17 A. No.
18 Q. You say, I think, that you were provided with no
19 specific training before beginning your job.
20 A. That's right.
21 Q. Did that mean you got no training at all in relation to
22 Celotex products?
23 A. No, I got some training soon after I joined on a general
24 overview of the current product range as it was then.
25 Q. Right. Did you get any training specifically in

110

1 relation to the scientific products, thermal behaviour,
2 fire performance of specific products in the Celotex
3 range?
4 A. As part of my induction, I would have spent some time
5 with the factory and within research and development,
6 but that would have been a very brief overview of the
7 basic formulation of PIR products.
8 Q. Did you get any training in relation to fire safety?
9 A. No, I didn't, no.
10 Q. Did you get any training in relation to the
11 Building Regulations and Approved Document B?
12 A. Again, an overview from the technical manager.
13 Q. Was that Jamie Hayes?
14 A. No, at the time it was Rob Warren.
15 Q. Can I ask you to go to your witness statement, please,
16 at page 2 {CEL00010052/2}, and you will see there at
17 paragraph 2.4, you say, at the very bottom of the page:
18 "I was not given any specific training in my roles
19 at Celotex but I was micro-managed by Paul who would
20 give me daily tasks and would check all the work
21 I produced. Paul and I would have regular ad hoc
22 meetings where he would check on the work I had done so
23 far. I would regularly email him providing him with
24 updates on what I had researched to see if he wanted me
25 to research anything else or to get his views."

111

1 When you say he micromanaged you, can you tell me
2 what you mean by that?
3 A. He was my direct line manager at the time. There was
4 a marketing director as well who oversaw the department
5 more generally, but Paul, given that I had no insulation
6 knowledge at all when I first joined, he sat down with
7 me regularly, more than once on a daily basis, to make
8 sure the tasks that I was carrying out were as he saw.
9 Q. Would you say that you didn't do anything or say
10 anything, at least publicly, without his approval?
11 A. Correct.
12 Q. Would he set your key performance indicators, or KPIs as
13 they're called, for the year?
14 A. Initially it would have either been Paul Evans or
15 Chris King.
16 Q. What was the significance of the KPIs to you when you
17 joined?
18 A. My understanding of the KPIs were to focus on certain
19 work areas, and as my time at Celotex progressed, those
20 KPIs were linked to a financial bonus as well.
21 Q. Well, I was going to ask you: what would have been the
22 consequences of failing to meet the KPI objectives?
23 A. Mainly financial, in terms of --
24 Q. Right. Does that mean not getting a bonus or being
25 deprived of something you otherwise would have got?

112

1 A. Not getting a bonus, yeah.
 2 Q. Can you give us an idea of the scale of the bonuses if
 3 you met all of your KPI targets?
 4 A. I can't recall what the scale or even the percentage of
 5 the bonus was. It wasn't a huge amount of money. But
 6 it was primarily there -- KPIs were there to focus the
 7 mind on work areas, really, that the business wanted
 8 carried out.
 9 Q. Now, I think it's right that in September 2013, you
 10 began a new role, that of product manager; is that
 11 right?
 12 A. That's right, yes.
 13 Q. That had previously, I think, been Paul Evans' role.
 14 A. Yes.
 15 Q. He I think then stepped in, a little bit later perhaps,
 16 to the role of head of marketing.
 17 A. Yes, he was promoted to head of marketing, and then
 18 subsequently that left a vacant position for a product
 19 manager.
 20 Q. You I think still reported to Paul Evans; yes?
 21 A. Yes, that's right.
 22 Q. Can we go to your statement at page 3 {CEL00010052/3},
 23 please, which we're on, and look at paragraph 2.7. You
 24 say there:
 25 "In my role as Product Manager I still did not

113

1 attend Board meetings. Paul continued to do so.
 2 I attended other meetings with those working/assisting
 3 on the same projects and Paul would also attend."
 4 Now, at this stage -- you're appointed, I think, in
 5 September 2013 -- you would have been, what, 23 or
 6 24 years old at that stage?
 7 A. 23, yeah.
 8 Q. Right.
 9 You say you still didn't attend board meetings; why
 10 were you not permitted to attend board meetings, given
 11 that Paul Evans had done so previously when he was
 12 product manager?
 13 A. I don't think he did overly regularly. I think
 14 primarily when Chris King was the marketing director, he
 15 would have attended the board meetings. It was the most
 16 senior individuals within that business, and that
 17 continued when I was promoted to product manager. The
 18 heads of the departments would be the only individuals
 19 that would take part in those meetings.
 20 Q. Is it right that really, despite your promotion, you
 21 were still effectively in the same role that you had
 22 occupied when you joined Celotex?
 23 A. I was carrying out very much the same tasks, yes.
 24 Q. I see.
 25 Can I turn to the topic of the properties of Celotex

114

1 PIR products. Can we look first, please, at
 2 {MAX00000216}. This is the datasheet for Celotex's
 3 FR5000 product, and you will see, if you look at the top
 4 right-hand corner of the document, that it's issue 2,
 5 January 2012. Do you see that?
 6 A. Yes.
 7 Q. This is a PIR board, isn't it?
 8 A. Yes.
 9 Q. It was called FR5000.
 10 Were you familiar with this datasheet when you
 11 joined?
 12 A. When I joined, yes.
 13 Q. Obviously not before that, but when you joined, did you
 14 become familiar with this fairly quickly?
 15 A. Yes.
 16 Q. It's called FR5000. Did you understand what FR stood
 17 for?
 18 A. I think that it stood for fire resistant.
 19 Q. That's what you thought?
 20 A. Yeah.
 21 Q. Did you ever have a discussion within Celotex about what
 22 it stood for?
 23 A. That would have been part of my initial training when
 24 Paul and Chris would have went through the product
 25 range. The 5000 range generally consisted of two or

115

1 three different products, of which FR was one of them,
 2 and I think FR was fire resistant.
 3 Q. Did they tell you that?
 4 A. They did, yes.
 5 Q. They told you FR stood for fire resistant, not flat
 6 roof?
 7 A. No.
 8 Q. Right.
 9 Was there a sense of confusion, did you detect, in
 10 Celotex as to whether FR stood for fire resistant or
 11 flat roof?
 12 A. No, I think most employees were clear that it was
 13 fire resistant.
 14 Q. Right. Why was it fire resistant, did you understand?
 15 A. During my interviews with Celotex and then soon after
 16 joining, I learnt that they had two different ranges:
 17 they had a standard range of insulation products, which
 18 was known as the 4000 range then, and they had a 5000
 19 range, and that was their way of differentiating from
 20 not only the standard range but equally competition that
 21 were in the marketplace at the time.
 22 Q. Well, we'll come back to that.
 23 We can see that the datasheet here refers to FR5000
 24 as having Class 0 throughout the entire product in
 25 accordance with BS 476. You see that in the middle

116

1 paragraph.
 2 A. Yes.
 3 Q. What did you understand the significance of FR5000
 4 having class 0 to be?
 5 A. I was told during my training that to achieve class 0 or
 6 class 0, as it was referred, that you had to carry out
 7 two individual tests to British Standard 476, and from
 8 memory one was on the face of the insulation and one was
 9 on the core of the insulation, and if you met those two
 10 tests, the result of that would be class 0.
 11 Q. What did you understand the expression "Class 0 fire
 12 performance throughout the entire product" to signify?
 13 A. I think that referred to the fact that you test both the
 14 facer and the insulation core itself.
 15 Q. Right. Was that a view or understanding that you had at
 16 the time?
 17 A. It was -- yeah, it was part of my training, that's how
 18 it was explained to me.
 19 Q. I see.
 20 It's right, I think, isn't it, that FR5000 was later
 21 re-branded to RS5000?
 22 A. That's right.
 23 Q. Did you understand that FR5000 was the same product as
 24 RS5000?
 25 A. Yes.

117

1 Q. And it's just that RS5000 was now to be marketed at the
 2 over-18-metre market?
 3 A. Yes.
 4 Q. And, of course, FR5000 hadn't done that because it
 5 hadn't passed an 8414 test?
 6 A. Correct.
 7 Q. So the answers you have given about class 0, would that
 8 apply also to RS5000?
 9 A. Yes, the formulation of the product stayed exactly the
 10 same.
 11 Q. Yes, and we will come back to revisit that question in
 12 more detail later.
 13 In terms of the manufacturing process for
 14 FR5000/RS5000, as the same product, were you aware that
 15 they were manufactured on two different production
 16 lines?
 17 A. Yes. Yeah, it was the same for many of the products
 18 that Celotex manufactured. If the product was from the
 19 thickness range of 12-mil up to I believe 90-mil it
 20 would be manufactured on one production line, and
 21 100-mil and above it would be manufactured on a second
 22 production line.
 23 Q. Just help me, these two lines were called Hipchen and
 24 Hennecke, weren't they?
 25 A. That's right, yes.

118

1 Q. Was Hipchen the line for the thinner or the thicker?
 2 A. Yeah, the thinner.
 3 Q. So if you were manufacturing something that you wanted
 4 to be 100 millimetres or 150 or 160 millimetres, you
 5 would use Hipchen, would you?
 6 A. Sorry, did you say 50 and 60-mil?
 7 Q. No, 100 or 150 or 160 millimetres.
 8 A. That would be manufactured on the Hennecke line.
 9 Q. So for Hipchen it would be anything under 100; is that
 10 right?
 11 A. Generally, although some products were only solely
 12 manufactured -- it's not as simple as distinguishing
 13 between the thicknesses. There were some products that
 14 were manufactured purely on Hennecke, purely on Hipchen.
 15 That came down to the development chemists.
 16 Q. What was FR5000 manufactured on?
 17 A. I believe it was manufactured on both lines.
 18 Q. On both lines.
 19 If you wanted to produce an FR5000 or an RS5000 of
 20 100 millimetres thickness or depth, which line would be
 21 used?
 22 A. I think the Hennecke line.
 23 Q. Hennecke. Yes.
 24 I want to turn to the origins of the project
 25 relating to the above-18-metre market.

119

1 It's right, isn't it, that when you started in
 2 May 2012, Celotex did not have an insulation board which
 3 could be sold for use above 18 metres?
 4 A. That's right.
 5 Q. But it wanted to develop one; yes?
 6 A. Correct.
 7 Q. That desire to develop one, did that pre-date your
 8 arrival?
 9 A. I believe so, yeah.
 10 Q. When you arrived, what did you understand the driving
 11 force behind that desire to be?
 12 A. That Kingspan -- well, Kingspan, sorry, Celotex's main
 13 competition, had a product suitable for rainscreen
 14 applications above 18 metres.
 15 Q. Right. And Celotex wanted to compete with them?
 16 A. Yes.
 17 Q. At the very beginning, casting your mind back, can you
 18 tell me who told you that that was the aim?
 19 A. Yeah, again, it was part of the initial training that
 20 Paul and Chris King would have given me an overview of.
 21 They talked to me about approvals that they did have and
 22 equally approvals that they didn't have and potential
 23 gaps in the market, really.
 24 Q. Can we then go to {CEL00002892}, please. This is
 25 an email string from early September 2012, and it's

120

1 between Bill Woodham and Adam Fryer, and it relates in
2 general terms to lost opportunities in the
3 above-18-metre market.

4 Now, I appreciate, when showing you these documents,
5 that you weren't a recipient of these emails, but I just
6 want to look at some of the things said in it.

7 Can we start at page 2 {CEL00002892/2}, please, and
8 at page 2 Adrian Fryer is telling market intel "18m Lost
9 orders!" He says:

10 "Lost 5000m2 FR5000 on job below plus another 3000m2
11 on Tuesday due to the 18m! (or lack of test)

12 "Anyone else finding this is losing you volume Vap
13 sales."

14 If we look at Bill Woodham's response a little bit
15 up the page {CEL00002892/1}, he goes back to him and
16 says:

17 "Speaking for my area kingspan dominate the k15
18 specifications and I relied on the distributors to give
19 me the enquiry to change spec. Problem is after so many
20 times of saying it cannot be used above 18m I no longer
21 get the enquiries. So very difficult to measure. The
22 only way is via spec but we don't currently offer over
23 18 option. Let's hope our rich parents want to invest
24 in the BR135 fire test then marketing can get it out
25 there."

121

1 Does that reflect your understanding at the time --
2 so September 2012 -- of the motivation behind the
3 18-metre project in general terms?

4 A. I think primarily Celotex were looking to explore the
5 above-18-metre market because of feedback that they were
6 regularly receiving from the external sales team on lost
7 opportunities such as this one.

8 Q. Right. And they couldn't satisfy those opportunities by
9 using FR5000?

10 A. No.

11 Q. There is a reference, as we can see from Bill Woodham's
12 email to Adrian Fryer on that date, that he says, "Let's
13 hope our rich parents want to invest in the BR135
14 fire test".

15 Now, as I say, you weren't a recipient of this
16 email, but can you enlighten me as to what "rich
17 parents" means there?

18 A. So judging by the date of the email, given that I joined
19 the business in May and then within the first month the
20 announcement was made that Saint-Gobain were going to
21 acquire Celotex, that was obviously then common
22 knowledge on 7 September.

23 Q. Yes.

24 A. So I can only assume that Bill is suggesting that
25 Saint-Gobain perhaps may back the investment.

122

1 Q. Yes, thank you.

2 Then he refers to the BR 135 fire test, "then
3 marketing can get it out there". Does that show us that
4 even at this early stage, September 2012, the strategy
5 was to obtain a BR 135 classification and then to market
6 forcefully?

7 A. Yes.

8 Q. In fact, that was, as we will see together later, the
9 strategy that was eventually adopted.

10 A. Yes.

11 Q. Can we go to {CEL00010154/6}, please. Now, this is
12 Jamie Hayes' witness statement, and I want to show you
13 paragraph 17 on that page. He says here:

14 "Even before this acquisition Celotex was largely
15 marketing led given that those individuals at the top of
16 the business had mainly originated from the Marketing
17 Department. Celotex used to be owned by private equity
18 group AAC Capital Partners and so the drive for profit
19 making and increasing the company's share price had been
20 systemic in the Celotex culture for some time. However,
21 it seemed as though this culture became heightened once
22 Saint Gobain became involved. I knew from later
23 conversations between PE [Paul Evans], Craig Chambers
24 ... and Jon Roper ... (whose roles are explained below)
25 at which I was present that Saint Gobain had asked for

123

1 a budget for increasing profits and that at least 15% of
2 this increase would need to be attributed to new
3 products. I remember thinking we were not allowed to
4 simply sell more of our existing products to increase
5 profits. For me this meant that there was a drive for
6 innovation and a sense of pressure to increase profits
7 at Celotex."

8 Now, Mr Hayes says here that he knew this from
9 conversations between you and others at which he was
10 present. Do you remember such conversations?

11 A. I remember that those conversations led to one of my
12 KPIs being around new product development. I think that
13 soon after the acquisition from Saint-Gobain there
14 seemed to be a much stronger drive towards new product
15 development and the percentage turnover that they
16 achieved.

17 Q. Do you agree with what Mr Hayes says here at
18 paragraph 17?

19 A. Yes, I do, yeah.

20 Q. Yes.

21 Can we look at {CEL00002900}, and I want to take you
22 to a document that perhaps shows the KPIs.

23 This is, I think, am I right in saying, Paul Evans'
24 January 2013 "Objectives/KPIs for 2013" for you?

25 A. Yes.

124

1 Q. Was it created by Paul Evans or at least signed off by
2 him?
3 A. It was created by Paul Evans and probably senior
4 management.
5 Q. I see.
6 It includes, as you can see, objective number 5:
7 "Accreditation for FR5000 for use in above 18m
8 applications."
9 Then in the second column from the left it says,
10 under "Measure":
11 "Test report and launched to sales team."
12 With the target date of December 2013 and
13 a weighting of 20%.
14 Just in relation to the weighting, is that
15 a weighting which would go to the financial incentive or
16 bonus that you would get?
17 A. Yes, so at the end of that year, all six of those KPIs
18 would be measured and subject to the percentage which
19 those had been achieved, that would then link into the
20 financial bonus that was received.
21 Q. The percentage is a percentage of what, the financial
22 bonus or your salary?
23 A. Neither, I don't think, I think it's just the weighting
24 that that particular task carries in relation to the
25 rest of my KPIs.

125

1 Q. I see.
2 A. So looking at it now, you could take the view that
3 KPI 1, 4 and 5 were the most important to the business.
4 Q. That was my next question. I see. That's why they got
5 20% and the others got less. Yes.
6 It looks as if this objective was to be achieved by
7 December 2013.
8 Is it right to say that you were effectively put in
9 charge of developing the FR5000 product into a brand
10 that Celotex could market for use above 18 metres?
11 A. I was part of a project team, and initially that was
12 myself, Paul and Jamie Hayes. As the development grew,
13 it included three or four other members of the business.
14 Q. Yes, I see. When I say put in charge, let me try it
15 a different way: the accreditation process for FR5000 so
16 that it could be used above 18 metres was one of your
17 major pieces of work?
18 A. Correct.
19 Q. Yes. But you were always supervised in that work -- is
20 this right? -- by Paul Evans?
21 A. Absolutely, yes.
22 Q. So you weren't the final decision-maker, but you were
23 very heavily involved?
24 A. Yes.
25 Q. All right.

126

1 Now, can we look at Jamie Hayes' witness statement
2 again, please, {CEL00010154/9}, paragraph 28. He says
3 there:
4 "RS5000 was neither an entirely new chemical
5 product, nor one of altered composition. Instead, it
6 was simply the rebranding of the existing FR5000 product
7 to be used in above 18 metre projects. I specifically
8 recall a particular conversation with PE, JR and CC at
9 which I was present, in which they were discussing
10 whether RS5000 would constitute a new product for the
11 purposes of the 15% profit increase target. It was
12 concluded that since RS5000 was going to be targeted at
13 a completely new market with a new name, it would be
14 classified as a new product, even if its chemical
15 composition did not change. JR's responsibility for
16 developing RS5000 was therefore a significant
17 responsibility, given that Celotex's ability to meet
18 Saint Gobain's targets seemed to be heavily reliant on
19 the success or failure of this product."
20 Do you agree with what Mr Hayes has said there?
21 A. I do, yes.
22 Q. So there was, therefore, a significant pressure on you
23 personally to ensure that the product passed the BS 8414
24 test that it later underwent?
25 A. I think there was a responsibility on that product

127

1 passing and being able to be launched, because when they
2 looked at the potential development opportunities at the
3 time, RS5000 or the above-18-metre market was perceived
4 to be the one with the biggest opportunity.
5 Q. Yes. Well, you say it was a responsibility on that
6 product, but in fact Mr Hayes is talking about the
7 responsibility on your shoulders. Do you agree with him
8 that your personal responsibility for developing RS5000
9 was a significant one?
10 A. Yes.
11 Q. Yes.
12 Did you have any concerns at the time about whether
13 you had the technical expertise or, at age 23, the
14 experience necessary to understand the requirements for
15 a product to be used above 18 metres?
16 A. I was concerned that I knew very little of that
17 marketplace. Yeah, I was concerned from that aspect.
18 But I was equally probably trying to demonstrate
19 that ... I mean, at the time that those KPIs were set,
20 I was still assistant product manager, back in
21 January 2013. My role grew and I was subsequently
22 promoted to product manager. But, yeah, I did have some
23 concerns.
24 Q. Did you share those concerns with anybody at Celotex?
25 A. I wasn't working alone, I had a project team around me,

128

1 I had Paul and Rob and Craig and senior managers that
 2 I could lean on for advice and ultimately to make
 3 decisions.
 4 Q. If we look at the top of this page in Mr Hayes' witness
 5 statement at paragraph 26, we can see that he says
 6 there, in the second sentence in the first line:
 7 "In late 2012, early 2013, he [that's you] was
 8 tasked with the development of a product that could be
 9 sold in the above 18 metre market (RS5000), as well as
 10 a portfolio of other products ..."
 11 Do you agree with that description of the facts,
 12 that you were tasked with the development of RS5000?
 13 A. Yes.
 14 Q. Can we then turn to the development of the project.
 15 As a matter of history, were you aware that Celotex
 16 had previously considered the development of a product
 17 for use above 18 metres as far back in time as 2008?
 18 A. I didn't realise it went back to 2008, but I did recall
 19 that I had a conversation with Paul and with Rob quite
 20 early on in my tenure with Celotex, and as part of
 21 a background exercise to the above-18-metre market, they
 22 did share with me an email, I think it was mainly
 23 regarding the test fees, from the BRE.
 24 Q. Yes.
 25 A. So, yes, I did know that they'd done some initial

129

1 research.
 2 Q. I see. Do you know why no decision to proceed had been
 3 taken at an earlier time?
 4 A. I think that it was relayed to me that, because the
 5 business was privately owned at the time, the business
 6 was continuing to grow in terms of sales and market
 7 share without the addition of this product and this
 8 market, that the private owners didn't want to risk
 9 financially an outlay of £25,000 for a test that may not
 10 be achievable.
 11 Q. It sounds from that answer that the culture, at least
 12 prior to the acquisition by Saint-Gobain, was one of
 13 a drive for growth rather than investment?
 14 A. Correct.
 15 Q. Is that because of the identity of the owners?
 16 A. And because, from the very outset, they knew that their
 17 sole task was to grow the business for sale. They were
 18 quite open with all employees around that.
 19 Q. Am I right in thinking that the owners or majority
 20 owners were AAC Capital Partners?
 21 A. I think there was AAC Capital Partners and then there
 22 were six or seven shareholders that were equally
 23 directors -- working directors within the business.
 24 Q. Did you know AAC Capital Partners were, at one stage at
 25 least, ABN AMRO's private equity house?

130

1 A. No.
 2 Q. Was the culture one of a drive to increase revenues in
 3 order to have an early and profitable exit?
 4 A. Correct, yes.
 5 Q. So focus on earnings multiples and enterprise value?
 6 A. Yes.
 7 Q. Now, we can see from your KPIs, and we've seen it
 8 already, that one of those for 2013 was getting FR5000
 9 certified for use above 18 metres, so I think it's
 10 right, isn't it, that you always understood that the
 11 plan was to accredit that product, not a new product?
 12 A. Yes.
 13 Q. Not develop a new product?
 14 A. No.
 15 Q. So the investment would be in relation -- is this
 16 right? -- simply to testing and then marketing?
 17 A. Correct.
 18 Q. Yes, so no research and development, no production
 19 investment?
 20 A. No, no chemical formulation --
 21 Q. No.
 22 Were you aware of whether any changes were actually
 23 made to the composition of the product, being FR5000,
 24 while you were undertaking the above-18-metre project?
 25 A. No.

131

1 Q. Can I then look at the Building Regulations.
 2 As part of the above-18-metre project, you I think
 3 were tasked with researching the regulatory background,
 4 weren't you?
 5 A. Yes.
 6 Q. Was it Mr Evans who asked you to do that?
 7 A. It was, yes.
 8 Q. Can we go to your witness statement, page 5
 9 {CEL00010052/5}, and let's look at paragraph 4.1 under
 10 "Section C: Research conducted prior to testing". You
 11 say there at the top of the page, in the fourth line
 12 down:
 13 "Paul provided me with names and contact details of
 14 those he wanted me to contact. I assumed these were
 15 connections he made on other projects he had worked on
 16 previously."
 17 Now, you later mention that Sotech were people you
 18 met by chance. Apart from Sotech, were all the contacts
 19 you made based on the list that Paul Evans had given
 20 you?
 21 A. Yes, primarily they were bodies such as the BBA, BRE and
 22 NHBC that Paul had dealt with in his role as product
 23 manager.
 24 Q. What about potential partners for a test?
 25 A. Erm ...

132

1 Q. Did he give you names of potential partners?
 2 A. Only Knauf, I believe, later on.
 3 Q. Knauf?
 4 A. Yes.
 5 Q. Just for the record, that's K-N-A-U-F?
 6 A. Yes.
 7 Q. We will come to them later, thank you, but only them,
 8 I see.
 9 If we look at 4.2, the next paragraph down, you
 10 refer there to the NHBC, the BBA and the BRE. These
 11 were organisations in the testing and certification
 12 industry, weren't they?
 13 A. They were, yes.
 14 Q. What about IFC or Simco, did Mr Evans give you those
 15 names?
 16 A. No, Simco were a cladding subcontractor that one of the
 17 area sales managers suggested.
 18 Q. Who was that?
 19 A. Ian Lathbury.
 20 Q. Yes, we will come to that. What about IFC?
 21 A. IFC was something that -- an organisation that I sought
 22 to engage with, because we wanted somebody with
 23 experience in consultation around the fire performance
 24 of products.
 25 Q. How did you come across IFC? Was that a Paul Evans

133

1 contact or was it --
 2 A. No, that wasn't a Paul Evans contact, it was somebody
 3 that -- I don't know, maybe I just searched the web,
 4 possibly.
 5 Q. Right. So it was as a result of your enterprising
 6 digging that you came across IFC?
 7 A. Yes.
 8 Q. You say in the next paragraph, at 4.2, after the
 9 reference to NHBC, BRE and BBA:
 10 "He wanted me to obtain more information on what was
 11 required to launch such a product."
 12 I'm going to come on to ask about some of those
 13 contacts in more detail later, but I want to ask you
 14 first about your understanding of what the relevant
 15 guidance and regulations actually were.
 16 Did you understand, in general terms, that there
 17 were different requirements applicable to buildings
 18 above 18 metres in height from those below 18 metres in
 19 height?
 20 A. Yes.
 21 Q. Was that understanding generally shared within Celotex?
 22 A. Yes, it was, yeah.
 23 Q. Is it right that internally you approached Jamie Hayes
 24 for some help with your research?
 25 A. Yes, Jamie and Rob was generally the go-to person for

134

1 any regulation advice.
 2 Q. I see.
 3 I want to ask you some questions about the fruits of
 4 your research by the time Celotex came to do the test in
 5 2014.
 6 Were you familiar with schedule 1 to the
 7 Building Regulations?
 8 A. No.
 9 Q. Did you ever become familiar with the
 10 Building Regulations?
 11 A. I came familiar with sections of the
 12 Building Regulations.
 13 Q. Right. Let's see which ones. Part B, fire safety?
 14 A. Not in its entirety, but again, sections of it.
 15 Q. Do you remember which particular sections stand out in
 16 your memory?
 17 A. The ones relating to the regulations around BS 8414.
 18 Q. Right. Are you referring to Approved Document B?
 19 A. Yes.
 20 Q. I see. What was your understanding of the purpose of
 21 Approved Document B?
 22 A. Fire safety of a building.
 23 Q. When I say purpose, did you understand what the approved
 24 documents did or were for, what their status was?
 25 A. Regulate compliance.

135

1 Q. Right.
 2 Had you ever attended any courses or training on the
 3 Building Regulations or on the approved documents?
 4 A. No.
 5 Q. During your whole time at Celotex, did you ever attend
 6 any courses or other training on the
 7 Building Regulations or the approved documents?
 8 A. No.
 9 Q. Did you read the guidance set out in Approved
 10 Document B, which addresses fire safety, as part of your
 11 research, other than the sections you read specifically?
 12 A. No.
 13 Q. Let's look at Approved Document B. {CLG00000224/95},
 14 please, where we will find section 12. This is entitled
 15 "Construction of external walls".
 16 Is this part of Approved Document B you think you
 17 looked at as part of your research?
 18 A. Yes.
 19 Q. Did you focus on the part on the right-hand side which
 20 says, "External wall construction", just below halfway
 21 down?
 22 A. Sorry, at 12.5 are you referring to?
 23 Q. Yes.
 24 A. Yes.
 25 Q. So you understood, therefore -- is this right? -- from

136

1 this, first of all, the general principle that:
 2 "The external envelope of a building should not
 3 provide a medium for fire spread if it is likely to be
 4 a risk to health or safety.
 5 You understood that, did you?
 6 A. Yes.
 7 Q. And the next sentence:
 8 "The use of combustible materials in the cladding
 9 system and extensive cavities may present such a risk in
 10 tall buildings."
 11 You understood that, did you?
 12 A. Yes.
 13 Q. In the next paragraph:
 14 "External walls should either meet the guidance
 15 given in paragraphs 12.6 to 12.9 or meet the performance
 16 criteria given in the BRE Report [the title of which is
 17 then given] (BR 135) for cladding systems using full
 18 scale test data from BS 8414-1:2002 or BS 8414-2:2005."
 19 You understood that, did you?
 20 A. Yes.
 21 Q. Did you understand from that that there were two
 22 alternative routes to compliance with the
 23 Building Regulations, either 12.6 to 12.9, or meeting
 24 the performance criteria in BR 135 --
 25 A. Yes.

137

1 Q. -- using a BS 8414 test?
 2 A. Yes.
 3 Q. You did.
 4 If we look at 12.6, "External surfaces", it says:
 5 "The external surfaces of walls should meet the
 6 provisions in Diagram 40."
 7 Did you understand what that meant? Diagram 40 is
 8 on the next page if you want to see it.
 9 A. I think I know the diagram that you're referring to, and
 10 I knew that was present in the approved document but --
 11 Q. We'll go to the next page, page 97 {CLG00000224/97}, and
 12 we can see it. If you look at "e. ANY BUILDING", you
 13 can see "Any dimension over 18m", and did you understand
 14 from that that the external wall surface classification
 15 had to be either class 0 national class, or
 16 class B-s3, d2 or better European class?
 17 A. Yes, that was explained to me, yes.
 18 Q. If we go back a page {CLG00000224/96}, please, to
 19 section 12.7, "Insulation Materials/Products", it reads:
 20 "In a building with a storey 18m or more above
 21 ground level any insulation product, filler material
 22 (not including gaskets, sealants and similar) etc. used
 23 in the external wall construction should be of limited
 24 combustibility (see Appendix A)."
 25 I don't think I need the rest. Did you understand

138

1 that?
 2 A. Yes.
 3 Q. Now, we have established, I think, already that FR5000
 4 was not a material of limited combustibility.
 5 A. That's correct.
 6 Q. And, therefore, as re-branded, nor would RS5000 be
 7 a material of limited combustibility.
 8 A. That's correct.
 9 Q. And you never had any doubt about that, did you?
 10 A. No.
 11 Q. To your knowledge, did anybody else in Celotex have any
 12 doubt about that?
 13 A. No, I think there was a general understanding that the
 14 only insulation products that were deemed
 15 non-combustible or limited combustibility were materials
 16 of rock fibre or mineral fibre. When you got to rigid
 17 board insulation, as I describe it, PIR or phenolic
 18 foams, I think there was a general understanding that
 19 they were combustible.
 20 Q. They were combustible?
 21 A. Yes.
 22 Q. Did you yourself, just on that point, have any inkling
 23 or gain any insight into how others outside Celotex
 24 viewed the matter? Did you, for example, get the sense
 25 that some people you were dealing with didn't understand

139

1 that thermosetting insulants such as PIR could never be
 2 materials of limited combustibility?
 3 A. No, I didn't pick that up. I think there was a fairly
 4 clear understanding that --
 5 Q. Right. I'm assuming that there was never any
 6 consideration given as to whether Celotex could
 7 manufacture a product of limited combustibility?
 8 A. No, I think that the material in itself -- as far as
 9 conversations that I had with the development chemist at
 10 the time and what Paul and Rob explained to me when
 11 I joined was that it's impossible for the material to be
 12 non-combustible.
 13 Q. So you must have understood -- this must be right --
 14 that the only way to satisfy the guidance in
 15 paragraph 12.5 of Approved Document B that we've just
 16 looked at would be to meet the performance criteria in
 17 BR 135 using a full-scale test under BS 8414?
 18 A. Yes.
 19 Q. Yes.
 20 Can we then look at BR 135. You say that Mr Evans
 21 and Mr Warren gave you an overview of the requirements.
 22 What did they tell you, do you remember?
 23 A. Well, I think they started off with the research that
 24 you referred to earlier in terms of the initial fee
 25 quote from the BRE, and then really they pointed me to

140

1 section 12.5 of the regulations, explained that PIR
 2 insulation is, in its nature, combustible, and therefore
 3 the only route to compliance would be via an 8414 test.
 4 Q. Now, BR 135, of course, came out in its third edition in
 5 2013. We can see that you were sent that edition in
 6 May 2013. It's {CEL00011493}. Here is an email from
 7 you, actually, to Rob Warren and Jamie Hayes, sending
 8 them the third edition of BR 135.
 9 A. Yes.
 10 Q. Do you know why you were sending it to them?
 11 A. I think I potentially stumbled across that online as
 12 an updated version.
 13 Q. Do you know why you sent it to Rob Warren if he had
 14 given you an overview of the requirements already?
 15 A. Mainly because I probably thought that he had
 16 an out-of-date version, whether he had the second
 17 edition.
 18 Q. Did you yourself read the third edition of BR 135?
 19 A. No.
 20 Q. No? Did you even look at it?
 21 A. I'm sure I would have looked at it, yes.
 22 Q. Did you look at it in order to make sure that you
 23 understood its criteria, so that when going about the
 24 task which was number 5 in your KPI, you could comply
 25 with it?

141

1 A. Yes, I think I was probably validating that the third
 2 edition hadn't changed any of the criteria from the
 3 second edition that was previously explained to me.
 4 Q. Let's have a look at it and see how far you read in.
 5 Can we look at {CEL00000584}, please. This is a copy of
 6 the third edition of BR 135, and if we can go to page 13
 7 {CEL00000584/13}, on that page, under the title
 8 "Interaction with external envelope", paragraph 3.3, it
 9 says:
 10 "It is at this stage of the fire scenario that the
 11 fire performance of the complete external cladding
 12 system, including any fire barriers, is critically
 13 important. Once flames begin to impinge upon the
 14 external fabric of the building, from either an internal
 15 or an external source, there is the potential for the
 16 external cladding system to become involved, and to
 17 contribute to the external fire spread up the building
 18 by the following routes."
 19 The routes are then set out.
 20 First of all, did you read that at this time,
 21 May 2013?
 22 A. It doesn't instantly come across as familiar.
 23 Q. Right. Looking at it now, do you accept that it makes
 24 it clear that the fire performance of the complete
 25 external cladding system is of critical importance?

142

1 A. Yes.
 2 Q. And that's because it's the complete system and the
 3 interaction between all the different components that
 4 creates the potential for external fire spread.
 5 A. Yes.
 6 Q. Did you understand at least this much: that BR 135 was,
 7 for that reason, applicable only to complete systems?
 8 A. Yes, as part of my initial overview from Rob, he was
 9 fairly clear in his message that he viewed BR 135 or
 10 BS 8414 as a system test.
 11 Q. A system test. Therefore, the system as tested, if it
 12 passed, the pass wouldn't be a guarantee of the fire
 13 performance of any individual component?
 14 A. That's right.
 15 Q. Yes.
 16 Now, appendix B of BR 135 dealt with the
 17 classification criteria for a BS 8414-2 test. Did you
 18 read that section, do you think, appendix B?
 19 A. Sorry, I haven't got that on the ...
 20 Q. Let's go into it, at page 33 {CEL00000584/33} of this
 21 document. This is part of appendix B, and this is B2.
 22 Do you remember reading this far into the document?
 23 I know it's 33 pages in and it's a complex technical
 24 document, but do you remember reading this far into it,
 25 do you think?

143

1 A. I think I was primarily concerned about the criteria,
 2 so, yes, I think I would have read it, because I was
 3 probably keen to ensure that this version hadn't changed
 4 from the previous edition.
 5 Q. I see. I mean, we can help you. It starts at page 29
 6 {CEL00000584/29}, if you want to go back to page 29.
 7 This is "Annex B: Performance criteria and
 8 classification for BS 8414-2".
 9 Just pausing there, part 2 was the test for
 10 non-bearing external cladding systems fixed to and
 11 supported by a structural steel frame, wasn't it?
 12 A. Yes.
 13 Q. As opposed to masonry, which was part 1.
 14 A. Yes.
 15 Q. Did you look at this first page of appendix B, do you
 16 think?
 17 A. I think I probably did, yes, because it's probably
 18 the -- one of the few occasions where I had seen
 19 a large-scale test rig.
 20 Q. And you might remember the photograph, "A typical test
 21 facility" --
 22 A. Yes.
 23 Q. -- with its crib at the bottom and the return wall.
 24 A. Yes.
 25 Q. You can see the principle of the test, B1.1, and it says

144

1 that the test facility was designed to determine the
2 external fire performance of non-load-bearing external
3 cladding systems. As you have said, that's a system
4 test.

5 Can we then turn to page 33 {CEL00000584/33} where
6 I wanted to pick it up and just see whether you read in
7 this far.

8 You can see on that page that, in the top left-hand
9 corner, there is a figure B4 with the thermocouple
10 locations for a typical system. Then on the right-hand
11 side of the page, after the three bullet points there,
12 there is some text which says this:

13 "The classification only applies to the system as
14 tested and detailed in the classification report. The
15 classification report can only cover the details of the
16 system as tested. It cannot state what is not covered.
17 When specifying or checking a system it is important to
18 check that the classification documents cover the
19 end-use application."

20 Were you aware of that principle?

21 A. Yes.

22 Q. Do you accept that it makes explicit that classification
23 under BR 135 applies only to the systems tested, and not
24 the individual components forming part of that system?

25 A. Yes.

145

1 Q. And you understood that at the time, at least as of
2 May 2013; is that right?

3 A. Yes.

4 Q. Now, you have told me, I think, just now that BS 8414
5 had, as you understood at the time, two parts, part 1
6 and part 2, and part 1 was 2002, masonry, and part 2 was
7 2005, steel frame; yes?

8 A. Yes.

9 Q. I'm going to ask you later on about the decision to test
10 to part 2, but I just want to ask you one or two
11 questions first of all to see what you understood about
12 the test itself.

13 Can we go to {CEL00000583}. This is an email in
14 May 2013, and it's the second email down on that page,
15 that you sent to Tony Dooley, subject: "BR 135", and the
16 date is 3 May 2013.

17 First of all, who was Tony Dooley?

18 A. He was the area sales manager for the northwest.

19 Q. Northwest:

20 "Tony,

21 "As promised, find attached the third edition of
22 BR 135 highlighting which of the 8414 tests cover which
23 build ups."

24 Do you see that? Then you say:

25 "I've dropped our contact at the BRE an email

146

1 looking for clarification regarding the SFS with brick
2 outer construction you described. One thought that went
3 through my mind is that Part 2 may cover this build up
4 as they may assume that if you test using our insulation
5 with a rainscreen cladding system on a steel frame, that
6 brick will inherently provide a greater or similar fire
7 resistance than a common cladding panel (Trespa etc).
8 Because you can't test for every [eventuality] in
9 rainscreen applications, the test may cover a certain
10 grade of outer face."

11 We will come on later to some correspondence you had
12 with Tony Baker at the BRE at around about the same
13 time, May 2013, but is that who you meant by "our
14 contact at the BRE", Tony Baker?

15 A. Yes.

16 Q. He was in fact one of the co-authors, the two
17 co-authors, of BR 135, third edition, wasn't he?

18 A. Yes.

19 Q. So quite an important contact.

20 A. Yes, it was a contact that was passed to me on joining
21 the business.

22 Q. Right.

23 A. And I had -- yeah, I had contact with Tony Baker and
24 Stephen Howard from the BRE as well.

25 Q. Yes.

147

1 Now, you say in the last line there:

2 "... the test may cover a certain grade of outer
3 face."

4 You understood, I think, from that, even at that
5 stage, that the BS 8414 test would only cover the
6 build-up that was actually tested?

7 A. (Witness nods).

8 Q. Yes?

9 A. Yes.

10 Q. I'll come back to this theme and this point in time
11 later on.

12 Can I divert for a moment and ask you some questions
13 about BS 476-6 and 7.

14 Can we go to {CEL00001200}, this is a year later,
15 2014, and it's an email from you to Jonathan Roome on
16 28 April that year, and there are some attachments to
17 it. You say:

18 "Jonathan,

19 "As promised, find attached the training
20 presentations we've gone through this morning as well as
21 BS 13165 (the standard all PIR manufacturers produce to)
22 and BS 8414-1 (the cladding fire test).

23 "Any questions, give me a shout."

24 Do you remember this training?

25 A. Erm ... no.

148

1 Q. Can you tell us what it was about, at all, just looking
2 at the document?
3 A. I think that, looking at the date there, I started to
4 get involved with some training of the sales team and --
5 Q. We can look at the zip file, I think, that comprises the
6 CE marking and best in class training session that you
7 attached to this document, it's at {CEL00001201}. It's
8 entitled "Technical Training". Do you remember these
9 being the slides you attached to that email, do you
10 think?
11 A. They look familiar, yes.
12 Q. If we look at the first substantive page on page 2
13 {CEL00001201/2} of the slides, it's an agenda containing
14 "CE Marking", "Best In Class" and "Q&A".
15 If we skip to page 25 {CEL00001201/25}, we can see
16 that there is a quiz. Do you see that?
17 A. Yes.
18 Q. Question 4 is:
19 "Which Two Tests Must Be Passed To Obtain Class 0
20 Fire Rating?"
21 The answer on the next page {CEL00001201/26}:
22 "4. BS 476 Part 6 & 7."
23 Just looking at that, is it right that, by
24 April 2014 at the least, you were aware of class 0 and
25 what it meant?

149

1 A. Yes.
2 Q. I think in fact, as you told us before, that was
3 actually knowledge you had quite soon after you
4 arrived --
5 A. Correct, yes.
6 Q. -- at Celotex because of FR5000.
7 Were you aware that part 6 of 476 is a fire
8 propagation test?
9 A. I knew there were two differences -- I knew there were
10 differences between the two tests, sorry, that one was
11 on the face of the insulation and one was on the core,
12 as I understood it.
13 Q. Yes.
14 A. But these tests were carried out, I believe, in 2011,
15 prior to me joining the business.
16 Q. Right.
17 A. And I wasn't involved in carrying out any BS 476 test to
18 my knowledge.
19 Q. The 476 test, did you know that it measured how much
20 heat is given off when the product is burned, part 6 of
21 that test?
22 A. It may well have been explained to me. I don't think
23 that the training went into too much depth, other than
24 that the 5000 range at the time had class 0 fire rating.
25 Q. Did you understand that part 6 was a test which worked

150

1 by burning the product?
2 A. Yes.
3 Q. On the other hand, part 7 was a surface spread of flame
4 test. It measured the speed of the horizontal surface
5 spread of flame. Did you understand that?
6 A. Yes.
7 Q. Given that you need both tests to achieve a class 0
8 classification, and you knew that part 7 was only
9 looking at the surface, did you ever wonder why Celotex
10 was describing FR5000 as class 0 throughout? It's
11 a question we looked at before, but looking at these
12 tests here.
13 A. I was told that because the facer of the product had
14 been tested and the core of the product had been tested,
15 that's where the "class 0 throughout" message came from.
16 Q. So you were told, were you, that the inner core of
17 FR5000 had been subjected specifically to a part 6 test,
18 had you?
19 A. Yes.
20 Q. I follow. So they were tested separately, were they?
21 The foil facer was subject to the surface spread of
22 flame test, and the PIR core of FR5000 was subject to
23 a part 6 test, is that how you understood it?
24 A. That's how I understood it, yes.
25 Q. Right. And that's why you say you understood that

151

1 FR5000 was described as class 0 throughout the entire
2 product?
3 A. Yes.
4 Q. I follow.
5 Were you clear in your mind throughout your time at
6 Celotex, really from your earliest beginnings, that
7 there was a clear distinction between, on the one hand,
8 class 0, and on the other hand the concept of limited
9 combustibility?
10 A. Yes. Yeah.
11 Q. And that just because something was class 0 did not
12 mean, ergo, that it was a material of limited
13 combustibility?
14 A. Correct, yeah. I don't think, during my tenure at
15 Celotex, that the two were ever crossed, really.
16 I think class 0 or class 0 was in place to differentiate
17 their 5000 range from their standard range of products.
18 Q. I see.
19 Were you aware of any confusion out there in the
20 industry about what class 0 meant?
21 A. I think potentially the only confusion that was around
22 was because the European classifications that derive
23 whether a product is A1 or A2, occasionally some people
24 got confused with class 0 being an inferior version of
25 that same table, but I don't believe it was.

152

1 Q. I see. So no confusion as between class 0 on the one
 2 hand and limited combustibility on the other as
 3 concepts?
 4 A. No.
 5 Q. Were you aware that there were organisations within the
 6 construction industry that produced guidance documents
 7 to enable compliance with the prevailing regulatory
 8 requirements?
 9 A. Can you give me some --
 10 Q. Yes, I can. The Centre for Windows and Cladding
 11 Technology, CWCT, were you aware of that body?
 12 A. No, I only became aware of CWCT after the launch of
 13 RS5000, I believe.
 14 Q. Right. How long after the launch of RS5000?
 15 A. I think there was a technical note that came out from
 16 the CWCT. I don't know how long after the launch of
 17 RS5000 that was presented into the marketplace.
 18 Q. Right. Well, there is a technical note from CWCT, but
 19 it's dated March 2011.
 20 A. Right.
 21 Q. We can look at that. It's {CWCT00000019}.
 22 Is this the document you are referring to, do you
 23 think?
 24 A. Yes.
 25 Q. Technical Note 73.

153

1 As I say, looking at the bottom of the page, if you
 2 can be shown the bottom of the page on the screen, you
 3 can see that it's March 2011, so this pre-dated your
 4 arrival at Celotex.
 5 When do you think you first saw it?
 6 A. Yeah, again, I don't think that I saw that until after
 7 the launch of RS5000.
 8 Q. Right. How long after the launch, do you think?
 9 A. I can't say for sure.
 10 Q. Right. Because this pre-dated it. It wouldn't have
 11 been at the time it was published.
 12 A. Yeah, I mean, it's certainly a document that wasn't
 13 presented to me during training or one that the business
 14 had, I don't think.
 15 Q. Right.
 16 When you saw this document, did it prompt a reaction
 17 of any kind?
 18 A. Erm ... as I look at it now, it doesn't seem overly
 19 familiar in terms of the content. I'm looking here in
 20 terms of the use of combustible insulation materials,
 21 but that may have taken my eye, but I certainly didn't
 22 study it in depth.
 23 Q. It would have confirmed, had you read it, that there was
 24 a distinction between non-combustible, limited
 25 combustibility and class 0, but that, as you told us,

154

1 was a distinction you were already aware of.
 2 A. Yes.
 3 Q. Can we then look at a different guidance note, which is
 4 at {CEP00057294}.
 5 This is the guidance note produced by the BCA, the
 6 Building Control Alliance, entitled "Use of Combustible
 7 Cladding Materials on Residential Buildings", and it's
 8 Technical Guidance Note 18, and you will see from the
 9 top right-hand corner that it's issue 0, June 2014.
 10 Do you think you saw this at the time it was
 11 published?
 12 A. Yes, I think I saw that, whether it was June 2014, but
 13 soon after.
 14 Q. Did you read it?
 15 A. I'm sure I did, yes.
 16 Q. If we look under the "Key Issues", you can see, at the
 17 first bullet point in the third paragraph, it says:
 18 "A Surface Spread of Flame Classification does not
 19 infer any resistance to combustibility, it is solely
 20 a measure of the spread of a flame across the surface."
 21 Pausing there, that sounds, from your evidence so
 22 far, to be something you already well understood?
 23 A. Yes.
 24 Q. Yes. Under the first bullet point:
 25 "Thermosetting insulants (rigid polyurethane foam

155

1 boards) do not meet the limited combustibility
 2 requirements of AD B2 Table A7 and so should not be
 3 accepted as meeting AD B2 paragraph 12.7. However, if
 4 they are included as part of a cladding system being
 5 tested to BR135 & BS8414, the complete assembly may
 6 ultimately prove to be acceptable."
 7 That again, I think, is something that you well
 8 knew --
 9 A. Yes.
 10 Q. -- from much earlier on in your time at Celotex.
 11 A. Yes.
 12 Q. If we turn to page 2 {CEP00057294/2}, you can see that
 13 there are three options set out on that page that the
 14 BCA recommends. Can you see the top of the page?
 15 A. Yes.
 16 Q. It says:
 17 "Where the building exceeds 18m in height, the BCA
 18 recommends three options for showing compliance with
 19 paragraph 12.7 of AD B2."
 20 Now, I've shown you ADB2, paragraph 12.7, which
 21 refers to limited combustibility and table A7. Leave
 22 aside the accuracy of the statement there about whether
 23 you can comply with it by any other approach other than
 24 being a material of limited combustibility. There are
 25 two other options, option 2 and option 3. Option 1 is

156

1 being a material of limited combustibility. Option 2,
2 in a nutshell, is BR 135, criteria of 135 as a result of
3 a BS 8414 test. Option 3 is a desktop study.

4 At this time, when it was published, shortly after
5 June 2014 when you saw it, did you become aware that one
6 of the ways of complying, or a route to compliance, with
7 the Building Regulations was via a desktop study?

8 A. I don't think I was aware of that until some time after
9 the launch of Celotex RS5000. I don't think that
10 desktop studies, from memory, came into my knowledge
11 base until I'd moved on from product management and
12 moved into area sales, as my witness statement --

13 Q. Right. This may shorten things for later, but did you
14 ever become aware that a desktop study relating to
15 RS5000 was done?

16 A. I believe that post-testing, yes, Celotex did start to
17 get into desktop studies.

18 Q. Did they ever produce one?

19 A. I don't know whether they produced the desktop study
20 themselves, I wasn't involved with desktop studies full
21 stop, but I believe Debbie was involved in --

22 Q. I see. But do you know whether one was ever produced,
23 leaving aside your own personal involvement?

24 A. I think there were, yeah.

25 Q. Okay. We may pursue that with her.

157

1 Did you ever come to understand that there was
2 a fourth option, namely holistic fire engineering, which
3 was in fact written into the approved documents?

4 A. Again, yeah, I believe I was aware of -- that the two
5 routes to compliance that I was aware of were then
6 subsequently expanded into four different options.

7 Q. Can we then go to {CEL00001430}. This is an action plan
8 called "Above 18m action plan", and if you look at the
9 bottom of the page, it was "Prepared By: JR March 2013".
10 Is JR you?

11 A. Yes.

12 Q. If we go to the top part of that document, please, you
13 can see it says:

14 "1. Project.

15 "To achieve accreditation for FR5000 for use in
16 above 18m applications.

17 "Tested in accordance with BS 8414:1 or/and
18 BS 8414:2."

19 Do you see that?

20 A. Yes.

21 Q. Then if you look at "Findings", it says in the second
22 sentence:

23 "Between August 12 & Jan 13, Celotex recorded lost
24 opportunity from not having above 18m was 70,000 sq/m.
25 It is one of two gaps in which we cannot compete with

158

1 Kooltherm products. Only Kingspan K15 & Xtratherm's
2 Safe-R market that they have achieved above 18m fire
3 accreditation. Both are in accordance with BS 8414:1
4 onto a masonry wall."

5 The reference there to Kingspan K15 is the reference
6 to Kooltherm, isn't it?

7 A. Yes.

8 Q. You refer to two gaps. What's the other gap?

9 A. I believe it was on external wall insulation that would
10 then be rendered onto, so not a rainscreen cladding
11 system but a sand, cement or monocouche render that
12 would be applied to an insulation product.

13 Q. Right, I see. That in fact was not the gap that the
14 above-18-metre market project was seeking to fill?

15 A. No.

16 Q. I see.

17 Just looking at that set of findings, is it fair to
18 say that your own view was that the above-18-metre
19 market was a significant commercial opportunity for
20 Celotex?

21 A. Yeah, that was the initial justification behind the
22 development.

23 Q. Indeed, given Saint-Gobain's arrival at Celotex, having
24 acquired it, and telling you that you needed to increase
25 your sales by 15% with new products, this was

159

1 a substantial part of that strategy, wasn't it?

2 A. Yeah, the pressure that was applied by Saint-Gobain, but
3 equally the investment that was available for
4 developments, led to the above 18-metre --

5 Q. Yes.

6 Coming back to the BRE, as I said we would, can we
7 go to {CEL00000585}. Just bearing in mind the
8 chronology here, that was March, and I want to show you
9 this correspondence, which was with Tony Baker at the
10 BRE in May 2013.

11 If we can go to page 2 {CEL00000585/2}, please, and
12 go to the email sent by you on 3 May 2013 at 13.32. You
13 thank him for his time there from a couple of months
14 before. Do you see you say:

15 "Thanks again for your time a couple of months ago
16 when I came down to discuss Celotex & above 18m fire
17 testing."

18 So there was a meeting, we can see from that, some
19 time in March, was there?

20 A. Yes.

21 Q. That would have been around about the time of the
22 above-18-metre action plan we just saw?

23 A. Yes.

24 Q. Can you remember what you discussed at that meeting?

25 A. No, to be honest with you. I mean, I can't recall.

160

1 Q. Given that you were asking here -- or the subject
 2 matter, I should say, of this email was BR 135, is it
 3 fair to say that the discussions that you were having
 4 with Tony Baker in the March of 2013 were also about
 5 BR 135 and an 8414 test?
 6 A. Yes.
 7 Q. What did he tell you about the test at that time, do you
 8 remember?
 9 A. No, I don't actually recall the conversation.
 10 Q. Do you remember whether he gave you any advice about how
 11 to go about designing a test?
 12 A. No.
 13 Q. Let's look on further at the email. In the third
 14 paragraph you say -- actually, I should probably show
 15 you the second paragraph in the second line. You say:
 16 "One anomaly that we need clarification on, is
 17 whether testing to Part 1 or Part 2 covers the
 18 application attached.
 19 "We've discovered that many of our lost
 20 opportunities in the past regarding above 18m have
 21 involved a SFS frame as the inner leaf with a brick
 22 outer face. This construction is common up to a certain
 23 level, with the remaining storeys constructed with
 24 a rainscreen cladding system on steel frame.
 25 "Can you clarify whether either of the two tests

161

1 cover this application? I didn't know whether for
 2 example Part 2 would cover this assuming that a brick
 3 outer provides as good or better fire resistance than
 4 for example a cladding panel?"
 5 Now, we can see his response to that at the top of
 6 page 2, for which I think we need the bottom of page 1.
 7 He comes back to you the same day:
 8 "Hi Jonathan,
 9 "I'm well thanks."
 10 And if we go over to page 2, he says:
 11 "This type of system would come under the scope of
 12 BS 8414-2 and classification to BR 135 Annex B. It
 13 could be argued that with the brick external face there
 14 wouldn't be any external spread of flame but in line
 15 with AD-B, B4 section 12.5 you also need to consider the
 16 cavities and hence the potentially combustible
 17 insulation materials.
 18 "Different authorities may have different views on
 19 the applicability of the test on this type of system but
 20 bottom line if you have lost business by not having the
 21 classification then the investment is probably
 22 worthwhile."
 23 That's what he said to you.
 24 Was this the sort of comment that you were after,
 25 namely was it worth carrying out a test? Is that what

162

1 you were seeking to achieve, really?
 2 A. Yeah, I think, having looked into the above-18-metre
 3 market and the competition that Celotex were trying to
 4 compete with, it was clear that only one test had been
 5 carried out from both competitors at that time, and
 6 I think what the business were trying -- were keen to
 7 ascertain was how one test could then be used in
 8 multiple scenarios, and I think what Tony perhaps is
 9 suggesting there is that the brick external face, which
 10 by its nature is non-combustible, wouldn't have external
 11 spread of flame, but what he's probably not explicitly
 12 answering is whether a cladding panel test would be
 13 suitable for a brick external face construction.
 14 He's starting to imply that you could take the view
 15 that external spread of flame with a brick external face
 16 is minimal, but this was -- yeah, the majority of my
 17 initial research was trying to ascertain from the test
 18 bodies and the authorities whether one system could be
 19 used on a different system.
 20 There was a varying level of knowledge within
 21 Celotex. Rob's view was very much it's a system test,
 22 because that's what the regulations state. There was
 23 a commercial view that: how could competitors that had
 24 only tested once be used on numerous permutations?
 25 Q. I wonder whether you were at cross-purposes to start

163

1 with. Were you not asking him simply whether, if you
 2 did a part 2 test, that would cover a rainscreen
 3 cladding system on a masonry wall?
 4 A. Yeah, it was -- I think it probably stems from
 5 Tony Dooley's initial email.
 6 Q. Yes.
 7 A. And that he was losing a lot of business because of the
 8 fact that we didn't have a test which suited a brick
 9 outer and an SFS inner. So, yes, I was questioning Tony
 10 on that basis.
 11 Q. Right. But it looks like -- and I want to know your
 12 understanding at the time rather than your
 13 interpretation of the emails some years later now -- he
 14 came back to you and was giving you advice that if you
 15 were going to set up a test under BS 8414-2, you needed
 16 to consider the external spread of flame as well as the
 17 combustibility of the insulation you were testing.
 18 A. Yes.
 19 Q. And therefore you needed to consider the kind of panel,
 20 the exterior cladding panel you were going to use in the
 21 test; is that fair?
 22 A. Yes.
 23 Q. Let's move on. We then come to the 22 May email we
 24 looked at --
 25 SIR MARTIN MOORE-BICK: How are we doing, Mr Millett? It's

164

1 getting close to the time when we ought to have a break.
 2 MR MILLETT: Oh, yes, it's a convenient moment.
 3 SIR MARTIN MOORE-BICK: It is?
 4 MR MILLETT: Well, it's as convenient as any.
 5 SIR MARTIN MOORE-BICK: Then we had better take it, hadn't
 6 we?
 7 MR MILLETT: Yes.
 8 SIR MARTIN MOORE-BICK: We will have a short break. The
 9 afternoon becomes a bit long for everyone if we don't.
 10 So we will stop now, Mr Roper, and we'll come back and
 11 continue your evidence at 3.40, please.
 12 I have to ask you, while you're out of the room --
 13 and this will happen on other occasions -- please don't
 14 talk to anyone about your evidence or anything to do
 15 with it. All right?
 16 THE WITNESS: Thank you.
 17 SIR MARTIN MOORE-BICK: Would you like to go with the usher,
 18 please.
 19 (Pause)
 20 Thank you, 3.40, please. Thank you.
 21 (3.22 pm)
 22 (A short break)
 23 (3.40 pm)
 24 SIR MARTIN MOORE-BICK: Right, Mr Roper, all right to carry
 25 on?

165

1 THE WITNESS: Yes, fine.
 2 SIR MARTIN MOORE-BICK: Thank you.
 3 Yes, Mr Millett.
 4 MR MILLETT: Thank you, Mr Chairman.
 5 Mr Roper, can we go back to {CEL00000585/2}, please,
 6 which is where we left off, and I want to go back to the
 7 email that we have been looking at at the top of page 2,
 8 last paragraph, where Tony Baker says to you:
 9 "Different authorities may have different views on
 10 the applicability of the test on this type of system but
 11 bottom line if you have lost business by not having the
 12 classification then the investment is probably
 13 worthwhile."
 14 It looks like, from that, Tony Baker is essentially
 15 expressing a commercial view, isn't he, there?
 16 A. Yes.
 17 Q. Were you after commercial advice from Tony Baker as to
 18 whether or not you should invest in a test that the BRE
 19 would give?
 20 A. What I was trying to ascertain was what scope a BS 8414
 21 test gave.
 22 Q. Yes, and he comes back to you and recommends "the
 23 investment is probably worthwhile".
 24 Did you get the sense from him that he was
 25 essentially trying to encourage you to invest in a test

166

1 with the BRE?
 2 A. No, I don't think I viewed it that way at the time.
 3 Q. Right.
 4 Can we then go to {CEL00000593}, please. This is
 5 the email of 22 May 2013 we looked at, I think, before:
 6 "Tried calling you earlier but I believe you were in
 7 a meeting."
 8 This is about the construction details that he
 9 required. You were after, in essence, advice from the
 10 BRE about how detailed the test specification needed to
 11 be.
 12 Did you often ask them for advice? Was this the
 13 approach you were told to take, to ask the BRE for
 14 advice?
 15 A. Yeah, so once I was given contact at the BRE, the BBA
 16 and NHBC, I tried to explore as much as I possibly could
 17 what they could offer in terms of advice.
 18 Q. Did he reply to you, do you remember? We can't find
 19 a record of a reply to this email. Do you remember
 20 whether he did?
 21 A. I don't know whether he did. I can't recall.
 22 Q. Did you ever seek advice from the BRE about the actual
 23 design of the test itself?
 24 A. Numerous times.
 25 Q. Let's move on in time, then. {CEL00000617}. This is

167

1 an email you sent to Tony Baker on 21 June 2013, and you
 2 say in the second paragraph:
 3 "I could do with a quick catch up over the phone
 4 next week also regarding the purpose of this test. I'm
 5 sceptical having sat down with Sotech about how
 6 a particular competitor of ours has passed BR 135. My
 7 understanding is that the purpose of this test is to
 8 determine the behaviour of the flame and therefore the
 9 performance of the insulation within the cavity between
 10 an external facade and the inner face. Would preventing
 11 the flame entering the cavity altogether be acceptable
 12 when considering the design of our specimens?"
 13 Now, just in terms of what prompted this email, this
 14 I think came as a result of the meeting that you had had
 15 with Sotech a little bit earlier in June, didn't it, and
 16 that's why you refer to Sotech?
 17 A. Yes.
 18 Q. Is it right that you were asking him the question about
 19 the flame entering the cavity because that was the
 20 experience that Sotech had had when testing their
 21 cladding panel with Kingspan?
 22 A. Two reasons: first, because following discussions with
 23 Sotech, they gave details of two BS 8414 tests that
 24 they'd carried out, one was with a non-combustible
 25 insulation and one was with a combustible insulation,

168

1 with one of their metal cladding panels on the front;
 2 and, secondly, because during my market research
 3 I ascertained that a particular competitor had tested
 4 with a non-combustible cladding board, and it was
 5 Sotech's view that the longer you can prevent the flame
 6 coming into the cavity, the greater the chance of
 7 passing the test.
 8 Q. Yes. Just to focus then on the question, when in the
 9 second paragraph there you refer to a particular
 10 competitor, were you referring to Kingspan?
 11 A. I was, yes.
 12 Q. And was the product Kooltherm K15?
 13 A. It was.
 14 Q. Was your understanding that they had achieved
 15 classification to BR 135 by preventing the flame
 16 entering the cavity?
 17 A. My understanding was that they had carried out a test
 18 using a 6-mil non-combustible board as the outer face,
 19 and from what John Egginton at Sotech had suggested,
 20 that did in fact prevent the flame entering the cavity.
 21 Q. Did you have any doubts yourself at this time about
 22 whether this was appropriate?
 23 A. Sorry, whether what was appropriate?
 24 Q. About whether it was an appropriate way of testing
 25 Kingspan K15?

169

1 A. It was completely unrealistic in terms of normal
 2 representative systems that were being used in the
 3 market.
 4 Q. Is that because -- well, you tell me why it was
 5 unrealistic, rather than me suggesting it to you.
 6 A. Because the only non-combustible board that I knew of
 7 that they could have potentially used was a cement
 8 particle or calcium silicate or magnesium oxide,
 9 a building board that would typically be used to sheath
 10 the steel frame and not as a decorative cladding panel
 11 on the outside face.
 12 Q. Right.
 13 When you say unrealistic, do you mean, just to
 14 summarise what you have just said, that designers and
 15 contractors did not use cement particle or calcium
 16 silicate or magnesium oxide panels as the rainscreen?
 17 A. Correct.
 18 Q. Right.
 19 Do you remember whether Tony Baker replied to this
 20 email?
 21 A. No, I don't.
 22 Q. Can we look at {CEL00000708/3}, please, at the bottom of
 23 that page, please. This is an email to the BRE from you
 24 on 18 October 2013, this time to Stephen Howard, and the
 25 title is "RE: Celotex BR135 Testing", and it says:

170

1 "Stephen,
 2 "Once we have agreed the final design which I'm
 3 hoping will be soon I will get back to you with
 4 confirmation."
 5 Then you go in the next paragraph to say:
 6 "One of the key considerations for us with testing
 7 to BR135 is that it enables us not to limit ourselves to
 8 one particular application/build-up. Is there anything
 9 the BRE can offer that could extend the use of our
 10 product in other systems similar to the tested rig. The
 11 main one for us is that whilst we will be testing a
 12 particular rainscreen cladding panel, we do not want
 13 this to limit ourselves to that one particular panel."
 14 Just pausing there, that was your concern, wasn't
 15 it, about the narrowness of the BR 135 test?
 16 A. My concern was the view within Celotex at the time was
 17 that on one hand certain individuals viewed it as
 18 a system test, on the other hand certain individuals
 19 viewed it as a product in application test, and what was
 20 clear from the market in which Kingspan were operating
 21 is that the one particular rainscreen cladding panel or
 22 building board that they'd used to achieve the BR 135
 23 classification wasn't being replicated in situ on
 24 buildings that they were being used on.
 25 So my task was to ascertain whether one cladding

171

1 panel could be deemed suitable for use with another
 2 system, essentially.
 3 Q. Yes.
 4 Now, you said in that answer that there were two
 5 types of individuals: individuals who viewed 8414 as
 6 a system test and, on the other hand, certain
 7 individuals who viewed it as a product in application
 8 test.
 9 Were those individuals within Celotex?
 10 A. Yes.
 11 Q. So this was a division of view, was it, within Celotex?
 12 A. Yes.
 13 Q. Can you identify which individuals within Celotex
 14 regarded the BR 135 test or criteria under the 8414 test
 15 as a product in application test? Who was that?
 16 A. The majority of the business, with the exception of
 17 possibly myself, Jamie and Rob Warren.
 18 Q. So there was you, Jamie Hayes and Rob Warren on the one
 19 side who thought it was a system, and -- would this be
 20 right? -- Paul Evans and others who thought it was
 21 a product in application test?
 22 A. Yes.
 23 Q. Who were the others, other than Paul Evans?
 24 A. Craig Chambers, the managing director. The sales team,
 25 primarily.

172

1 Q. You say they thought it was a product in application
2 test. Can you explain from what you could see at the
3 time how they had come to the view that the BS 8414 test
4 was a product in application test?
5 A. Because of the lack of test data that was available, you
6 would assume that if a competitor product was launched
7 in 2005/2006 for the above-18-metre market, by the time
8 Celotex started to explore that market in 2013, if the
9 product was a system test and the components only
10 related to the system, you would take the view that the
11 BRE should have carried out a lot of system tests over
12 a number of years, with data available on those, but
13 there wasn't.
14 Q. Can I ask you how anybody within Celotex who had any
15 familiarity with the third edition of BR 135, appendix B
16 and the passage I showed you, could think that the
17 BS 8414 test was a product in application test and not
18 a system test?
19 A. Probably because they were viewing it from a very
20 commercial point of view, and they were looking at
21 Kingspan and Xtratherm primarily, and there was no clear
22 evidence that they were regularly testing their product
23 in systems that they were being sold into.
24 Q. So from your perspective, your understanding at the
25 time -- is this right? -- even after the publication of

173

1 BR 135 in May 2013, or at least the time when you got
2 your hands on it, there were still those in Celotex who
3 regarded the BS 8414 test as a product in application
4 test as opposed to a system test, because that was
5 an easier way of justifying selling the product into
6 applications which differed from the test as Kingspan
7 had done?
8 A. Yes.
9 Q. Yes, thank you.
10 Looking at the bottom paragraph on page 3, you say:
11 "If we tested a baffled joint ACM panel, is there
12 anything dependent on passing that the BRE could offer
13 that would allow us to cover open jointed [terracotta]
14 systems for example? If this isn't possible, how is it
15 that our competitors who have tested one particular
16 build up are selling their products into numerous
17 permutations of above 18m rainscreen constructions."
18 Now, that was the \$64 million question, or perhaps
19 not quite that much, but that was the key question for
20 you, wasn't it?
21 A. Yes.
22 Q. How was it being done? And the competitors there, were
23 they Kingspan again?
24 A. Kingspan and Xtratherm, albeit Xtratherm's market share
25 was probably considerably less.

174

1 Q. When you say Kingspan, do I take it that you mean
2 Kooltherm K15?
3 A. I do.
4 Q. You wanted -- is this right? -- the BRE to tell you how
5 it was that Kingspan K15, who had only tested one
6 particular build-up, were able to sell Kingspan K15 into
7 numerous permutations of above 18 metres rainscreen
8 claddings. That's what it says.
9 A. Yes.
10 Q. Did you expect Mr Howard to give you the answer to that
11 question?
12 A. I was hopeful that he would.
13 Q. Yes.
14 He responds, and we see that on this page,
15 21 October 2013, a little bit later that morning, to
16 you:
17 "Thanks for the email.
18 "We would need to see further details of the systems
19 in question to answer the question fully.
20 "From the information below, I do not think we would
21 be able to issue an assessment report on a terracotta
22 systems based on the testing of an ACM panel. However,
23 without a full explanation of the differences between
24 the systems, we are a bit in the dark.
25 "In terms of claims in the market, would it be

175

1 possible for you to forward an example?"
2 Did you understand this to mean that the BRE
3 considered that they might be able to give
4 an explanation in some circumstances, or be able to
5 provide a test in some circumstances?
6 A. Sorry, can you rephrase that?
7 Q. Yes. Let me be a bit more precise.
8 When he says "without a full explanation of the
9 differences between the systems, we are a bit in the
10 dark", did you understand from that that if you or
11 anybody else provided the BRE with details of
12 a particular system, they would be able to give advice
13 about whether it might pass a test?
14 A. That's certainly what he indicates here.
15 Q. That's how you understood it at the time, is it?
16 A. Yeah.
17 Q. Did you read that at the time as a reference to the
18 possibility of desktop studies, or was desktop studies
19 not something that had crossed your radar at that stage?
20 A. I think that desktop studies hadn't crossed my radar,
21 but something that was initially brought to my attention
22 was, because of the disparity in views within the
23 business around product in application and system, what
24 they wanted me to explore was whether there was a field
25 of application report, as they referred to it, that was

176

1 available from the test house to take the view as to
 2 whether that product behind a different rainscreen was
 3 suitable .
 4 Q. Why didn't you just ask them the question whether or not
 5 the 8414 test was a product in application test or
 6 a system test?
 7 A. Well, I think I probably asked them in the email before
 8 this ...
 9 Q. Right. And you didn't get much of an answer?
 10 A. No.
 11 Q. You then, I think, reply, if we go up a page to page 2.
 12 In fact, it starts on page 1 {CEL00000708/1}, and it's
 13 a long email, and I'm not going to read it all to you,
 14 but it's the same day, later in the day,
 15 21 October 2013.
 16 You say in the first paragraph at the bottom of that
 17 page that you can't give a full explanation on the
 18 differences between the systems, and then you give
 19 an example:
 20 "... looking to test an ACM panel with baffled
 21 joints with a cavity of 38mm between the cladding and
 22 the substrate in conjunction with NHBC guidelines."
 23 Was that an example drawn from your commercial
 24 experience, or --
 25 A. I think that probably came from Sotech, to be honest

177

1 with you.
 2 Q. I see. I see.
 3 Then in the next paragraph on the next page
 4 {CEL00000708/2}, he I think responds, because he comes
 5 back to you in blue, doesn't he?
 6 I should just show you the full email run. If you
 7 go to page 1, we can see that when we see in this email
 8 the blue text, you can see that what he has done is
 9 answered in blue.
 10 A. Yes.
 11 Q. Let's go back, then, to page 2 and look at the second
 12 paragraph in blue:
 13 "In the test report it would state exactly what was
 14 tested. The method to widen the scope would be via an
 15 assessment report - this is fairly standard practice."
 16 Is that what you mean by a field of application
 17 report?
 18 A. Yeah, and that's the first time the BRE had mentioned.
 19 Q. I see, okay:
 20 "What I cannot do at this stage is say what would be
 21 included in an assessment and what we could not do. In
 22 the example above, we would like details of the baffled
 23 joint system, sizes and materials used, we could then
 24 take a considered view. Apologies, but I would not be
 25 immediately familiar with the jointing systems across

178

1 the market - or even the permutations available."
 2 Then in the next paragraph you give an example from,
 3 you say:
 4 "... one of our main competitors who produce both
 5 PIR & phenolic insulation, they have successfully tested
 6 a product to BS 8414-1 onto a masonry wall using merely
 7 a [cementitious] board as the outer face."
 8 Pausing there, that was Kingspan K15, wasn't it,
 9 clearly?
 10 A. Yes.
 11 Q. "Not only does this not cover the majority of the market
 12 in which they are used but the [cementitious] board
 13 doesn't actually represent a drained back and ventilated
 14 rainscreen system. However, we are aware that this
 15 product is used in buildings above 18 metres using
 16 a wide variety of constructions, some on to masonry,
 17 some onto steel frame with ACM panel cladding,
 18 terracotta, etc. We are surprised that they feel
 19 confident enough to allow their product to be used in
 20 buildings their fire test doesn't cover, unless they
 21 have a report to say other."
 22 Pausing there, the question you are asking him again
 23 is a bald question, isn't it? You want to know how it
 24 is that K15 is being marketed into a wide variety of
 25 different cladding systems, including ACM panel cladding

179

1 systems, when their test doesn't cover it? That was the
 2 question you wanted the answer to.
 3 A. That's correct.
 4 Q. You needed to know the answer to that because you needed
 5 to know how to market RS5000.
 6 A. Correct.
 7 Q. Before we look at the answer, did you have a suspicion
 8 as to how Kingspan were able to do that?
 9 A. No, not really, to be honest with you. I mean, we
 10 received intel from the sales team quite regularly about
 11 opportunities that they'd lost, but generally with
 12 product datasheets, product literature, most of the
 13 time, mainly at distribution level, one of our sales
 14 team would be able to probably quite quickly get
 15 a product datasheet from a competitor. What they found
 16 almost impossible to get was an 8414 test or a field of
 17 application report or any piece of literature that
 18 suggested that their system could be used with any other
 19 system than was tested.
 20 Q. I see.
 21 So, again, just in a nutshell, you wanted to know by
 22 what route Kingspan K15 could legitimately and safely
 23 and compliantly be selling K15 to the above-18-metre
 24 market --
 25 A. Correct.

180

1 Q. -- given the narrowness of the test that they'd done?
 2 A. Yes.
 3 Q. The answer comes back:
 4 "If the products are LPCB approved, then we can act.
 5 If we have issued a test report on a system then the
 6 onus is on the building owner and building control to
 7 ensure that the system being installed is covered by
 8 a test report. I am not sure that I have much more to
 9 add."
 10 What did you think of that response?
 11 A. Erm ... honestly, I felt that they were trying to get
 12 businesses down the LPCB route, purely from a commercial
 13 perspective. The LPCB route was another form of
 14 certification, another stream of income from the BRE.
 15 The response, "If we have issued a test report on
 16 a system then the onus is on the building owner and
 17 building control" suggests to me that -- I don't know
 18 whether the BRE were aware that rigid board insulation
 19 was being sold in systems that differed to the ones that
 20 had been carried out at their test rig, but it was
 21 almost as if they were relieving their responsibility on
 22 that subject matter.
 23 Q. When you say relieving their responsibility, you mean
 24 passing it off to building control?
 25 A. Correct.

181

1 Q. And the building owner?
 2 A. Yeah.
 3 SIR MARTIN MOORE-BICK: For my benefit, Mr Millett, what
 4 does LPCB stand for?
 5 MR MILLETT: I think the witness will tell you.
 6 A. Loss Prevention Certification Board, so --
 7 SIR MARTIN MOORE-BICK: And what's that?
 8 A. It's another form of certification that the BRE offer.
 9 It was one that Sotech, who were a cladding manufacturer
 10 that I engaged with early on, explored and it's ...
 11 yeah, it's an approval that is very much based on the
 12 system that was tested. I think that then got carried
 13 through to something called the Red Book, which was
 14 a BRE documentation.
 15 SIR MARTIN MOORE-BICK: Thank you very much.
 16 MR MILLETT: Were you surprised in your own mind that
 17 Mr Howard didn't seem more concerned at what you were
 18 telling him about what Kingspan were doing?
 19 A. I was hopeful that he would shed some clarity on the
 20 matter, and he didn't.
 21 Q. Yes, that's not quite an answer to my question.
 22 Did it surprise you that Mr Howard for the BRE, who
 23 was a testing house, did not seem more concerned at what
 24 you were telling him about what your competitor,
 25 Kingspan, were doing with their test?

182

1 A. Yes.
 2 Q. You were surprised.
 3 Then if we go to {CEL00000715/2}, please. This is,
 4 I'm afraid, a continuation of the same email series,
 5 it's just easier to see it in this document, I think.
 6 If you go to page 2 there, as you can see, this is your
 7 email to Stephen Howard, where you say:
 8 "Steve,
 9 "Good to speak to you earlier."
 10 This is 31 October 2013. You ask another question,
 11 you say:
 12 "We talked about an assessment report following
 13 successfully passing BR 135. If we tested a
 14 Classification of product, i.e. class 0 surface or A2
 15 limited combustibility, could the report depending on
 16 the data allow us to be applicable for all materials
 17 with the exact same classification.
 18 "We know that the test examines the external system
 19 and to me it would make sense that if one material
 20 classified as A2 for example could pass, then there's no
 21 reason why another of the same classification would
 22 equally pass ensuring fire barriers, insulation and
 23 cement particle/calcium silicate remained the same.
 24 Could you clarify this please?"
 25 Just in a nutshell, were you asking him -- and

183

1 I think we can probably see this -- that if you carried
 2 out the test with an A2 cladding panel, you would be
 3 able to say that the classification applied to any
 4 system with an A2 cladding panel?
 5 A. Yeah, I think I was trying to ascertain that if -- yeah,
 6 could you use the fire performance of a cladding panel
 7 generically with other systems of a similar fire
 8 performance.
 9 Q. Right. Was that idea, that way through, if you like,
 10 one that you had come up with or other people in Celotex
 11 had suggested?
 12 A. No, I think it was when we were discussing Kingspan's
 13 test, it was something that was considered that perhaps
 14 the cement particle/calcium silicate external cladding
 15 met class 0, therefore met Approved Document B2, and
 16 were they using that as the justification for their
 17 product being used in rainscreen systems with any other
 18 class 0 or limited combustibility ...
 19 Q. But given that 8414 was a system test, as you can see
 20 from the third edition at appendix B of BR 135 --
 21 A. Yeah.
 22 Q. -- why was it relevant that the panel had its own
 23 classification as A2, given that the entire system would
 24 have to pass the test according to the criteria?
 25 A. Because of the earlier points that I -- it seemed

184

1 inconceivable that the main competition were carrying
 2 out test after test for every construction that they
 3 were used in.
 4 Q. So you were looking, were you, for a lesser way of
 5 reading the 8414 result, so that instead of having to
 6 have exactly the same system, in other words cement
 7 particle board, for example --
 8 A. Yeah.
 9 Q. -- you could have another board which had the same fire
 10 classification --
 11 A. Correct.
 12 Q. -- which would give you greater variety?
 13 A. Yes.
 14 Q. That was the idea.
 15 Now, we can see, I think, that there's a response to
 16 this on page 1 {CEL00000715/1}. At the very bottom of
 17 page 1, if we can just go to the very bottom of that --
 18 actually, I'm afraid the screen has cut you off. Can we
 19 go a little higher up page 1.
 20 Here we see the response from Stephen Howard to that
 21 email you have just sent him. It's again a lengthy
 22 email. I just want to focus on the last part of it.
 23 He says in the last paragraph at the top of page 2
 24 {CEL00000715/2}:
 25 "The above system is applicable to small scale

185

1 reaction to fire tests what we cannot say at this time
 2 is changes allowable by the ETAG or classification
 3 document also apply to the BS 8414 test - the
 4 classification and ETAG document does not cover
 5 full scale tests."
 6 I may have taken this email a little bit too
 7 quickly, Mr Roper, so forgive me. But is the result of
 8 reading this email that you knew that this sort of field
 9 of application didn't exist in relation to BS 8414
 10 tests?
 11 A. Erm --
 12 Q. In other words, you could do a read-across
 13 classification-wise for small-scale tests, but not for
 14 full-scale tests under 8414?
 15 A. He's suggesting there that the small-scale reaction
 16 tests are to do with the European classification. What
 17 he doesn't answer is what the field of application
 18 report would cover and whether that was a viable option.
 19 Q. Right. So you weren't satisfied with his answer?
 20 A. No.
 21 Q. And we can see you pursue it further. {CEL00001883},
 22 please, this is an email from you to Stephen Howard at
 23 the BRE, 8 November 2013:
 24 "Steve,
 25 "As discussed earlier find below a list of

186

1 requirements that ideally we would like to get out the
 2 test report."
 3 You set out three of them. You say:
 4 "I understand that all of these will not be possible
 5 but broadening the scope as much as possible is critical
 6 to us."
 7 Do you see that?
 8 A. Mm-hm.
 9 Q. Again, is that because -- and I think you have confirmed
 10 this -- you wanted to be able to market the proposed
 11 RS5000 into as many different varieties of rainscreen
 12 system as possible?
 13 A. Yes.
 14 Q. Then you set out three, the third of which is -- well,
 15 perhaps I should look at all three:
 16 "To test onto Steel frame and be applicable for
 17 Masonry applications. I would suggest that SFS using
 18 a cement particle board is worst case and if we passed
 19 on steel frame, you have to expect a masonry wall to
 20 provide even greater resistance to fire."
 21 Pausing there, that's the substrate, isn't it,
 22 that's what's at the back behind the insulation?
 23 A. Yes.
 24 Q. Then:
 25 "If we used a cement particle board as the sheathing

187

1 board, we would ideally want it to cover the use of
 2 calcium silicate too. Again, testing worst case."
 3 Again, that's about what sits at the back of the
 4 insulation, isn't it?
 5 A. Yes.
 6 Q. Then:
 7 "Most importantly is the cladding panel scope. We
 8 are looking to test a fibre cement eternit panel but as
 9 discussed we would like as much scope as possible. If
 10 the BRE won't accept a variation of panels used on one
 11 rig, then we would like some suggestions on how we can
 12 cover as much of the most commonly used systems as
 13 possible. Trespa, Marley Eternit, Rockpanel, ACM
 14 panels, terracotta etc.
 15 "If you could come back to me on this, with the
 16 generic details too, would be much appreciated."
 17 Again, that is the bald question you were seeking to
 18 ask him: can we test with only a fibre cement Eternit
 19 panel, but can we do some others?
 20 A. Yes, I mean, probably importantly on point 3, one of the
 21 suggestions was to test two or three cladding panels on
 22 one rig, but the response came back that --
 23 Q. Right.
 24 A. -- that wasn't suitable.
 25 Q. Right.

188

1 In fact, he didn't come back to you, but Phil Clark
 2 of the BRE did, didn't he? Do you remember that?
 3 A. No.
 4 Q. Let's look at {CEL00001888}. Stephen Howard to you,
 5 13 November 2013, so a week or so later:
 6 "I have spoken directly with Phil and he will make
 7 contact.
 8 "This is what you will be faced with. A steel frame
 9 with a simulated floor slab.
 10 "More photos to follow. If you need higher
 11 quality - let me know."
 12 He emails you a picture or photograph, a jpeg
 13 I think it is.
 14 Did Phil Clark come back to you?
 15 A. Not on those matters.
 16 Q. I see. Did you ask Phil Clark to come back to you?
 17 A. No, I don't believe.
 18 Q. How did this end then?
 19 A. In the same way that a lot of my initial conversations
 20 ended with numerous bodies: without any answers.
 21 Q. Can we look at {CEL00001886/2}, please. This is
 22 an email, at the bottom of the page, from you to
 23 Luke Cresswell, also of 8 November 2013, which was the
 24 same day as the email you sent to Stephen Howard we saw
 25 just a moment ago, but before he told you that

189

1 Phil Clark would come back to you.
 2 Just to say, Simco were designers, weren't they, of
 3 rig tests?
 4 A. They were a façade subcontractor.
 5 Q. Right, yes, but in this particular instance, they were
 6 being used by you to design a façade --
 7 A. Design a rig, yes, correct.
 8 Q. -- for the purposes of the test?
 9 A. Correct.
 10 Q. You say there to Luke Cresswell, and also John Simmons,
 11 who may become important later:
 12 "Also, as discussed the BRE are not willing to
 13 accept two variations of panels. The critical point of
 14 the test can only be occupied by one panel and
 15 unfortunately using reynobond on the return wing isn't
 16 possible. As much as they limit the scope of the tested
 17 system, they do accept that although one system was
 18 tested i.e. eternit, they understand that commonly this
 19 allows insulation products to be used with a variety of
 20 systems in practice."
 21 Is that right? Is that really what the advice was
 22 from the BRE?
 23 A. Looking at it now, no.
 24 Q. No.
 25 A. Erm ... no.

190

1 Q. I just wonder how you came to be of that view, that that
 2 is what they did accept. Why were you telling Simco
 3 that the BRE accept that, although a system was tested,
 4 they understand that this commonly allows insulation
 5 products to be used with a variety of systems in
 6 practice?
 7 A. Because of the earlier points that I'd raised with
 8 Stephen Howard regarding the competition and how they'd
 9 tested once and was being used with a variety of
 10 systems.
 11 Q. Right. So when you say "they understand that commonly
 12 this allows insulation products to be used with
 13 a variety of systems in practice", you're not telling
 14 Simco that that is something sanctioned by the BRE --
 15 A. No.
 16 Q. -- but just tolerated or understood by the BRE?
 17 A. It's an issue that's been raised by -- I don't know
 18 whether by myself and maybe others, but they were aware
 19 of that.
 20 Q. Well, they were aware of it, but there was nothing that
 21 you had seen from the advice that you had got from the
 22 BRE to date which told you that the BRE thought that it
 23 was an acceptable practice?
 24 A. No.
 25 Q. No. So why were you then telling Mr Cresswell, as you

191

1 go on to say, that "commonly this allows insulation
 2 products to be used with a variety of systems in
 3 practice"?
 4 A. Because that was what was happening.
 5 Q. And you go on to say:
 6 "I think testing with an eternit panel is the route
 7 to go, but shouldn't cause us any issues with regards to
 8 using CX behind reynobond on the up and coming job."
 9 Do we take from this that you were prepared to go
 10 the same route as Kingspan in terms of the test, even
 11 though you hadn't had any approval from the BRE that
 12 that was appropriate?
 13 A. Sorry, when you said the same route as ...
 14 Q. Let me try it a slightly different way.
 15 You're setting out here that the BRE understand,
 16 even though they don't approve of the practice, that
 17 that allows insulation products to be used with
 18 a variety of systems in practice. You then suggest that
 19 you test with an Eternit panel.
 20 Is what you're doing here simply telling Simco that
 21 because BRE essentially tolerate the practice of using
 22 their tests to justify the application of insulation in
 23 a wider rainscreen use, or wider cladding use, you
 24 wanted to do the same thing?
 25 A. I think that that reflects a view within the business at

192

1 the time.
 2 Q. The BRE hadn't told you that, if you tested with
 3 an Eternit panel, that would allow you compliantly to
 4 use insulation products with a variety of systems in
 5 practice, had they?
 6 A. No.
 7 Q. And yet that was still something that you thought you
 8 would want to do?
 9 A. Yes.
 10 Q. Yes.
 11 At this point, were you aware or had you heard of
 12 Reynobond?
 13 A. I think the first reference to Reynobond was via Sotech,
 14 I believe.
 15 Q. That was in the June of 2013, wasn't it?
 16 A. Yes, it would have been then, yeah.
 17 Q. You knew that that was a type of ACM panel?
 18 A. Yes.
 19 Q. Did you know that it had a polyethylene core?
 20 A. No.
 21 Q. Were you well aware -- I think you were -- at this point
 22 that an ACM panel, an aluminium composite material
 23 panel, should not be used with RS5000, because
 24 essentially you had already ruled out testing with it
 25 because it wouldn't pass, as a result of your

193

1 discussions with Sotech in the June?
 2 A. I think that there was a lack of confidence around ACM
 3 panel based on the discussions with Sotech. What
 4 probably wasn't known at the time was that there were
 5 different cores related to ACM panels, and I guess
 6 subsequently I now know that, depending on the core of
 7 the ACM panel, if it's fire rated, it does meet the
 8 criteria of BR 135 with a combustible insulation.
 9 Q. Well, that's quite a big qualification, Mr Roper. It's
 10 not a qualification that you used in this email, is it?
 11 A. No. As I said, it's something that I've subsequently
 12 learned.
 13 Q. You see, in this last three lines of the email, you say:
 14 "... shouldn't cause us any issues with regards to
 15 using CX behind Reynobond on the up and coming job."
 16 How were you able to say that to Simco given what
 17 you had learned at the meeting with Sotech in June about
 18 what happened when they tested Kingspan K15 with
 19 Reynobond?
 20 A. I guess the truth is that I didn't know whether it could
 21 be --
 22 Q. With ACM, right, you didn't.
 23 Had you done any work to discover whether or not
 24 RS5000, as it was going to be called, could be used
 25 behind Reynobond?

194

1 A. No.
 2 Q. But you hoped, did you, by using an Eternit panel in the
 3 test, you might be able to use Celotex behind
 4 a Reynobond rainscreen panel in real life?
 5 A. I was optimistic that the business would achieve a field
 6 of application report, because it seemed the only
 7 logical way that our competitors were selling into that
 8 market, into a variety of different cladding systems.
 9 Q. But given what you knew about the actual performance of
 10 ACM panels, whether or not they were Reynobond, in the
 11 tests that Sotech had done with combustible insulation,
 12 how could you even think of proposing using Celotex
 13 behind Reynobond on the "up and coming job", as you call
 14 it?
 15 A. I don't know, is the honest truth.
 16 Q. It was just -- forgive me for this -- reckless optimism,
 17 wasn't it, given what you knew?
 18 A. In hindsight, yes.
 19 MR MILLETT: Yes.
 20 Mr Chairman, I'm going to move to a different topic,
 21 but I would like to make as much progress as I can.
 22 I can probably cover it by 4.30.
 23 SIR MARTIN MOORE-BICK: Yes, all right. You keep going, but
 24 try not to run too far beyond 4.30.
 25 MR MILLETT: No, I'll try not to.

195

1 NHBC. Can I ask you to go to {CEL00000744}, please.
 2 This is an email from you to Graham Perrior of NHBC of
 3 20 November 2013, so just a little bit on in the time:
 4 "Graham,
 5 "With reference to our earlier conversation on
 6 buildings above 18m and Approved Doc B, could you please
 7 call me when you have a spare moment to discuss
 8 something that has since come to mind from this
 9 morning's phone call."
 10 Do you remember what you had been discussing?
 11 A. No, I don't.
 12 Q. Can we look at {CEL00000748/7}, please. This is a long
 13 email chain between you and NHBC and others, and I would
 14 like to go to page 7 within it, please. It's an email
 15 to Graham Perrior a little bit later, a week later, on
 16 27 November 2013. I'm afraid we will have to go to the
 17 bottom of page 6 to see it. Yes, there it is. Do you
 18 see that? The subject is "Approved Document B &
 19 BR 135", and it says at the bottom of page 6, "Graham",
 20 and at the top of page 7:
 21 "Hope you're well and firstly apologies for chasing
 22 you on this matter."
 23 So you hadn't had a response to the first email, it
 24 seems. Do you see that?
 25 A. Yes.

196

1 Q. Then you go on to say:

2 "However, as previously discussed we are scheduled

3 in for testing at the BRE by either end of 2013 or very

4 early 2014. We have had initial designs created for the

5 test specimen but do not want to prematurely test

6 without further guidance on what issues building control

7 (BCA & NHBC) are looking to resolve.

8 "You mentioned previously that I would receive a

9 note from a colleague of yours at NHBC regarding this

10 matter and what in particular it is that has brought the

11 requirement for a consistent interpretation of Approved

12 Document B. Do you know when this will be issued

13 because as you can appreciate we are eager to get as

14 much line of sight of what may be required from us for

15 testing to BR 135."

16 Just pausing there, it looks from that email that

17 you had already scheduled the test in with the BRE with

18 a test date either end of 2013, beginning of 2014, as

19 you say. Do you remember when that test was fixed?

20 A. No, I don't, but I do know that the first test was

21 carried out in February --

22 Q. Now, you say you had initial designs created for the

23 test specimen. Was that by Simco?

24 A. Yes.

25 Q. Did that involve the Marley Eternit rainscreen board as

197

1 we've seen --

2 A. Correct, yes.

3 Q. -- as the way to go?

4 A. Yes.

5 Q. I've shown you the second paragraph there on that page,

6 the main one. It suggests, doesn't it, that one of the

7 concerns was in relation to inconsistencies in approach

8 from the NHBC. Is that one of your concerns, or was

9 that one of your concerns?

10 A. Yes. In exactly the same way that I raised the concerns

11 with the test house themselves, the BRE, I was trying to

12 ascertain from the NHBC how they were signing off

13 buildings using certain combustible insulation behind

14 cladding systems that hadn't been, on the face of it,

15 tested.

16 Q. What were the inconsistencies in interpretation of

17 Approved Document B that were being perpetrated by the

18 NHBC, if one can perpetrate an inconsistency?

19 A. System or product.

20 Q. It's the same debate, is it, that had bedevilled debate

21 within Celotex?

22 A. Yes.

23 Q. Is it a system test or is it a product in application

24 test?

25 A. Correct.

198

1 Q. If we go on in this document to page 4 {CEL00000748/4},

2 bottom of page 4 and over to the top of page 5, we can

3 see there is an email of 3 December at the bottom of

4 page 4 from Graham Perrior to you:

5 "Jonathan,

6 "The text below is very much in draft form, but does

7 reflect some initial thinking in respect of compliance

8 with NHBC Standards. (not Building Control)."

9 Top of page 5 {CEL00000748/5}, you can see they're

10 there set out, and he asks for any views you have.

11 Now, I'm not going to read the whole text out to you

12 aloud, but if you look at external walls, the last

13 paragraph, it says:

14 "... the design should comply with Building

15 Regulations 2010 Approved Documents B - Fire Safety i.e.

16 specifically to meet the guidance given in

17 paragraphs 12.6 to 12.9 or meet equivalent proof of

18 performance to the criteria in BR 135 ..."

19 And he sets out the title of that:

20 "This applies to wall cladding systems and

21 insulation where proof of performance should be obtained

22 from full scale testing on representative prototypes to

23 the requirements of BS 8414-1:2002 or BS 8414-2:2005."

24 Were you any the clearer after getting that --

25 A. No.

199

1 Q. -- about what the inconsistencies were and how they were

2 resolved?

3 A. No, that seemed to be capturing the same information

4 that was in the buildings regs rather than

5 an explanation.

6 Q. Right.

7 What did you make of the expression in the last line

8 there "full scale testing on representative prototypes"?

9 Did that make it absolutely clear to you that what went

10 into the system had to be representative of what was

11 used in application?

12 A. No. If anything, it made me think the opposite.

13 Q. What did it make you think?

14 A. It made me think that representative prototypes were

15 open to using cladding systems on -- of a different

16 nature. That's how I interpret that.

17 Q. How could you interpret it that way?

18 A. Because they're representative prototypes as opposed to

19 explicitly stating it's the system as tested.

20 Q. Well, it says "full scale".

21 A. Yeah.

22 Q. "Full scale testing". What does "full scale testing"

23 mean in that context? Or what did it mean to you at the

24 time, I should ask you?

25 A. Large-scale testing at the BRE.

200

1 Q. Right. Regardless of how the prototype was then going
2 to be used in application?
3 A. Yes.
4 Q. Is that really how you read it at the time, Mr Roper?
5 A. It's how I ... I don't know, the wording doesn't jump
6 out to me. The confusion is around the representative
7 prototype.
8 Q. Yes. I suggest to you that you can't possibly have read
9 that wording as telling you that you no longer needed to
10 make sure that the system as applied in practice was
11 exactly the same as the system as tested, given the very
12 clear wording in BR 135, third edition, that we looked
13 at earlier; that must be right?
14 A. Yeah.
15 Q. So actually, when you read it, what did you think it
16 meant, in truth, can you tell us?
17 A. I think that it didn't answer the question that I was
18 posing to Graham, it was merely a snapshot of the
19 regulations, which were readily understood. It was --
20 what I was trying to seek clarity on was how was
21 a competitor being used in other systems to those that
22 were tested.
23 Q. You were really asking them how you could broaden the
24 applicability of any test carried out, and this wasn't
25 giving you an answer.

201

1 A. Correct.
2 Q. That's the reality, isn't it?
3 A. Yes.
4 MR MILLETT: Yes.
5 Mr Chairman, I've got two more documents on this
6 topic before we move to a different topic. I could do
7 them on Monday morning or I could finish them off now.
8 SIR MARTIN MOORE-BICK: Well, how long are they going to
9 take?
10 MR MILLETT: Five minutes.
11 SIR MARTIN MOORE-BICK: Can you manage another five minutes,
12 Mr Roper?
13 THE WITNESS: That's fine.
14 SIR MARTIN MOORE-BICK: All right.
15 MR MILLETT: Now, can we go to {CEL00000748/2}, please, same
16 email run. You don't appear to have been satisfied with
17 the answer that you got that I showed you, and indeed
18 you have accepted, and if we go to the top of page 2,
19 there is an email from you on 3 December, same day,
20 15.38, and if we look at the second paragraph, in the
21 middle of that paragraph, you say:
22 "From an external surface point of view, the only
23 confirmation we have had is LABC stating that for us to
24 gain accreditation for their registered details, we
25 would need to supply CE marking certification on the

202

1 fire classification of the external panel used to test
2 to BR 135 and they would then accept any material that
3 meets the same classification. This seems a sensible
4 approach and one that would clarify how BC determine
5 whether what's tested is a representative prototype or
6 not. Do NHBC share this view?"
7 Who at LABC had told you that?
8 A. I don't know the individual's name, but I did have some
9 dealings with LABC.
10 Q. Right. Were those dealings in writing, were they
11 emails, or were they conversations over the telephone or
12 in meetings?
13 A. Probably a combination of all of those.
14 Q. Right. We may explore that on Monday.
15 Can we just finish off on this email chain, then,
16 looking at the first page {CEL00000748/1}, please. We
17 can see that you receive a response from Graham Perrior
18 late in the afternoon on the same day, 3 December 2013,
19 and he says:
20 "As stated from the outset, the paper sent to you
21 was very much an initial draft which we will discuss
22 with interested parties with a view to developing an
23 agreed way forward."
24 Just pausing there, it was obvious from that to you,
25 wasn't it -- or was it? -- that the NHBC internally had

203

1 some internal disagreements about how this all worked?
2 A. Yes.
3 Q. "I am sure you will appreciate that NHBC is about
4 raising standards ..."
5 Et cetera, et cetera. Then it says:
6 "Unfortunately, we don't have all the answers at the
7 current time and being realistic all I can advise is
8 that we are aware of the issue and have an intention to
9 resolve it as quickly as possible.
10 "Perhaps when we are further advanced in our
11 thinking we should arrange a meeting with you to discuss
12 in more detail?"
13 Did that meeting ever take place?
14 A. Yes, I believe it did.
15 Q. Do you know when it took place?
16 A. There was an NHBC visit to Celotex, I don't know whether
17 I ever visited the NHBC.
18 Q. We know that the NHBC visited Celotex in the context of
19 the actual BS 8414 test in May 2014 to which we will
20 come in your evidence, and the visit was on
21 19 June 2014, but my question was a different one: was
22 there a meeting which you ever had with the NHBC which
23 resolved their thinking and therefore their answer to
24 your question?
25 A. No, not to my knowledge.

204

1	MR MILLETT: No, thank you, and that I think concludes the	1	INDEX	
2	questions on those emails.	2		PAGE
3	Mr Chairman, is that a convenient moment?	3	MR JONATHAN ROOME (continued)1
4	SIR MARTIN MOORE-BICK: Yes, thank you very much,	4		
5	Mr Millett.	5	Questions from COUNSEL TO THE INQUIRY1
6	Well, Mr Roper, that's enough for one day. We're	6	(continued)	
7	going to stop there. I'm afraid we're going to have to	7		
8	ask you to come back again to answer some more questions	8	MR JONATHAN ROPER (affirmed)107
9	on Monday at 10 o'clock.	9		
10	THE WITNESS: Okay.	10	Questions from COUNSEL TO THE INQUIRY108
11	SIR MARTIN MOORE-BICK: There's quite a lot of time between	11		
12	now and Monday, so I have to ask you again, please make	12		
13	sure you don't discuss your evidence or anything to do	13		
14	with it over the next two or three days while you are	14		
15	away from the Inquiry.	15		
16	THE WITNESS: Fine.	16		
17	SIR MARTIN MOORE-BICK: All right?	17		
18	THE WITNESS: Yes.	18		
19	SIR MARTIN MOORE-BICK: Thank you very much.	19		
20	Right, if you'd like to go with the usher, she'll	20		
21	look after you.	21		
22	THE WITNESS: Thank you.	22		
23	(Pause)	23		
24	SIR MARTIN MOORE-BICK: Thank you very much.	24		
25	10 o'clock on Monday, then, please.	25		

205

207

1	MR MILLETT: Thank you, Mr Chairman.	208
2	(4.36 pm)	
3	(The hearing adjourned until 10 am	
4	on Monday, 16 November 2020)	
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

206

Opus 2 International
Official Court Reporters

transcripts@opus2.com
+44 (0)20 3008 5900

bailey (27) 16:3,25 20:6 21:16 22:1 23:22 25:14 26:8 28:12 32:4 33:21 35:6,17 36:2,24 38:5,6,24 39:24 41:4 47:8 49:21 52:15,17 53:7 54:10 56:24 baileys (3) 22:9 36:22 41:11 baker (10) 147:12,14,23 160:9 161:4 166:8,14,17 168:1 170:19 bald (2) 179:23 188:17 balloon (1) 4:21 banner (1) 29:2 barratt (1) 97:16 barriers (2) 142:12 183:22 base (5) 24:3 28:14 103:22,25 157:11 based (8) 18:9,16 34:6 90:25 132:19 175:22 182:11 194:3 basic (1) 111:7 basically (3) 17:16 22:19 36:19 basis (4) 61:24 67:3 112:7 164:10 bba (6) 103:8,16 132:21 133:10 134:9 167:15 bc (1) 203:4 bca (7) 76:13 78:3 80:12 155:5 156:14,17 197:7 bearing (1) 160:7 became (4) 22:12 123:21,22 153:12 become (6) 115:14 135:9 142:16 157:5,14 190:11 becomes (1) 165:9 bedevilled (1) 198:20 before (39) 2:19,20,22 28:22 29:8 33:6 35:20 37:6 55:18 64:7 65:7,7 72:21 73:16 74:13 75:13,24 76:15 82:22 83:9 85:7,13 89:23 91:13 92:22 96:18 101:14 109:20 110:19 115:13 123:14 150:2 151:11 160:14 167:5 177:7 180:7 189:25 202:6 beforehand (1) 51:4 began (1) 113:10 begin (2) 1:4 142:13 beginning (3) 110:19 120:17 197:18 beginnings (1) 152:6 behalf (2) 97:1 107:3 behaviour (2) 111:1 168:8 behind (17) 17:16,19 20:23 31:20 93:5 99:18 120:11 122:2 159:21 177:2 187:22 192:8 194:15,25 195:3,13 198:13 being (64) 7:22 8:2 20:14 26:12 28:1 30:11 33:7 40:11 41:14,16 42:22 43:8,19 48:1,22 53:3 65:4 70:17 71:1 77:2 78:18 79:1,4,4,5,19,23 80:5 82:5 86:25 92:9,17 93:2,8 96:23 98:19,22 100:15,23 105:18,23 112:24 124:12 128:1 131:23 149:9 152:24 156:4,24 157:1 170:2 171:23,24 173:23 174:22 179:24 181:7,19 184:17 190:6 191:9 198:17 201:21 204:7 believe (17) 5:10 95:13 118:19 119:17 120:9 133:2 150:14 152:25 153:13 157:16,21 158:4 159:9 167:6 189:17 193:14 204:14 believed (1) 26:24 below (9) 3:17 66:2 121:10 123:24 134:18 136:20 175:20 186:25 199:6 ben (35) 16:3,11,25 20:6 21:16 22:1,9 23:22 25:14 28:12 32:4 35:6,17 36:2,3,22,24 38:5,6,24 39:12,18,24 41:4,11 47:8,13,13 49:21,24 52:15,17 53:7 54:10 56:24 benchmarking (1) 94:1 beneficial (1) 82:6 benefit (2) 22:6 182:3 berger (12) 31:8 68:17 73:5 86:2 87:9,20 89:20 91:21 93:19 102:18,21 104:22 bergers (2) 86:16 96:6 berkeley (2) 97:9,15 bespoke (2) 51:17,19 best (13) 6:9 7:13 46:11 50:9,11 51:1,8,12 52:7 64:12 100:24 149:6,14 better (12) 44:21 83:12,13 95:21 96:9 103:22,25 104:7,17 138:16 162:3 165:5 between (23) 11:17 38:24 54:25 58:22 77:11 85:18 119:13 121:1 123:23 124:9 143:3 150:10 152:7 153:1 154:24 158:23 168:9 175:23 176:9 177:18,21 196:13 205:11 bex (1) 46:24 beyond (1) 195:24 big (2) 97:15 194:9 biggest (1) 128:4 bill (4) 121:1,14 122:11,24 bit (18) 3:8 5:18,22 44:21 52:14 84:23 101:9 113:15 121:14 165:9 168:15 175:15,24 176:7,9 186:6 196:3,15 black (1) 23:5 blown (3) 4:18 5:16 36:23 blue (4) 178:5,8,9,12 board (28) 4:19 23:12 39:18 93:9,11,12 114:1,9,10,15 115:7 120:2 139:17 169:4,18 170:6,9 171:22 179:7,12 181:18 182:6 185:7,9 187:18,25 188:1 197:25 boards (3) 42:3 90:4 156:1 bodies (5) 106:2,3 132:21 163:18 189:20 body (2) 33:6 153:11 bold (3) 43:17 85:10 103:4 bonus (7) 112:20,24 113:1,5 125:16,20,22 bonuses (1) 113:2 book (2) 89:15 182:13 both (12) 3:10 21:5 84:23 86:23 97:17 117:13 119:17,18 151:7 159:3 163:5 179:4 bottom (30) 1:24 9:8 16:8 27:15 43:23 55:19,20,24 69:1 71:22 96:5 102:20 111:17 144:23 154:1,2 158:9 162:6,20 166:11 170:22 174:10 177:16 185:16,17 189:22 196:17,19 199:2,3 bought (1) 50:22 br (38) 30:3 83:5 123:2,5 137:17,24 140:17,20 141:4,8,18 142:6 143:6,9,16 145:23 146:15,22 147:17 157:2 161:2,5 162:12 168:6 169:15 171:15,22 172:14 173:15 174:1 183:13 184:20 194:8 196:19 197:15 199:18 201:12 203:2 br135 (7) 81:25 86:24 121:24 122:13 156:5 170:25 171:7 brackets (1) 36:7 branch (4) 52:22 53:3,10 54:25 brand (2) 98:13 126:9 bre (63) 73:25 81:17 83:8,19 86:24 88:1 91:3 102:19,22 103:2 104:5,12 105:22 106:10 129:23 132:21 133:10 134:9 137:16 140:25 146:25 147:12,14,24 160:6,10 166:18 167:1,10,13,15,22 170:23 171:9 173:11 174:12 175:4 176:2,11 178:18 181:14,18 182:8,14,22 186:23 188:10 189:2 190:12,22 191:3,14,16,22,22 192:11,15,21 193:2 197:3,17 198:11 200:25 bre00003742 (1) 81:17 bre00003744 (1) 86:14 breadth (3) 90:2,9,18 break (14) 37:8 59:2,4,13 101:4,7,14 102:5 107:12 108:13,16 165:1,8,22 breaks (1) 108:14 brebbanhbc (1) 105:17 brief (1) 105:22 brick (9) 147:1,6 161:21 162:2,13 163:9,13,15 164:8 bridging (1) 36:8 brief (1) 111:6 bring (1) 69:16 british (1) 117:7 broaden (1) 201:23 broadening (1) 187:5 brought (3) 12:25 176:21 197:10 bs (46) 13:24 18:5 26:18 34:18 40:14 60:9 62:25 66:18 71:25 73:19 80:18 84:22 116:25 127:23 135:17 137:18,18 138:1 140:17 143:10,17 144:8 146:4 148:5,13,21,22 149:22 150:17 157:3 158:17,18 159:3 162:12 164:15 166:20 168:23 173:3,17 174:3 179:6 186:3,9 199:23,23 204:19 bs3 (1) 138:16 bs476 (4) 60:17 66:1 72:8,13 bs8414 (3) 72:15 85:16 156:5 bs84142 (2) 66:4 94:1 budget (1) 124:1 build (6) 16:13 36:9 94:9 146:23 147:3 174:16 builddesk (4) 6:8 8:24 24:20 34:6 building (45) 7:22 8:3 18:11 29:13 33:3,6,14 40:12,15 41:18 42:4,22 62:15 64:15 67:5 76:22 80:13 111:11 132:1 135:7,10,12,22 136:3,7 137:2,23 138:12,20 142:14,17 155:6 156:17 157:7 170:9 171:22 181:6,6,16,17,24 182:1 197:6 199:8,14 buildings (14) 29:3 33:7 42:25 92:6,25 134:17 137:10 155:7 171:24 179:15,20 196:6 198:13 200:4 buildup (24) 17:19,19,21 18:2 20:23 21:11 24:6 25:23 34:2 40:17,18 62:9,10 71:25 82:9 84:5,19 85:1 92:8,17 93:2,8 148:6 175:6 buildups (8) 16:18 17:1,15 19:16 20:1 90:13,19 95:19 bullet (8) 3:19 44:8 103:20 105:12 106:6 145:11 155:17,24 burned (1) 150:20 burning (1) 151:1 burnt (1) 106:7 business (23) 48:9 110:8 113:7 114:16 122:19 123:16 126:3,13 130:5,5,17,23 147:21 150:15 154:13 162:20 163:6 164:7 166:11 172:16 176:23 192:25 195:5 businesses (1) 181:12 busy (1) 31:8 buy (1) 55:7 buying (1) 50:8 <div>C</div> c (1) 132:10 calc (1) 16:13 calcium (3) 170:8,15 188:2 calcs (3) 24:10,15 37:6 calculated (5) 6:4,21,25 17:12 24:9 calculation (12) 8:25 9:2 17:7 24:21 31:23 32:5,24 33:19 34:6 35:5,7 42:17 calculations (9) 23:23 24:17 34:1,5,8 35:22 36:16 37:12,14 call (13) 49:1 72:19 75:20,22,24 76:7 82:13 83:6 86:22 107:23 195:13 196:7,9 called (12) 3:16 5:23 44:23 53:9 80:17 112:13 115:9,16 118:23 158:8 182:13 194:24 calling (1) 167:6 calls (1) 4:10 came (16) 12:10 64:17 119:15 134:6 135:4,11 141:4 151:15 153:15 157:10 160:16 164:14 168:14 177:25 188:22 191:1 cannot (5) 121:20 145:16 158:25 178:20 186:1 cant (56) 3:14 8:5,14 9:5 10:15 12:20 13:4 15:22 17:25 19:17 21:6 25:8 30:23 34:13,19 35:19,25 43:2 44:20 45:9,23 52:11 53:22,23 54:2 57:15 61:15 62:19 64:11,16 65:19 69:8 73:6,15 76:9 77:19,23 78:10,12 81:1 84:16 90:17 92:12 93:9 98:25 104:13 105:25 106:5 113:4 147:8 154:9 160:25 167:18,21 177:17 201:8 capacity (1) 70:4 capital (4) 123:18 130:20,21,24 capturing (1) 200:3 careful (1) 97:18 carried (16) 24:21 26:24 31:23 37:14 60:10 113:8 150:14 163:5 168:24 169:17 173:11 181:20 182:12 184:1 197:21 201:24 carries (1) 125:24 carry (8) 1:10 31:25 32:1 34:7,14 59:15 117:6 165:24 carrying (5) 112:8 114:23 150:17 162:25 185:1 cases (1) 95:23 casting (1) 120:17 catalogue (1) 25:4 catch (1) 168:3 catchup (3) 9:21 82:14 83:7 caught (1) 26:6 cause (2) 192:7 194:14 caveat (15) 15:19 19:14,23,23 23:16 26:5 31:4 62:9 71:3,8,13,14,14 92:16,17 cavities (2) 137:9 162:16 cavity (7) 168:9,11,19 169:6,16,20 177:21 cc (1) 127:8 ce (3) 149:6,14 202:25 cel000000015 (1) 11:4 cel000000018 (1) 11:24 cel000000019 (1) 68:25 cel0000000191 (1) 71:23 cel0000000192 (2) 60:23 69:5 cel000000023 (1) 75:16 cel000000024 (1) 16:2 cel0000000241 (1) 20:5 cel0000000242 (1) 16:7 cel000000025 (1) 28:12 cel000000027 (1) 31:22 cel000000028 (1) 35:4 cel000000029 (1) 23:20 cel000000030 (1) 24:20 cel0000000311 (1) 52:14 cel0000000312 (1) 49:20 cel0000000314 (2) 36:1,21 cel0000000315 (1) 36:4 cel000000032 (1) 53:13 cel000000035 (1) 54:7 cel000000039 (1) 38:3 cel000000041 (1) 47:4 cel00000014 (1) 9:6 cel000000453 (1) 65:23 cel000000456 (1) 21:4 cel000000457 (1) 21:5 cel0000004631 (1) 56:8 cel0000004632 (1) 55:17 cel0000004633 (1) 56:2 cel000000558 (1) 43:11 cel000000564 (1) 44:22 cel000000566 (2) 44:16 45:12 cel000000583 (1) 146:13 cel000000584 (1) 142:5 cel00000058413 (1) 142:7 cel00000058429 (1) 144:6 cel00000058433 (2) 143:20 145:5 cel000000585 (1) 160:7 cel0000005852 (2) 160:11 166:5 cel000000593 (1) 167:4 cel000000617 (1) 167:25 cel0000007081 (1) 177:12 cel0000007082 (1) 178:4 cel0000007083 (1) 170:22 cel0000007151 (1) 185:16 cel0000007152 (2) 183:3 185:24 cel000000744 (1) 196:1 cel0000007481 (1) 203:16 cel0000007482 (1) 202:15 cel0000007484 (1) 199:1 cel0000007485 (1) 199:9 cel0000007487 (1) 196:12 cel00001034 (1) 89:19 cel00001036 (1) 85:4 cel00001069 (1) 91:9 cel000010699 (1) 91:11 cel00001109 (1) 73:24 cel0000110929 (1) 74:10 cel00001126 (1) 93:17 cel00001200 (1) 148:14 cel00001201 (1) 149:7 cel000012012 (1) 149:13 cel0000120125 (1) 149:15 cel0000120126 (1) 149:21 cel00001259 (1) 102:16 cel000012591 (1) 104:21 cel000012592 (1) 103:19 cel00001260 (1) 105:7 cel00001430 (1) 158:7 cel00001443 (1) 38:22 cel00001444 (1) 47:15 cel00001451 (1) 5:15 cel00001883 (1) 186:21 cel000018862 (1) 189:21 cel00001888 (1) 189:4 cel000020422 (1) 97:12 cel000020423 (2) 96:6 98:5 cel000020424 (1) 94:25 cel00002131 (1) 87:4 cel00002892 (1) 120:24 cel000028921 (1)
--

121:15	cep000572942 (1)	142:11,16,25 144:10	cloth (1) 101:18	company (9) 15:3 18:20	conference (3) 81:23	continuation (1) 183:4
cel000028922 (1) 121:7	156:12	145:3 147:5,7 148:22	clt (1) 90:1	51:6,14 91:18 97:1,7	82:7,19	continue (3) 97:23
cel00002900 (1) 124:21	certain (14) 17:10 34:13	153:10 155:7 156:4	coating (1) 23:5	99:16 100:5	confidence (1) 194:2	100:10 165:11
cel00003628 (1) 76:10	45:23 62:19,20 84:16	159:10 161:24 162:4	coauthor (1) 83:4	companys (1) 123:19	confident (5) 19:13,21	continued (6) 1:7,14
cel000079613 (1) 28:24	112:18 147:9 148:2	163:12 164:3,20	coauthors (2) 147:16,17	comparison (1) 23:13	34:2 101:21 179:19	114:1,17 207:3,6
cel0000866818 (1) 1:19	161:22 171:17,18	168:21 169:1,4 170:10	coffee (3) 82:13 83:7	compete (3) 120:15	confidential (3) 66:9	continuing (1) 130:6
cel0000866832 (1) 3:15	172:6 198:13	171:12,21,25 177:21	86:11	158:25 163:4	72:9 73:22	contractor (4) 5:23
cel0000866846 (1) 4:9	certificate (1) 26:20	179:17,25,25 182:9	cold (1) 36:7	competition (5) 116:20	confidentiality (1) 66:14	39:14 47:10 64:9
cel0001003121 (1)	certificates (3) 60:7,16	184:2,4,6,14 188:7,21	colleague (1) 197:9	120:13 163:3 185:1	confirm (5) 17:13	contractors (3) 4:15
59:21	103:16	192:23 195:8 198:14	colleagues (1) 100:7	191:8	27:4,23 56:7 109:17	61:20 170:15
cel0001003122 (1)	certification (6) 29:5	199:20 200:15	coloured (1) 31:7	competitive (5)	confirmation (5) 11:15	contribute (1) 142:17
20:16	133:11 181:14 182:6,8	claddings (1) 175:8	colourful (1) 96:3	50:10,11 51:1,1,13	27:8 72:13 171:4	contribution (1) 96:2
cel0001003124 (1)	202:25	claims (1) 175:25	column (3) 32:20 46:21	competitor (7) 168:6	202:23	control (10) 18:11 33:6
94:19	certified (1) 131:9	claire (8) 55:21,22	125:9	169:3,10 173:6 180:15	confirmed (2) 154:23	76:22 80:13 155:6
cel00010052 (1) 109:4	certs (1) 103:8	56:10,16 57:1,3,5,10	columns (1) 32:17	182:24 201:21	187:9	181:6,17,24 197:6
cel000100522 (1)	cetera (5) 4:4 27:18,18	clarification (2) 147:1	colwell (4) 81:19 85:25	competitors (8) 87:15	confluence (1) 102:14	199:8
111:16	204:5,5	161:16	86:3 88:20	91:17 163:5,23	confused (1) 152:24	controlled (1) 68:7
cel000100523 (1)	cfa (3) 44:19,19 45:8	clarify (4) 18:25 161:25	colwells (1) 85:10	174:15,22 179:4 195:7	confusion (5) 116:9	convenient (4) 107:11
113:22	cg5000 (1) 1:24	183:24 203:4	combination (1) 203:13	compile (2) 98:7,9	152:19,21 153:1 201:6	165:2,4 205:3
cel000100525 (1) 132:9	chain (9) 20:4 52:24	clarity (2) 182:19	combustibility (21)	complaining (1) 101:12	conjunction (2) 105:1	conversation (19) 6:16
cel000101546 (1)	53:5 71:23 79:22 96:5	201:20	26:12,17 80:17 138:24	complete (7) 50:2	177:22	7:11 11:20 48:22
123:11	100:16 196:13 203:15	clark (4) 189:1,14,16	139:4,7,15 140:2,7	101:14 142:11,24	connection (1) 57:11	66:17 67:2,8,10 76:3,8
cel000101549 (1) 127:2	chairman (14) 1:15	190:1	152:9,13 153:2 154:25	143:2,7 156:5	connections (1) 132:15	77:3,7,11,15 87:12
cel00011493 (1) 141:6	49:8 59:1,19 100:22	class (34) 60:17 66:2	155:19 156:1,21,24	completed (4) 46:2,5	consequences (1)	127:8 129:19 161:9
cel00012298 (1) 46:20	102:11 106:22 107:22	72:14 116:24	157:1 164:17 183:15	94:4,6	112:22	196:5
celotex (136) 1:22,25	108:3 166:4 195:20	117:4,5,6,10,11 118:7	184:18	completely (2) 127:13	consider (4) 21:9	conversations (12)
2:19,21 3:16	202:5 205:3 206:1	138:15,15,16,16	combustible (13) 29:24	170:1	162:15 164:16,19	8:10,18 77:1 79:18
4:19,20,22,23 8:22	chambers (2) 123:23	149:6,14,19,24 150:24	30:10 137:8 139:19,20	complex (2) 85:16	considerably (1) 174:25	103:3 123:23
9:18,24 10:3 11:10,16	172:24	151:7,10,15	141:2 154:20 155:6	143:23	consideration (2) 28:19	124:9,10,11 140:9
24:4 26:22,24,25	chance (3) 95:21	152:1,8,11,16,16,20,24	162:16 168:25 194:8	compliance (21)	140:6	189:19 203:11
28:15,18 29:7,15,24	132:18 169:6	153:1 154:25 183:14	195:11 198:13	18:8,21 26:11 28:1	considerations (1)	copied (6) 9:18 68:12
30:5,8 31:3,4,22	change (4) 69:9 92:15	184:15,18	come (41) 1:6 2:14 7:7	33:3,9,14 62:14	171:6	87:11 92:1 94:24
32:4,11,18 33:10,19	121:19 127:15	classified (1) 15:8	9:2 12:15 13:21 34:11	80:16,22,24 81:9,12	considered (6) 29:13	95:24
34:7,12 37:10 38:12	changed (3) 17:11	classification (33) 4:2	35:1 59:5 61:17 86:10	135:25 137:22 141:3	35:18 129:16 176:3	copy (5) 10:2 81:24
41:23 43:21,24	142:2 144:3	29:10 30:4 73:18 75:8	87:16 88:5 96:13,15	153:7 156:18 157:6	178:24 184:13	82:3 109:6 142:5
44:9,17,18 46:6 47:25	changes (3) 29:12	87:13 123:5 138:14	101:19 105:5 106:22	158:5 199:7	considering (4) 15:20	core (11) 23:3,6,8
49:16,23 53:3,20	131:22 186:9	143:17 144:8	116:22 118:11	compliant (2) 34:2 67:4	40:20 92:22 168:12	117:9,14 150:11
54:19 57:3,5,16,19	charge (2) 126:9,14	145:13,14,15,18,22	133:7,20,25 134:12	compliantly (3) 61:25	constituted (1) 115:25	151:14,16,22 193:19
58:21 60:21 61:18	chasing (2) 95:18	151:8 155:18	142:22 147:11 148:10	180:23 193:3	consistent (1) 197:11	194:6
62:12 63:12 66:10,10	196:21	162:12,21 166:12	158:1 162:11 164:23	comply (3) 141:24	constitute (1) 127:10	cores (1) 194:5
70:23 72:22 74:8 81:4	chat (1) 68:13	169:15 171:23	165:10 173:3 184:10	156:23 199:14	constructed (1) 161:23	corner (3) 115:4 145:9
83:7,10,12,16,19 91:2	check (8) 27:20	183:14,17,21 184:3,23	188:15 189:1,14,16	complying (1) 157:6	construction (15) 16:17	155:9
94:9 98:23 99:12	37:12,12 100:23	185:10 186:2,4,16	190:1 196:8 204:20	component (1) 143:13	17:1,3,9 33:1 55:8	correct (51) 2:7,10 9:1
100:9,10 104:2 106:14	102:12 111:20,22	203:1,3	205:8	components (13) 17:10	136:15,20 138:23	16:24 25:21 27:24
109:22 110:22	145:18	classifications (1)	comes (6) 53:7 69:2	29:9,11,12,19 30:16	147:2 153:6 161:22	30:18 35:11 37:7,24
111:2,19 112:19	checking (1) 145:17	152:22	162:7 166:22 178:4	43:18 72:1 83:25	163:13 167:8 185:2	38:17 39:25 44:11
114:22,25 115:21	checks (1) 27:22	classificationwise (1)	181:3	85:21 143:3 145:24	constructions (2)	47:2 48:7 49:5,19
116:10,15 118:18	chelsea (1) 48:3	186:13	comfortable (2) 95:4	173:9	174:17 179:16	56:24 57:25 58:24
120:2,15 122:4,21	chemical (3) 127:4,14	classified (2) 127:14	108:1	composite (1) 193:22	construed (2) 33:2,13	66:19 68:16 83:1 86:5
123:14,17,20 124:7	131:20	183:20	coming (12) 75:10	composition (4) 24:15	consultancy (1) 31:20	94:21 96:11 99:14
126:10 128:24	chemist (1) 140:9	clear (18) 13:22 22:17	105:21 106:24 107:6	127:5,15 131:23	consultant (9) 15:6	110:7,12 112:11 118:6
129:15,20 134:21	chemists (1) 119:15	23:10 31:15 66:15	108:7,16 109:20 160:6	comprised (2) 3:22 4:2	27:17 31:16,21 65:5	120:6 126:18 130:14
135:4 136:5 139:11,23	choice (7) 27:4 40:16	100:4 105:16 116:12	169:6 192:8 194:15	comprises (1) 149:5	67:1 70:7 79:13 104:7	131:4,17 139:5,8
140:6 150:6 151:9	82:8 84:4,7,18,20	140:4 142:24 143:9	195:13	computer (1) 13:1	consultation (1) 133:23	150:5 152:14 170:17
152:6,15 154:4 156:10	choose (2) 84:13,21	152:5,7 163:4 171:20	command (2) 79:23	concept (1) 152:8	consulting (1) 80:1	180:3,6,25 181:25
157:9,16 158:23	choosing (1) 84:25	173:21 200:9 201:12	100:16	concepts (1) 153:3	contact (13) 53:4 85:6	185:11 190:7,9
159:20,23 160:16	chris (8) 85:13 98:4	cleared (1) 69:8	comment (3) 28:1 94:3	concern (3) 105:21	132:13,14 134:1,2	198:2,25 202:1
163:3,21 170:25	99:2,3 112:15 114:14	clearer (1) 199:24	162:24	171:14,16	146:25	corrected (1) 86:17
171:16 172:9,11,13	115:24 120:20	clearly (4) 25:9 37:18	commercial (1) 56:22	concerned (9) 69:18,20	147:14,19,20,23	corresponded (1) 82:22
173:8,14 174:2 184:10	chronology (1) 160:8	68:17 179:9	57:17 88:3 96:25	78:14 105:23	167:15 189:7	correspondence (3)
195:3,12 198:21	circumstances (3) 15:16	clg0000022495 (1)	159:19 163:23	128:16,17 144:1	contacting (1) 79:25	32:3 147:11 160:9
204:16,18	176:4,5	136:13	166:15,17 173:20	182:17,23	contacts (2) 132:18	costs (6) 3:20,22
celotex (8) 15:19 27:8	cladding (85) 1:25 3:16	138:18	177:23 181:12	128:12,23,24	134:13	4:1,2,3,7
65:22 81:16 92:20	4:15,24 5:2 13:2,6,10	clg0000022497 (1)	committed (1) 4:22	198:7,8,9,10	contained (1) 87:14	couldnt (23) 2:18 8:16
115:2 120:12 127:17	18:2 21:24 23:11,17	138:11	common (7) 34:7,14	concluded (1) 127:12	containing (1) 149:13	9:25 10:5 15:9
cement (10) 159:11	24:25,25 25:5,7,16,20	clicked (1) 22:15	53:19 56:16 122:21	concludes (1) 205:1	contains (1) 32:15	18:7,23,24 19:11,24
170:7,15 183:23	26:5 30:9 32:19 33:8	client (2) 32:7,12	147:7 161:22	conclusion (3) 12:10,16	contemplating (1)	34:10 35:15 36:14
184:14 185:6	34:8,15 37:8 40:19	clients (3) 60:4,6	commonly (5) 188:12	95:22	66:20	55:8 63:24 70:21
187:18,25 188:8,18	60:11 63:2 64:8 70:22	103:23	190:18 191:4,11 192:1	concrete (5)	content (2) 87:13	71:10,15 81:14 93:3
cementitious (3) 23:12	74:12 78:18 79:6,11	clinch (2) 50:12,17	communicate (1) 97:23	24:3,9,14,15 28:14	154:19	100:14 106:19 122:8
179:7,12	80:5 84:14 85:20	close (2) 97:6 165:1	communications (1)	condition (1) 74:11	contents (1) 109:17	council (1) 48:3
centre (2) 33:10 153:10	90:3,22 91:4 103:7,15	closely (1) 23:2	95:12	conducted (1) 132:10	context (3) 106:13	counsel (6) 1:14 101:6,6
cep00057294 (1) 155:4	133:16 137:8,17				200:23 204:18	108:5 207:5,10

couple (2) 160:13,15	dan (29) 6:4,17,21,25	decisionmaking (1)	168:23 175:18 176:11	difficult (3) 67:16	68:6,7,23 72:8 73:7,14	dooleys (1) 164:5
course (7) 18:1 68:12	7:2 8:10 9:10,20	104:17	178:22 188:16 202:24	100:13 121:21	74:3,15,21 78:6,25	dormant (6) 9:19,24,24
94:16 98:12 101:2	11:13,20 12:2 14:18	decisions (1) 129:3	detect (1) 116:9	difficulties (1) 98:22	81:25 83:3	10:4,8,8
118:4 141:4	15:18 16:12 17:7 24:9	decorative (1) 170:10	determine (3) 145:1	difficulty (1) 108:9	91:8,10,14,14,20	doubled (1) 57:23
courses (2) 136:2,6	33:23 34:5 36:6,19	deemed (4) 69:25 73:21	168:8 203:4	digging (1) 134:6	105:9,14 111:11 115:4	doubt (2) 139:9,12
courtesy (1) 76:2	37:6 44:25 66:2,3,12	139:14 172:1	develop (4) 83:13	dimension (1) 138:13	124:22 135:18,21	doubts (1) 169:21
cover (21) 20:13 93:16	67:20 71:21 76:18	definitely (1) 78:13	120:5,7 131:13	dimensions (2) 22:20	136:10,13,16 138:10	down (28) 5:22 9:7 21:1
145:15,18 146:22	78:22	delay (1) 94:8	developing (4) 126:9	85:22	140:15 143:21,22,24	23:21 29:7 32:15 42:1
147:3,9 148:2,5	daniel (21) 7:6,20 8:8	deliveries (1) 56:18	127:16 128:8 203:22	direct (2) 57:11 112:3	149:2,7 153:22	44:8 48:3 60:24 65:23
162:1,2 164:2 174:13	9:18 11:25 16:21	delivery (1) 54:18	development (24)	directly (3) 53:4 66:12	154:12,16 158:12	70:10 77:5 81:19 82:4
179:11,20 180:1	24:21 37:22 44:24	demonstrate (1) 128:18	3:20,22 4:1,3,4,6,22	189:6	183:5 184:15 186:3,4	103:20 108:1,20,22
186:4,18 188:1,12	46:14,15,18 59:24	demonstrating (3)	48:9 67:17 80:2 84:2	director (3) 112:4	196:18 197:12 198:17	112:6 119:15 132:12
195:22	60:2,5 61:12 66:17	32:25 33:2,13	111:5 119:15	114:14 172:24	199:1	133:9 136:21 146:14
covered (8) 14:3 18:5	67:9 71:3 72:23 79:10	denotes (1) 22:20	124:12,15 126:12	directors (2) 130:23,23	documentation (1)	160:16 168:5 181:12
26:15 30:19 60:11	dans (1) 24:15	denoting (1) 23:9	128:2 129:8,12,14,16	disagreements (1)	182:14	draft (7) 43:13,15,20
81:2 145:16 181:7	dark (2) 175:24 176:10	depart (2) 84:25 85:21	131:18 140:9 159:22	204:1	documents (28) 6:17	93:15,18 199:6 203:21
covers (1) 161:17	data (13) 18:17 36:9	department (6) 23:24	developments (1) 160:4	disclaimers (2) 35:12,22	25:9 29:1 40:9 42:9	drained (1) 179:13
craig (3) 123:23 129:1	61:20 63:9 69:16	35:1 110:2,3 112:4	diagram (4) 24:24	discount (11) 51:7 52:1	44:4 61:11 63:13 65:5	draw (2) 37:16 63:11
172:24	72:12 94:2 103:22,25	123:17	138:6,7,9	54:22,24,25 55:6	66:8,9,24 67:25	drawing (3) 23:4,7 48:3
created (5) 89:21	137:18 173:5,12	departments (1) 114:18	diary (6) 11:5 39:7 47:5	57:14 58:9,11,13,21	68:1,21 72:16 74:24	drawings (32)
125:1,3 197:4,22	183:16	depend (1) 95:15	86:15 88:7 89:20	discounts (5)	82:11 109:5 121:4	12:9,12,22,22,22 13:2
creates (1) 143:4	database (4) 10:17	dependent (1) 174:12	didn't (114) 3:6 11:2,3	55:9,11,15 57:16,18	135:24 136:3,7 145:18	16:15,17,22 17:1,4,9
credible (1) 30:22	48:24 77:14 89:2	depending (2) 183:15	15:1,14,15,16 17:23	discover (1) 194:23	153:6 158:3 199:15	20:8,14,18,19,24
cresswell (3) 189:23	datasheet (5) 28:23	194:6	18:1,18,19,20,20	discovered (1) 161:19	202:5	21:2,10,14,18,23,25
190:10 191:25	115:2,10 116:23	depends (1) 55:12	19:1,3,12 23:13	discuss (17) 3:21 9:12	does (20) 6:25 7:5 20:8	22:1,3,8,10,14,24
crib (1) 144:23	180:15	deprived (1) 112:25	25:11,12,13,15,19,20	10:13 38:25 39:12	21:14 25:13 60:3	23:11,18 60:13
criteria (14) 41:25	datasheets (1) 180:12	depth (5) 28:18 30:7	31:12,13,17,19	66:3,5 67:20 72:20	84:24 90:21 92:21	drawn (2) 24:7 177:23
137:16,24 140:16	date (14) 5:19,24 12:20	119:20 150:23 154:22	26:2 29:17 30:6,13,14	77:17 86:24 89:24	106:1 112:24 122:1	drive (5) 123:18
141:23 142:2 143:17	39:3 47:18 98:2	depths (2) 29:15 58:3	34:23,24 37:16,21,22	160:16 196:7 203:21	123:3 155:18 179:11	124:5,14 130:13 131:2
144:1,7 157:2 172:14	109:13 122:12,18	derive (1) 152:22	40:16 41:6,7,10 43:10	204:11 205:13	182:4 186:4 194:7	driving (1) 120:10
184:24 194:8 199:18	125:12 146:16 149:3	derived (1) 18:17	45:6 46:8,9 47:11,12	discussed (14) 29:8	199:6 200:22	dropbox (5) 20:8,17
critical (5) 33:5 94:8	191:22 197:18	describe (1) 139:17	48:16 49:2,3 51:15	33:21 39:17 77:20	doesn't (12) 23:3 35:12	21:15,25 22:2
142:25 187:5 190:13	dated (5) 44:24 54:9	described (3) 38:20	52:4 56:15 57:22,24	82:20 90:16 95:13	108:22 142:22 154:18	dropped (1) 146:25
critically (1) 142:12	102:20 109:1 153:19	147:2 152:1	61:19 62:4	105:4 109:19 160:24	178:5 179:13,20 180:1	due (4) 6:6 39:3 47:18
cross (4) 65:11,16	dates (1) 39:4	describing (2) 44:1	63:11,12,22 64:6,21	186:25 188:9 190:12	186:17 198:6 201:5	121:11
79:12,15	day (20) 23:22	151:10	65:11,13,14,17	197:2	doing (13) 18:18 27:20	duo (1) 69:9
crossed (6) 41:21 69:7	31:6,8,9,9 52:15 55:18	description (3) 5:1	67:20,22 70:14,15,20	discussing (10) 10:19	34:4 76:23 78:4,4	during (12) 3:10 60:18
71:22 152:15	56:9,12 68:3 75:24	22:14 129:11	71:7,19,20 73:10,18	19:16 20:1 29:15	87:16 97:9 100:13	74:6 77:17 82:4 97:25
176:19,20	76:5 104:22 162:7	design (10) 12:25 15:11	74:7 75:20,21	30:7,9 39:21 127:9	164:25 182:18,25	116:15 117:5 136:5
crosspurposes (1)	177:14,14 189:24	33:5 94:9 167:23	79:12,12,13,15 81:10	184:12 196:10	192:20	152:14 154:13 169:2
163:25	202:19 203:18 205:6	168:12 171:2 190:6,7	86:7 87:10 88:17	discussion (15)	dominate (1) 121:17	dwelt (1) 24:2
crowborough (1) 11:7	day332718 (1) 26:9	199:14	92:15 97:2 100:5	13:5,12,18 38:1 39:23	done (29) 6:9,20 10:17	
cultivate (1) 83:8	day358621 (1) 22:5	designed (4) 4:23 5:1,8	103:18 109:23 111:9	66:22 68:18 72:22	11:21 25:17,18 39:9	E
culture (4) 123:20,21	day35873 (1) 22:5	145:1	112:9 114:9 120:22	77:18 90:6 95:17 96:1	42:17 57:2,10 67:6	
130:11 131:2	day399312 (1) 41:12	designer (2) 29:13	129:18 130:8 139:25	103:17 106:10 115:21	71:4 72:25 75:25	e (2) 27:16 138:12
current (4) 11:15 22:1	days (2) 87:11 205:14	84:21	140:3 154:21 162:1	discussions (5) 10:12	83:24 86:12 89:10	eager (1) 197:13
110:24 204:7	deal (5) 50:12,17,18	designers (2) 170:14	164:8 168:15 177:4,9	161:3 168:22 194:1,3	90:24 111:22 114:11	eagerly (1) 82:10
currentfuture (1) 9:22	82:8 84:4	190:2	182:17,20 186:9	disenchanted (1)	118:4 129:25 157:15	earlier (17) 71:2
currently (2) 94:1	dealing (2) 56:17	designing (4) 103:23	189:1,2 194:20,22	106:18	174:7,22 178:8 181:1	82:19,20 85:5 88:20
121:22	139:25	104:8,18 161:11	201:17	disparity (1) 176:22	194:23 195:11	97:25 130:3 140:24
curtain (1) 53:16	dealings (2) 203:9,10	designs (2) 197:4,22	differed (2) 174:6	distinction (3) 152:7	dont (80) 4:8 9:25	156:10 167:6 168:15
curve (1) 93:6	dealt (3) 45:9 132:22	desire (3) 64:1 120:7,11	181:19	154:24 155:1	10:9,21 13:7,25 15:25	183:9 184:25 186:25
customer (16) 40:20,23	143:16	desired (1) 36:12	difference (3) 17:19	distinguishing (1)	21:19 25:9 29:22 31:5	191:7 196:5 201:13
42:10 50:21 53:21	dear (2) 54:11 93:25	desk (7) 16:13 36:9	18:2 24:16	119:12	33:18,24 37:8,14	earliest (1) 152:6
55:1 56:17 57:3,7	debate (2) 198:20,20	94:3,5 95:15,22 109:3	differences (5) 150:9,10	distribution (2) 4:16	40:21 41:10 47:16	early (10) 9:9 41:4 88:1
58:23 64:10 65:2,14	debbie (17) 68:17 73:5	desktop (20)	175:23 176:9 177:18	180:13	53:24 57:15,16 58:10	120:25 123:4 129:7,20
67:13 69:20,21	86:2,16,17 87:9,20	18:13,16,19	different (45) 16:18	distributor (8) 51:4	61:7 62:5 63:7,24 65:6	131:3 182:10 197:4
customers (12) 10:8	89:3,7,20 91:21 93:19	80:18,19,20	17:1,15,20,21 18:3	52:17 55:1 56:4,6,25	66:23 70:25 77:5	earnings (1) 131:5
38:15,15 46:7 61:17	97:17 102:18,21	81:3 90:25 97:4 100:13	19:16,20,25 20:1	58:16,23	78:7,16 80:14,15	easier (4) 52:23 99:19
64:1,1 65:13 92:14	104:22 157:21	157:3,7,10,14,17,19,20	26:21 28:9 36:18	distributors (7) 50:9,25	82:23 83:16 87:3,15	174:5 183:5
95:5,14,18	debs (3) 68:11,17	176:18,18,20	37:19 40:13,17 49:7	51:12 52:3 53:19	88:15,17,23 89:8,17	east (2) 11:7 110:11
cut (2) 101:18 185:18	102:25	despite (2) 49:4 114:20	83:25 84:17 91:4,7	56:18 121:18	91:25 98:20,20 104:19	easy (2) 52:19 100:15
cutting (1) 37:11	december (5) 125:12	detail (5) 87:14 88:1	108:11 116:1,16	divert (1) 148:12	114:13 121:22 125:23	eco (1) 48:4
cwct (7) 81:22 82:19	126:7 199:3 202:19	118:12 134:13 204:12	118:15 126:15 134:17	division (1) 172:11	134:3 138:25 150:22	edition (14)
85:5 153:11,12,16,18	203:18	detailed (11) 29:11	143:3 155:3 158:6	doc (1) 196:6	152:14,25 153:16	141:4,5,8,17,18
cwct00000019 (1)	decent (1) 49:9	45:16,24 46:6 62:11	162:18,18 163:19	document (78) 6:10	154:6,14 157:8,9,19	142:2,3,6 144:4
153:21	decide (2) 36:11 96:17	64:2,14,14 66:17	166:9,9 177:2 179:25	9:16 18:11	161:9 165:9,13	146:21 147:17 173:15
cx (2) 192:8 194:15	decided (1) 99:19	145:14 167:10	187:11 192:14 194:5	33:4,15,16,17,21 34:3	167:2,21 170:21	184:20 201:12
	decision (7) 19:5,8,10	detailing (1) 47:24	195:8,20 200:15 202:6	35:9,12 39:4	181:17 189:17 191:17	education (1) 15:10
	50:19 104:7 130:2	details (17) 26:22,25	204:21	43:16,19,22 44:20	192:16 195:15 196:11	effect (3) 35:9 48:15
	146:9	35:2 38:10 61:17	differentiate (1) 152:16	45:11,13,15,22,25	197:20 201:5 202:16	92:13
	decisionmaker (1)	65:13 96:11 104:13	differentiating (1)	46:1,5,11 47:1,17 49:4	203:8 204:6,16 205:13	effectively (7) 32:7,11
	126:22	132:13 145:15 167:8	116:19	53:13 66:11,12 67:5	dooley (2) 146:15,17	35:10 36:13 109:25
						114:21 126:8

effigy (1) 96:4	endure (1) 145:19	123:4,14 127:14	98:24	140:8 142:4 143:22,24	148:22 149:20	199:6
efforts (1) 92:13	engage (1) 133:22	141:20 148:4 173:25	explore (7) 48:12 94:10	145:7 155:22 195:24	150:7,24 158:2 159:2	formal (1) 54:8
egginton (1) 169:19	engaged (1) 182:10	179:1 187:20	122:4 167:16 173:8	favour (2) 50:21,23	160:16 162:3 179:20	forming (2) 17:22
eight (1) 24:12	engineer (4) 14:22	192:10,16 195:12	176:24 203:14	favourable (1) 36:10	183:22 184:6,7 185:9	145:24
either (16) 10:12,20	15:5,13,13	eventuality (1) 147:8	explored (1) 182:10	fear (1) 100:23	186:1 187:20 194:7	formulation (3) 111:7
13:14 37:23 71:4,13	engineering (2) 89:24	eventually (1) 123:9	expose (2) 61:24 62:12	february (14) 15:7	199:15 203:1	118:9 131:20
80:16 92:6 112:14	158:2	ever (21) 14:9 37:14	express (1) 105:21	16:3,9 20:6 23:23	first (52) 1:23 20:21	forward (9) 41:8 45:3
137:14,23 138:15	enlighten (1) 122:16	74:13,15 75:12 92:10	expressed (1) 42:20	28:11 31:6,24 32:6	21:20 22:11,13 38:9	47:9 63:1 100:6
142:14 161:25	enough (4) 52:20 101:8	104:11 115:21 135:9	expressing (2) 64:1	35:5 36:3 91:9,21	39:23 40:23 42:21	104:9,12 176:1 203:23
197:3,18	179:19 205:6	136:2,5 151:9 152:15	166:15	197:21	43:6 58:1 64:12 68:11	forwarded (2) 60:20
elaborate (2) 42:5 77:14	enquiries (1) 121:21	157:14,18,22 158:1	expression (2) 117:11	fed (1) 79:24	73:4,8	65:21
electric (1) 55:10	enquiry (1) 121:19	167:22 204:13,17,22	200:7	fee (1) 140:24	74:14,17,19,20,21	forwards (1) 87:21
else (8) 3:21 71:4 73:20	ensure (3) 127:23 144:3	every (3) 29:2 147:8	extend (1) 171:9	feed (1) 80:8	75:1 78:9 81:19 85:16	found (7) 3:3 20:22
99:8 111:25 121:12	181:7	185:2	extensive (1) 137:9	feedback (4) 48:13	100:21 102:17 104:11	21:20 22:15 83:4
139:11 176:11	ensuring (1) 183:22	everyone (3) 1:3 82:10	extent (1) 85:20	91:17 93:3 122:5	105:12 109:8,9 110:5	85:15 180:15
elsewhere (1) 69:22	entering (6) 76:25	165:9	exterior (1) 164:20	feel (7) 3:3,6 82:6 95:21	112:6 115:1 122:19	four (3) 73:13 126:13
email (134) 4:11 9:7,17	79:17 168:11,19	everything (4) 6:8	external (37) 10:25	96:2 105:2 179:18	129:6 134:14 137:1	158:6
10:1,4,6 11:5,11,18,24	169:16,20	49:15 77:5 108:21	13:14 122:6 136:15,20	feeling (1) 97:8	142:20 144:15	fourpage (2) 73:9 74:24
13:17 16:1,2,4,9 20:4	enterprise (1) 131:5	evidence (18) 1:5 22:4	137:2,14	fees (1) 129:23	146:11,17 149:12	fourth (2) 132:11 158:2
23:21,21 24:11	enterprising (1) 134:5	25:19 26:9 41:11 59:6	138:4,5,14,23	fell (1) 29:16	154:5 155:17,24	fr (12) 6:4,22,22,25
28:11,21 35:5 36:2	entire (4) 116:24	81:11 82:20 102:1	142:8,11,14,15,16,17,25	felt (2) 99:17 181:11	168:22 177:16 178:18	7:12,25 8:1 115:16
43:11 44:23 45:4	117:12 152:1 184:23	107:7 108:7 109:19	143:4 144:10 145:2,2	few (8) 12:3 20:21,21	193:13 196:23 197:20	116:1,2,5,10
46:13 49:21 51:13	entirely (1) 127:4	155:21 165:11,14	159:9 162:13,14	21:20 87:11 100:13	203:16	fr5000s (33) 1:22 2:9,11
52:13 53:14 54:6	entirety (1) 135:14	173:22 204:20 205:13	163:9,10,13,15,15	101:20 144:18	firstly (1) 196:21	3:4,13 6:23 7:16,20
55:18,21 59:23,25	entitled (5) 76:13 105:9	exact (2) 13:24 183:17	164:16 168:10 183:18	fibre (5) 23:12	fit (1) 10:1	115:3,9,16 116:23
60:1,5,23,24 61:5	136:14 149:8 155:6	exactly (15) 7:10 12:20	184:14 199:12 202:22	139:16,16 188:8,18	five (4) 1:21 44:8	117:3,20,23 118:4
63:6,18 65:23	entry (8) 5:15 8:20 11:6	19:10 21:25 25:23	203:1	field (7) 14:17 176:24	202:10,11	119:16,19 121:10
66:11,15 67:24 68:3	38:23 39:7 47:18	34:17 40:2 50:1 60:8	extremely (2) 62:15	178:16 180:16	fix (1) 86:9	122:9 125:7 126:9,15
69:11 70:9	86:15 89:20	70:23 118:9 178:13	106:25	186:8,17 195:5	fixed (4) 48:24 60:10	127:6 131:8,23 139:3
71:21,22,23 73:4	envelope (2) 137:2	185:6 198:10 201:11	eye (1) 154:21	figure (2) 74:11 145:9	144:10 197:19	150:6 151:10,17,22
75:17 76:11 77:10	142:8	examines (1) 183:18		figures (1) 32:17	fixings (1) 14:20	152:1 158:15
81:18,18 82:17,22	equally (6) 116:20	example (15) 23:4		file (3) 6:18 22:14 149:5	flame (15) 151:3,5,22	fr5000rs5000 (1)
85:4,12,13 86:9	120:22 128:18 130:22	35:13 40:12 83:24		files (1) 22:11	155:18,20 162:14	118:14
87:4,7,10,20 89:3	160:3 183:22	139:24 162:2,4 174:14	faade (14) 15:5,13 82:9	fill (1) 159:14	163:11,15 164:16	frame (11) 90:1 144:11
93:15,17,18,18	equate (1) 15:6	176:1 177:19,23	84:5,19 85:1 92:7 93:1	filler (1) 138:21	168:8,11,19	146:7 147:5 161:21,24
94:20,24 95:1 96:5,24	equity (2) 123:17	178:22 179:2 183:20	104:6,8,9,18 190:4,6	filleted (1) 73:10	169:5,15,20	170:10 179:17
98:4 100:5 101:11	130:25	185:7	faades (1) 14:24	filling (1) 43:18	flames (1) 142:13	187:16,19 189:8
102:20 105:1,8 111:23	equivalent (1) 199:17	exceeds (1) 156:17	faade (1) 14:24	final (8) 16:17,25 17:3,9	flat (2) 116:5,11	free (4) 82:14 83:7 96:2
120:25 122:12,16,18	ergo (1) 152:12	exception (1) 172:16	fabric (1) 142:14	82:10 92:4 126:22	flint (1) 24:15	107:7
129:22 141:6	erm (7) 94:23 132:25	exchange (1) 86:9	facade (1) 168:10	171:2	flippancy (1) 99:3	freed (1) 105:2
146:13,14,25 148:15	148:25 154:18 181:11	exciting (1) 99:17	facades (2) 93:24 94:11	finalised (1) 33:7	floor (1) 189:9	front (2) 109:3 169:1
149:9 160:12 161:2,13	186:11 190:25	exercise (1) 129:21	face (14) 117:8 147:10	finally (2) 81:22 82:18	flyer (1) 45:24	fruits (1) 135:3
164:5,23 166:7	error (2) 75:7,7	exhibit (2) 21:2 60:2	148:3 150:11 161:22	financial (5) 112:20,23	flyers (5) 38:11,13	frustration (1) 100:4
167:5,19 168:1,13	eshots (1) 4:10	exist (2) 81:7 186:9	162:13 163:9,13,15	125:15,20,21	40:4,9 41:25	fryer (3) 121:1,8 122:12
170:20,23 175:17	especial (1) 21:10	existing (3) 2:5 124:4	168:10 169:18 170:11	financially (1) 130:9	foam (6) 92:7	full (14) 73:18 98:7
177:7,13 178:6,7	essence (1) 167:9	127:6	179:7 198:14	find (12) 2:25 22:8	93:1,9,11,11 155:25	137:17 157:20 175:23
183:4,7 185:21,22	essentially (7) 53:14	exit (1) 131:3	faced (1) 189:8	76:25 79:17 82:1	foams (1) 139:18	176:8 177:17 178:6
186:6,8,22 189:22,24	75:7 166:14,25 172:2	exova (1) 27:16	facer (3) 117:14	83:22 101:6 136:14	focus (6) 112:18 113:6	186:5 199:22
194:10,13	192:21 193:24	expanded (1) 158:6	151:13,21	146:21 148:19 167:18	131:5 136:19 169:8	200:8,20,22,22
196:2,13,14,23 197:16	established (1) 139:3	expect (3) 69:25 175:10	facility (2) 144:21 145:1	186:25	185:22	fuller (1) 44:16
199:3 202:16,19	et (5) 4:4 27:18,18	187:19	facing (1) 26:21	finding (1) 121:12	foil (1) 151:21	fullscale (3) 80:18
203:15	204:5,5	expected (2) 14:2 78:17	factfind (1) 38:10	findings (2) 158:21	folder (2) 89:14 109:3	140:17 186:14
emailed (2) 7:9 48:5	etag (2) 186:2,4	expecting (1) 16:23	factory (2) 50:4 111:5	159:17	follow (10) 21:15 25:13	fully (3) 61:24 62:5
emails (9) 16:4,5 61:19	etc (6) 60:12 68:10	experience (7) 35:23	failed (5) 23:15 36:6	fine (3) 166:1 202:13	32:6 52:6 54:16 57:8	175:19
102:19 121:5 164:13	138:22 147:7 179:18	92:22 110:13 128:14	74:15,18 75:2	205:16	88:25 151:20 152:4	fund (1) 48:4
189:12 203:11 205:2	188:14	133:23 168:20 177:24	failing (1) 112:22	finger (1) 80:3	189:10	further (28) 1:5 5:22
emotional (1) 105:12	eternit (9) 188:8,13,18	experiment (1) 43:9	failure (1) 127:19	fingers (2) 69:7 71:22	followed (5) 26:12	24:8 37:14 68:19
employed (1) 70:6	190:18 192:6,19 193:3	expert (2) 14:7,16	fair (3) 159:17 161:3	finish (3) 75:21 202:7	40:10 76:2 77:10	80:1,2,9
employees (2) 116:12	195:2 197:25	expertise (4) 14:23,23	164:21	203:15	80:23	90:12,13,18,20 94:5
130:18	european (3) 138:16	79:10 128:13	fairly (4) 115:14 140:3	finished (1) 16:15	following (6) 56:1 80:22	96:5 100:6,11 101:5
enable (1) 153:7	152:22 186:16	explain (3) 67:24 88:14	143:9 178:15	fire (59) 14:24 15:13	103:2 142:18 168:22	103:5,22,24 104:2
enables (1) 171:7	evans (28) 46:24,25	173:2	false (1) 5:3	27:17 28:5 29:10	183:12	106:15,21 161:13
encountering (1) 98:23	48:12 56:9,14 57:8,8	explained (9) 58:3	familiar (10) 45:15	31:21 33:4,15 44:13	follows (2) 96:7 97:22	175:18 186:21 197:6
encourage (1) 166:25	68:14 73:5 95:10	70:16 117:18 123:24	115:10,14 135:6,9,11	60:17 66:2 69:14 70:4	followup (1) 103:1	204:10
end (23) 8:10 10:23	105:3 112:14	138:17 140:10 141:1	142:22 149:11 154:19	86:24 88:2 111:2,8	followupbba (1) 102:23	future (3) 11:16 84:8,11
16:5 46:25 48:14	113:13,20 114:11	142:3 150:22	178:25	115:18	foot (4) 20:5 36:2 75:18	fuzzy (1) 5:18
57:22 58:23 73:10	123:23 124:23 125:1,3	explanation (6) 71:16	familiarised (1) 15:18	116:2,5,10,13,14	87:9	
79:16 85:12,12	126:20 132:6,19	175:23 176:4,8 177:17	familiarity (1) 173:15	117:11 121:24 122:14	force (1) 120:11	
86:3,19 87:6 91:9 97:6	133:14,25 134:2	200:5	family (1) 76:20	123:2 133:23	forcefully (1) 123:6	
100:20 104:11 106:22	140:20 172:20,23	explicit (1) 145:22	fantastic (1) 26:20	135:13,22 136:10	forgive (2) 186:7 195:16	gain (2) 139:23 202:24
125:17 189:18	even (20) 14:7 17:19	explicitly (2) 163:11	far (18) 45:2 49:15	137:3	forgotten (1) 88:16	gap (2) 159:8,13
197:3,18	34:25 35:18 55:9	200:19	55:10 63:17 84:25	142:10,11,12,17,24	form (6) 60:14 95:5	gaps (3) 120:23 158:25
ended (1) 189:20	73:17 93:1,7 113:4	exploitation (2) 97:20	85:16 90:21 94:14	143:4,12 145:2 147:6	97:3 181:13 182:8	159:8
			105:22 111:23 129:17			gaskets (1) 138:22

gather (1) 100:25	25:6,16,20 28:8 32:16	70:12 71:3,4,13,13	98:13,15 100:7 118:23	ian (1) 133:19	inconsistency (1)	34:16 36:8 37:6,7,9
gave (5) 96:18 140:21	34:16 37:17,18 42:3	78:22,24 79:6 81:2,5,6	134:24 144:5	id (18) 7:8,23 10:10	198:18	41:16 60:8 74:12
161:10 166:21 168:23	43:20 44:2 45:11	110:9 118:4,5 142:2	helped (1) 67:18	14:3 20:22 32:3 36:16	incorrect (1) 26:17	76:23 90:3 92:7 93:1
gd5000 (1) 1:24	50:24 51:17,22 57:13	144:3 165:5 176:20	helping (3) 31:16 36:7	39:6 48:23 50:14 52:9	increase (6) 124:2,4,6	94:10 105:17,23 106:4
general (9) 55:10 77:18	66:7,23 79:21 85:24	192:11 193:2 196:23	90:3	54:4 61:19,21 74:15	127:11 131:2 159:24	110:13 112:5 116:17
110:23 121:2 122:3	86:2 87:25 100:10,14	198:14	hence (1) 162:16	100:5 157:11 191:7	increasing (2) 123:19	117:8,9,14 120:2
134:16 137:1	107:13 109:4,5,19	hair (1) 96:4	hennecke (5) 118:24	idea (6) 3:24 44:15	124:1	138:19,21 139:14,17
139:13,18	112:21 122:20 127:12	half (1) 68:4	119:8,14,22,23	105:15 113:2 184:9	incurred (2) 3:19 4:6	141:2 147:4 150:11
generally (9) 14:24 42:9	134:12 141:23 146:9	halfway (5) 21:1 60:24	here (20) 11:4 16:8	185:14	index (2) 60:18 207:1	154:20 159:9,12
55:9 112:5 115:25	164:15,20 177:13	65:23 108:14 136:20	56:24 78:3 94:25	ideally (2) 187:1 188:1	indicates (1) 176:14	162:17 164:17
119:11 134:21,25	194:24 195:20,23	hand (10) 36:7 63:2	103:1 109:20 116:23	ideas (1) 88:4	indication (3) 42:14,18	168:9,25,25 179:5
180:11	199:11 201:1 202:8	90:3 151:3 152:7,8	123:13 124:8,17 141:6	identified (5)	91:3	181:18 183:22 187:22
generic (2) 93:22	205:7,7	153:2 171:17,18 172:6	151:12 154:19 160:8	20:14,19,25 21:2 42:6	indicative (1) 20:22	188:4 190:19 191:4,12
188:16	gone (2) 51:11 148:20	hands (1) 174:2	161:1 176:14 185:20	identify (5) 20:17	indicators (1) 112:12	192:1,17,22 193:4
generally (1) 184:7	good (14)	happen (3) 86:2 101:10	192:15,20	21:14,25 90:2 172:13	individual (3) 117:7	194:8 195:11 198:13
get (50) 16:18 17:2,13	1:3,8,9,12,15,16 11:14	165:13	herself (1) 53:14	identity (1) 130:15	143:13 145:24	199:21
21:5,21 26:22 27:1	59:11 61:1 64:22	happened (5) 68:18,21	hes (8) 7:11,14 61:10	ie (4) 103:6 183:14	individuals (12) 45:21	insured (1) 94:12
36:14 37:7 39:18	101:13 107:14 162:3	75:6 86:6 194:18	87:8 88:3 163:11,14	190:18 199:15	114:16,18 123:15	integrity (4) 97:25
41:19 42:17 50:9,15	183:9	happening (2) 55:3	186:15	ifc (5) 133:14,20,21,25	171:17,18	98:14,16,18
51:1,8,10 52:20 56:6	goto (1) 134:25	192:4	hi (21) 9:20 11:13 12:2	134:6	172:5,5,7,9,13 203:8	intel (2) 121:8 180:10
69:7 72:10 76:19	grade (2) 147:10 148:2	happy (5) 27:5,9 39:18	16:11 20:7 36:3,25	ignorance (1) 31:15	induction (1) 111:4	intelligence (2) 91:12
84:17 93:5 96:16	graham (7)	102:14 108:11	37:4 44:25 49:24	ignorant (1) 19:10	industry (9) 78:8,19	92:3
100:20 101:11 105:5	196:2,4,15,19 199:4	hard (1) 109:6	56:10 65:24 68:5	ignore (2) 71:5,14	79:1,6,22 110:14	intelligible (1) 41:8
106:1,17 108:20	201:18 203:17	harder (1) 63:11	76:18 81:21 86:21	ill (6) 19:20 22:4 59:24	133:12 152:20 153:6	intend (1) 40:6
110:25 111:8,10,25	graphs (1) 72:5	harley (37) 5:13 8:25	87:24 95:3 102:25	102:19 148:10 195:25	infer (1) 155:19	intention (1) 204:8
121:21,24 123:3	grateful (4) 100:21	9:2,18 11:7 12:19	104:24 162:8	illusion (1) 64:25	inferior (1) 152:24	interaction (2) 142:8
125:16 139:24 149:4	106:25 107:6 108:8	13:5,16 15:11	high (2) 55:11 102:24	im (41) 5:17 10:6 15:23	info (2) 87:15 88:3	143:3
157:17 166:24 171:3	great (3) 29:22 82:8	18:16,21 21:24 22:1	higher (3) 55:13 185:19	32:16 35:8 36:22 37:5	inform (1) 94:16	interest (1) 87:17
177:9 180:14,16	84:4	23:15 27:10 28:1,8	189:10	62:20,20,21 64:16	information (20) 4:5	interested (2) 41:17
181:11 187:1 197:13	greater (6) 30:8,10	31:1,11 47:6,24 48:14	highlight (1) 33:12	71:12 74:23 87:25	7:9 10:7 43:17 61:20	203:22
getting (10) 10:6 37:5	147:6 169:6 185:12	50:19,25 51:8 52:7	highlighting (1) 146:22	91:22 100:19,21	63:2 69:13 77:25	internal (3) 98:2 142:14
52:7 101:21 106:18	187:20	53:16 54:8 56:1 57:22	hilti (1) 14:19	101:15 105:15,20,25	79:22 83:10,15,16,18	204:1
112:24 113:1 131:8	green (3) 31:11,17	58:4,15,19,23 77:25	himself (2) 15:19 66:25	106:9 108:11 109:5	84:9 91:15 98:8,10	internally (6) 24:8 57:1
165:1 199:24	95:20	78:17 81:5	hindsight (3) 25:25	110:4 134:12 140:5	134:10 175:20 200:3	72:22 81:4 134:23
gill (4) 53:9,14 57:4,5	grenfell (58) 5:13 6:2	harleys (3) 10:14 16:25	34:22 195:18	141:21 146:9 154:19	inherently (1) 147:6	203:25
give (34) 22:4 42:14,18	7:15,21 8:2,12 9:12	61:17	hipchen (5) 118:23	155:15 162:9 168:4	initial (16) 16:13 18:13	interpret (2) 200:16,17
46:10 51:6,9 62:12	10:14,19 11:1 12:5,15	13:10,23 15:21 19:6	119:1,5,9,14	171:2 177:13 183:4	94:6 115:23 120:19	interpretation (3)
72:19 73:3 75:22 76:7	23:11 25:7 26:13	hantlebury (1) 46:24	history (1) 129:15	185:18 195:20 196:16	129:25 140:24 143:8	164:13 197:11 198:16
83:19 88:7 93:6 95:20	28:2,5 34:1 38:7,19	havent (1) 143:19	hoc (1) 111:21	199:11 205:7	159:21 163:17 164:5	interpreted (4) 30:2
99:24 100:24 107:7	39:1,13,22 40:1,11	having (19) 6:16 10:12	hold (2) 17:13 52:20	image (1) 12:25	189:19 197:4,22 199:7	62:7 90:14,21
109:19 111:20 113:2	41:14,20 42:19,21	12:8,21 14:22 22:7	holiday (2) 95:10,25	images (2) 22:22 24:19	203:21	interrupt (1) 14:6
121:18 133:1,14	43:8,13,14 44:17	63:2 72:13 80:12	holistic (1) 158:2	imagine (4) 8:23 60:14	initially (3) 112:14	interviews (1) 116:15
148:23 153:9 166:19	47:7,19 48:17	116:24 117:4 158:24	honest (6) 51:9 72:11	68:7 77:13	126:11 176:21	into (37) 29:24 34:15
175:10 176:3,12	49:14,18,23 50:13	159:23 161:3 162:20	160:25 177:25 180:9	immediately (2) 46:22	139:22	36:6 55:2,16 69:17
177:17,18 179:2	60:3 63:16,18,21	163:2 166:11 168:5	195:15	178:25	inner (8) 4:17 23:3,6,8	76:25 79:17 80:5
185:12	64:20 65:3,7,15 69:22	185:5	honestly (2) 61:24	immense (1) 97:16	151:16 161:21 164:9	83:24 88:18 89:1
given (43) 7:6 14:12	70:12,18 77:17 78:2	hayes (15) 60:20 65:21	181:11	impact (2) 24:10 36:7	168:10	96:14 125:19 126:9
15:16 18:24 30:7	80:22	73:4 111:13 123:12	honesty (1) 97:24	impinge (1) 142:13	innovation (1) 124:6	139:23 143:20,22,24
35:16 44:3 49:15	grew (2) 126:12 128:21	124:8,17 126:12	hope (5) 55:23 96:1	imply (1) 163:14	input (3) 55:2,16 88:6	150:23 153:17
50:23 55:9 62:8,17	ground (1) 138:21	127:1,20 128:6 129:4	121:23 122:13 196:21	importance (2) 102:24	inquiry (9) 1:14 106:24	157:10,12,17 158:3,6
65:17 71:1 93:4 104:1	group (6) 44:19,19 45:8	134:23 141:7 172:18	hoped (1) 195:2	142:25	108:5,7 109:1,20	163:2 169:6 173:23
111:18 112:5 114:10	97:9,15 123:18	head (5) 10:16 56:22	hopeful (2) 175:12	important (6) 25:22	205:15 207:5,10	174:5,16 175:6 179:24
118:7 120:20 122:18	grow (2) 130:6,17	108:22 113:16,17	182:19	126:3 142:13 145:17	insight (1) 139:23	187:11 195:7,8 200:10
123:15 127:17 132:19	growing (1) 105:10	61:2,5,9,14,16 62:12	hoping (3) 63:1 87:18	147:19 190:11	insomuch (1) 13:20	invest (4) 121:23
137:15,16,17 140:6	growth (1) 130:13	70:9	171:3	importantly (3) 60:12	installation (2) 38:6,9	122:13 166:18,25
141:14 150:20 151:7	gs5000 (1) 1:24	headache (7)	horizontal (1) 151:4	188:7,20	installed (5) 34:16	investigations (3)
159:23 161:1 167:15	guarantee (1) 143:12	headhunted (2)	hour (2) 68:4 76:5	impossible (2) 140:11	47:22 60:9,14 181:7	27:12,13 106:25
181:1 184:19,23	guess (2) 194:5,20	99:22,23	house (6) 11:7 77:20	180:16	installer (2) 47:24 48:15	investment (9) 99:18
194:16 195:9,17	guidance (16)	heads (2) 105:5 114:18	130:25 177:1 182:23	impression (7) 8:9,17	installers (1) 78:6	122:25 130:13
199:16 201:11	76:13,13,22 78:3	health (1) 137:4	198:11	14:12,15 41:19	installing (1) 39:16	131:15,19 160:3
gives (2) 72:14 88:2	80:13 82:11 134:15	heard (1) 193:11	howard (24) 86:4	100:9,12	instance (4) 18:14	162:21 166:12,23
giving (5) 82:13 83:6	136:9 137:14 140:14	hearing (4) 1:4,4 45:3	87:1,7,25 88:21 89:7	incentive (1) 125:15	56:20 68:11 190:5	invoice (2) 58:2,4
108:7 164:14 201:25	153:6 155:3,5,8 197:6	206:3	102:18 103:2	include (5) 15:12	instantly (1) 142:22	invoiced (1) 78:1
glean (2) 83:10,15	199:16	heat (1) 150:20	104:6,14,16 105:21	44:13,14 90:21 98:3	instead (5) 6:7 7:16	involve (3) 30:10 41:15
gleaning (1) 79:21	guide (3) 33:9 83:20	heavily (2) 126:23	106:17 147:24 170:24	included (4) 29:19	197:25	involved (13) 45:12
global (1) 73:25	105:3	127:18	175:10 182:17,22	126:13 156:4 178:21	57:23 127:5 185:5	50:9 70:14 79:5 84:1
gobain (2) 123:22,25	guidelines (1) 177:22	hed (1) 50:18	183:7 185:20 186:22	includes (1) 125:6	instruct (1) 83:13	123:22 126:23 142:16
gobains (1) 127:18	guinea (2) 41:20 43:9	height (7) 29:3 33:7	189:4,24 191:8	including (5) 69:22 96:1	insulants (2) 140:1	149:4 150:17
goes (7) 27:15 29:8	H	156:17	however (7) 95:15	138:22 142:12 179:25	155:25	157:20,21 161:21
32:23 87:20 95:8 98:5	hadnt (27) 16:21 33:22	heightened (1) 123:21	97:17 123:20 156:3	income (1) 181:14	insulation (66)	13:1,8,20 16:14
121:15	40:18 48:25 65:9	help (14) 7:19 8:3 60:13	175:22 179:14 197:2	inconceivable (1) 185:1	13:1,8,20 16:14	17:6,11,17,20 20:23
going (49) 1:4 8:17		80:1 83:10,16,19 88:4	huge (1) 113:5	inconsistencies (3)	21:11 22:20 29:6	isnt (17) 31:24 45:24
16:15 18:16			I	198:7,16 200:1		

49:16 61:23 67:7 115:7 117:20 120:1 131:10 159:6 166:15 174:14 179:23 187:21 188:4 190:15 202:2 issued (5) 29:11 97:2 181:5,15 197:12 issues (4) 155:16 192:7 194:14 197:6 issuing (2) 92:5,23 item (3) 25:3 29:6 32:20 its (104) 10:3,9 12:17 20:15 23:3 25:3 28:24 30:1 31:25,25 36:22,25 41:25 44:15 45:11 46:15 48:19,22,23 51:3 55:8 57:4 61:23 66:15 67:7,7,11,16 72:14 74:15 75:14,17 76:11 84:7 86:15 88:23 90:7 91:22 93:17 96:10 97:12 99:5,8 100:19,24 101:12 105:8,9 107:3 113:9 115:4,16 117:20 118:1 119:12 120:1,25 125:23 127:14 131:9 135:14 140:11 141:2,4,6,23 143:2,23,23 144:17,23 146:14 148:15 149:7,7,13 151:10 153:19,21 154:3,12 155:7,9 163:10,21 164:25 165:2,4 177:12,14 182:8,10,11 183:5 184:22 185:21 191:17 194:7,9,11 196:14 198:20 200:19 201:5 itself (10) 4:10 27:11 63:21 65:3 70:18 73:19 117:14 140:8 146:12 167:23 ive (18) 6:9,10,13,21 8:21 47:16 52:15 58:11 60:22 84:3 104:25 105:4,15 146:25 156:20 194:11 198:5 202:5	joined (10) 109:22 110:23 112:6,17 114:22 115:11,12,13 122:18 140:11 joining (3) 116:16 147:20 150:15 joint (2) 174:11 178:23 jointed (1) 174:13 jointing (1) 178:25 joints (1) 177:21 jon (7) 48:8 61:1 69:4 75:19 87:10 103:13 123:24 jonathan (19) 1:5,7 9:23 20:7 36:25 37:4 68:5 86:23 95:3 96:11 104:24 107:23,24 148:15,18 162:8 199:5 207:3,8 jones (3) 104:9,12,14 jonno (2) 48:6 93:21 jordan (1) 97:24 jpeg (1) 189:12 jr (9) 97:14 98:6,16 103:7,11 104:9 127:8 158:9,10 jrs (3) 98:14,15 127:15 judgements (1) 89:24 judging (1) 122:18 jump (1) 201:5 june (13) 44:24 76:14 93:15,18 155:9,12 157:5 168:1,15 193:15 194:1,17 204:21 justification (2) 159:21 184:16 justify (1) 192:22 justifying (2) 30:4 174:5 jwrr35c00456 (1) 21:3 jwrr36c00457 (1) 21:3	82:24 123:22 124:8 128:16 130:16 138:10 150:9,9 151:8 156:8 170:6 186:8 193:17 195:9,17 know (108) 4:1 8:7 9:11,25 10:2,23 15:4,11,15,16 18:6,8,18 31:19 33:16 40:21 41:10 42:10 45:18 46:4 47:23 50:4,7 51:4 52:10,10,22 53:24 54:3,4 55:25 57:15,16,21,22 60:3,8 61:7 63:7,12,24 65:4,13,14,14 66:23 68:1,18 70:14,25 73:1 74:14,17 77:1 78:7 79:18 83:2,11,16 84:7,8 88:17,21,23 89:14 91:25 92:10 96:18 98:20,20 99:12 104:2 107:3 108:14 129:25 130:2,24 134:3 138:9 141:10,13 143:23 150:19 153:16 157:19,22 162:1 164:11 167:21 179:23 180:4,5,21 181:17 183:18 189:11 191:17 193:19 194:6,20 195:15 197:12,20 201:5 203:8 204:15,16,18 knowing (3) 34:8,15 41:1 knowledge (11) 14:21 15:1 81:7 112:6 122:22 139:11 150:3,18 157:10 163:20 204:25 knowledgeable (1) 15:9 known (2) 116:18 194:4 kooltherm (4) 159:1,6 169:12 175:2 kpi (4) 112:22 113:3 126:3 141:24 kpis (11) 112:12,16,18,20 113:6 124:12,22 125:17,25 128:19 131:7	52:14 67:24 68:4 73:13 76:5,10 82:16 83:4 87:11 113:15 117:20 118:12 123:8,22 127:24 132:17 133:2,7 134:13 146:9 147:11 148:11,14 157:13 164:13 175:15 177:14 189:5 190:11 196:15,15 latest (4) 1:20 4:24 5:2 24:15 lathbury (1) 133:19 latter (1) 2:20 launch (11) 1:18 3:10 4:11,19 134:11 153:12,14,16 154:7,8 157:9 launched (4) 4:23 125:11 128:1 173:6 layer (1) 74:12 layers (1) 24:8 layout (1) 40:8 lead (3) 50:5 56:5,12 leader (2) 60:21 65:22 leaf (1) 161:21 lean (1) 129:2 learn (1) 2:14 learned (2) 194:12,17 learnt (3) 2:16 30:1 116:16 least (9) 112:10 124:1 125:1 130:11,25 143:6 146:1 149:24 174:1 leave (7) 26:4 36:11 66:14 75:24 97:18 98:23 156:21 leaving (2) 110:5 157:23 led (4) 5:10 123:15 124:11 160:4 left (9) 2:19 5:14 19:4,8 100:9 101:7 113:18 125:9 166:6 lefthand (3) 23:4 46:22 145:8 legal (2) 97:20 98:23 legible (1) 6:10 legitimately (1) 180:22 lengthy (1) 185:21 less (3) 56:11 126:5 174:25 lesser (1) 185:4 let (13) 9:11 16:17 50:4,7 55:25 77:1 79:18 84:17 108:14 126:14 176:7 189:11 192:14 lets (31) 11:4 14:5 20:12,24 24:17 28:11 32:15 41:11 44:16,21 54:7 55:20 58:1 68:1,25 74:22 86:13 93:16 94:25 121:23 122:12 132:9 135:13 136:13 142:4 143:20 161:13 164:23 167:25 178:11 189:4 letter (2) 47:23 48:14 level (7) 70:20 72:5 87:13 138:21 161:23 163:20 180:13	lewis (1) 85:13 lieu (1) 72:12 life (3) 14:19 105:16 195:4 light (3) 31:7 84:22 95:20 like (51) 9:6 10:5 11:5,22 17:6 19:12 23:20 28:18 34:21 37:25 38:23 40:4 44:5 48:25 49:10 55:19 59:9,22 61:19 69:14 70:4 73:5 77:5 81:16,18,24 82:2 83:9 86:15,17,23,25 88:5 89:1 97:15 99:18 101:15,24 104:6 108:10 164:11 165:17 166:14 178:22 184:9 187:1 188:9,11 195:21 196:14 205:20 likely (7) 39:6 48:19,22,23 90:7 91:22 137:3 limit (3) 171:7,13 190:16 limited (23) 26:11,17 61:24 62:15 67:3 74:9 80:17 138:23 139:4,7,15 140:2,7 152:8,12 153:2 154:24 156:1,21,24 157:1 183:15 184:8 line (32) 8:21 12:8,21 22:19 24:24 26:14 27:3,7,19 30:22 43:14 46:18 76:21 77:21 95:12 99:24 112:3 118:20,22 119:1,8,20,22 129:6 132:11 148:1 161:15 162:14,20 166:11 197:14 200:7 linear (1) 80:17 lined (1) 89:14 lines (6) 23:9 118:16,23 119:17,18 194:13 link (3) 20:8 22:2 125:19 linked (1) 112:20 list (19) 29:9 50:8,25 51:11,15,23 52:2 55:13,13 56:4,11,20 57:2,19 95:18 96:18 98:7 132:19 186:25 listed (2) 12:5 29:12 lists (1) 29:6 literally (3) 40:4 43:18 83:3 literature (15) 7:23 8:9 14:3 15:20 19:15,22 23:16 35:2 42:8 62:10 71:4,8 92:18 180:12,17 little (18) 3:8 4:18 5:18,22 24:2 52:14 82:1 100:25 101:9 113:15 121:14 128:16 168:15 175:15 185:19 186:6 196:3,15 lizzie (1) 46:23 locations (1) 145:10 logic (1) 30:15	logical (1) 195:7 london (1) 97:16 long (10) 97:12 102:15 107:4 153:14,16 154:8 165:9 177:13 196:12 202:8 longer (5) 92:5 100:20 121:20 169:5 201:9 look (90) 4:9 12:15 20:4,24 21:7 23:2,4,20,20 24:17 28:11,22,23 31:22 32:15,16,20 35:4 36:1 38:22 41:11 42:11 44:16 45:3 47:17 49:20 52:13 53:17 54:7 55:17 58:1 59:22 62:24 65:23 71:21 74:10,21 75:22 76:10 79:23,25 80:9 81:18 85:4 86:13 87:4,5 95:14 99:4 104:20 113:23 115:1,3 121:6,14 124:21 127:1 129:4 132:1,9 133:9 136:13 138:4,12 140:20 141:20,22 142:4,5 144:15 149:5,11,12 153:21 154:18 155:3,16 158:8,21 161:13 170:22 178:11 180:7 187:15 189:4,21 196:12 199:12 202:20 205:21 looked (24) 6:18 12:10,14 21:18,19 22:16 28:25 29:3 49:15 52:24 53:1 68:23 85:5,7,18 128:2 136:17 140:16 141:21 151:11 163:2 164:24 167:5 201:12 looking (49) 5:5 14:20 16:1,12,20 20:21 21:9 22:8,14,17,24 23:18 24:3 28:14 34:22 35:13 56:14 62:2 66:9 74:19,20 75:25 83:22 84:9 85:18 90:11,12 109:5 122:4 126:2 142:23 147:1 149:1,3,23 151:9,11 154:1,19 159:17 166:7 173:20 174:10 177:20 185:4 188:8 190:23 197:7 203:16 looks (17) 5:21 7:10 10:5 11:5,22 17:6 28:20 38:23 39:3 77:20 86:15,17,25 126:6 164:11 166:14 197:16 losing (2) 121:12 164:7 loss (1) 182:6 lost (9) 121:2,8,10 122:6 158:23 161:19 162:20 166:11 180:11 lot (9) 22:10,10 78:6,7 87:14 164:7 173:11 189:19 205:11 lovely (3) 55:23 81:22 82:18	lower (1) 70:10 lpcb (4) 181:4,12,13 182:4 luke (2) 189:23 190:10 lunch (2) 101:14 107:12 M magnesium (2) 170:8,16 maidstone (1) 53:10 main (8) 39:14 47:10 64:9 120:12 171:11 179:4 185:1 198:6 mainly (5) 112:23 123:16 129:22 141:15 180:13 major (2) 42:21 126:17 majority (4) 130:19 163:16 172:16 179:11 makes (2) 142:23 145:22 making (9) 11:19 19:9 27:11 61:13 63:15 96:3 99:19 104:7 123:19 manage (1) 202:11 managed (1) 81:25 management (10) 45:10,20 56:22 61:21 79:25 80:9 92:1 98:9 125:4 157:11 manager (16) 46:18 48:10 91:23 99:24 109:23 111:12 112:3 113:10,19,25 114:12,17 128:20,22 132:23 146:18 managers (2) 129:1 133:17 managing (1) 172:24 manoeuvre (1) 83:23 manufacture (2) 56:3 140:7 manufactured (9) 118:15,18,20,21 119:8,12,14,16,17 manufacturer (4) 25:3 27:14 72:11 182:9 manufacturers (2) 106:3 148:21 manufacturing (2) 118:13 119:3 many (4) 118:17 121:19 161:19 187:11 march (13) 36:24 49:21 52:17 53:15 54:9 55:18,21 153:19 154:3 158:9 160:8,19 161:4 mark (6) 12:3,24 47:20,23 48:13,23 market (39) 67:14 91:11,17 92:3 96:14 97:15 100:11 105:10 118:2 119:25 120:23 121:3,8 122:5 123:5 126:10 127:13 128:3 129:9,21 130:6,8 159:2,14,19 163:3 169:2 170:3 171:20 173:7,8 174:24 175:25 179:1,11 180:5,24 187:10 195:8
---	---	---	--	---	--	---

marketed (2) 118:1 179:24	meant (20) 4:7 7:25 18:3,4 26:5 30:8 50:14 69:12 70:2,3 84:16 98:20 99:7 105:13 124:5 138:7 147:13 149:25 152:20 201:16	midmarch (1) 78:2 midoctober (1) 87:5 might (23) 7:20,25 8:1,4 12:24 14:9,16 17:21 19:9 41:17 61:12 66:16 69:18 75:2 77:20 89:10 92:1 98:17 101:9 144:20 176:3,13 195:3 millett (42) 1:13,15 14:6,15 49:6,12 51:25 58:25 59:18,19 100:18 101:8,9,16,18 102:3,10,11 106:20 107:13,21,22 108:3,4,6 164:25 165:2,4,7 166:3,4 182:3,5,16 195:19,25 202:4,10,15 205:1,5 206:1	205:4,11,17,19,24 more (40) 4:18 13:7 14:19,24 24:2 29:23,24 42:7 45:24 46:1,6 48:23 50:1 51:5 53:6 55:14 77:18 80:6 85:16 91:13 94:14,16 95:23 99:25 102:8 112:5,7 118:12 124:4 134:10,13 138:20 176:7 181:8 182:17,23 189:10 202:5 204:12 205:8	necessary (6) 27:22 66:16 68:12 69:10,12 128:14 neck (1) 82:12 need (30) 4:17 7:2 24:4 28:15 29:12 36:12 41:23 42:11,16 49:25 50:1 51:23 66:5 80:15 87:5,14 94:19 100:23 103:6 108:13,23 124:2 138:25 151:7 161:16 162:6,15 175:18 189:10 202:25 needed (12) 7:6 56:19 80:4 103:24 104:16 159:24 164:15,19 167:10 180:4,4 201:9	notes (12) 76:22 77:6,7 82:4 88:18,24 89:7,9,12,16,24 102:22 nothing (6) 32:19 58:21 68:20,20 83:17 191:20 noticed (2) 25:16 29:18 november (24) 1:1 9:17 10:13,20 11:5,7,18,23 12:1 16:16,22,22 86:6,19,20 102:17,21 104:23 186:23 189:5,23 196:3,16 206:4	okay (15) 8:6 10:22 44:21 46:22 52:12 59:7 75:4,9 86:19 108:18,25 109:7 157:25 178:19 205:10 old (1) 114:6 omitted (2) 61:4 63:5 once (10) 16:15 96:15 105:2 112:7 123:21 142:13 163:24 167:15 171:2 191:9 onepage (2) 38:11 105:9 ones (3) 135:13,17 181:19 ongoing (1) 4:22 online (1) 141:11 onto (5) 159:4,10 179:6,17 187:16 onus (2) 181:6,16 open (6) 97:19 98:22,23 130:18 174:13 200:15 opened (1) 21:15 openness (1) 97:24 operating (1) 171:20 operation (1) 15:3 opportunities (6) 121:2 122:7,8 128:2 161:20 180:11 opportunity (3) 128:4 158:24 159:19 opposed (6) 31:3 103:13 109:6 144:13 174:4 200:18 opposite (1) 200:12 optimism (1) 195:16 optimistic (1) 195:5 option (9) 81:10 121:23 156:25,25,25 157:1,3 158:2 186:18 options (6) 48:12 104:2 156:13,18,25 158:6 orand (1) 158:17 order (13) 6:8 21:14 22:8 47:9 49:25 50:17 51:12 56:6,12 57:23 58:5 131:3 141:22 ordered (1) 78:1 ordering (1) 37:5 orders (1) 121:9 organisation (1) 133:21 organisations (2) 133:11 153:5 organiser (1) 86:18 organogram (2) 46:19 99:4 originally (2) 7:21 8:1 originated (3) 70:11,16 123:16 origins (1) 119:24 others (13) 1:23 43:2 54:2 83:11 102:13 124:9 126:5 139:23 172:20,23 188:19 191:18 196:13 otherwise (1) 112:25 ought (1) 165:1 ours (1) 168:6 ourselves (2) 171:7,13 outer (11) 23:3,5,8 147:2,10 148:2 161:22 162:3 164:9 169:18 179:7
marketingproduct (1) 45:10	medium (1) 137:3	mindful (1) 50:2	multi (1) 1:22	net (1) 55:12	o (3) 117:5 152:16 183:14	o (3) 117:5 152:16 183:14
marketplace (4) 69:17 116:21 128:17 153:17	meet (16) 24:4 28:15 47:13 81:22 82:18 104:6 112:22 127:17 137:14,15 138:5 140:16 156:1 194:7 199:16,17	mind (20) 8:18 19:13,21 31:10 41:22 61:8 64:18 65:11,16 79:12,15 81:13 84:24 113:7 120:17 147:3 152:5 160:7 182:16 196:8	multiple (1) 163:8	network (1) 72:17	objective (2) 125:6 126:6	objective (2) 125:6 126:6
marking (3) 149:6,14 202:25	meeting (55) 1:18 3:21 5:20 11:6,15,22 13:17,18 38:4,4,6,24 39:5,8 47:5,6,8,11 48:17,24 85:24 86:1,9 87:25 88:5,8,9,13,17,22,25 89:6,16,21 90:5,16 91:2 96:19 98:3,6,11 102:17 103:2 106:2,10 137:23 156:3 160:18,24 167:7 168:14 194:17 204:11,13,22	million (1) 174:18	much (42) 2:16 5:17 21:8 30:10 47:3 59:8 82:16 96:12 98:8 100:18 106:20,24 107:5,9,17,25 108:6 114:23 124:14 143:6 150:19,23 156:10 163:21 167:16 174:19 177:9 181:8 182:11,15 187:5 188:9,12,16 190:16 195:21 197:14 199:6 203:21 205:4,19,24	never (7) 14:12 74:5,6,6 139:9 140:1,5 194:17	objectives (1) 112:22	objectives (1) 112:22
marks (3) 12:8,12,21	meetings5000 (1) 102:22	mindful (1) 50:2	multi (1) 1:22	news (1) 100:6	objectiveskpis (1) 124:24	objectiveskpis (1) 124:24
marley (2) 188:13 197:25	meetings (9) 14:18 111:22 114:1,2,9,10,15,19 203:12	mindful (1) 50:2	multiple (1) 163:8	next (24) 20:4 32:17 39:20 53:13 88:1 95:25 98:12 103:19 104:22 109:13 126:4 133:9 134:8 137:7,13 138:8,11 149:21 168:4 171:5 178:3,3 179:2 205:14	observe (1) 3:9	observe (1) 3:9
martin (46) 1:3,8,10,12 14:6,14 49:10 51:17,20 59:3,8,15,17 101:2,13,17,19,24 102:7,10 107:2,9,11,15,21,25 108:4 164:25 165:3,5,8,17,24 166:2 182:3,7,15 195:23 202:8,11,14 205:4,11,17,19,24	meeting (55) 1:18 3:21 5:20 11:6,15,22 13:17,18 38:4,4,6,24 39:5,8 47:5,6,8,11 48:17,24 85:24 86:1,9 87:25 88:5,8,9,13,17,22,25 89:6,16,21 90:5,16 91:2 96:19 98:3,6,11 102:17 103:2 106:2,10 137:23 156:3 160:18,24 167:7 168:14 194:17 204:11,13,22	mindful (1) 50:2	multiple (1) 163:8	nhbc (34) 92:4,10,22 93:5,24 94:2,7,12 96:9,17,19 98:9,23 132:22 133:10 134:9 167:16 177:22 196:1,2,13 197:7,9 198:8,12,18 199:8 203:6,25 204:3,16,17,18,22	obtain (4) 18:16 123:5 134:10 149:19	obtain (4) 18:16 123:5 134:10 149:19
masonry (8) 144:13 146:6 159:4 164:3 179:6,16 187:17,19	meetings (9) 14:18 111:22 114:1,2,9,10,15,19 203:12	mindful (1) 50:2	multiple (1) 163:8	nicholls (3) 98:4 99:2,3 nobody (1) 2:11	obvious (4) 34:20 44:1 62:21 203:24	obvious (4) 34:20 44:1 62:21 203:24
mass (2) 22:7 36:25	meets (1) 203:3	mindful (1) 50:2	multiple (1) 163:8	nod (1) 108:22	obviously (2) 115:13 122:21	obviously (2) 115:13 122:21
material (28) 10:25 21:24 26:16,19,22 29:20,23,25 30:11,17 34:8,16,25 42:15 50:20 67:14 84:11 138:21 139:4,7 140:8,11 152:12 156:24 157:1 183:19 193:22 203:2	members (1) 126:13	mindful (1) 50:2	multiple (1) 163:8	nods (1) 148:7	occasion (2) 14:19 54:3 occasionally (1) 152:23 occasions (2) 144:18 165:13	occasion (2) 14:19 54:3 occasionally (1) 152:23 occasions (2) 144:18 165:13
materials (17) 55:9 82:8 84:5,8,13,19,20,21 85:1 137:8 139:15 140:2 154:20 155:7 162:17 178:23 183:16	memory (5) 77:6 89:10 117:8 135:16 157:10	mindful (1) 50:2	multiple (1) 163:8	nomenclature (1) 54:14 nonbearing (1) 144:10 noncombustible (8) 139:15 140:12 154:24 163:10 168:24 169:4,18 170:6	occupied (2) 114:22 190:14	occupied (2) 114:22 190:14
materialsproducts (1) 138:19	mention (3) 13:9 60:3 132:17	mindful (1) 50:2	multiple (1) 163:8	nobody (1) 2:11	occur (7) 14:9 17:18 23:15 34:23 65:8 70:15 71:19	occur (7) 14:9 17:18 23:15 34:23 65:8 70:15 71:19
matter (8) 58:22 129:15 139:24 161:2 181:22 182:20 196:22 197:10	message (7) 75:24 95:11,23 96:13,17 143:9 151:15	mindful (1) 50:2	multiple (1) 163:8	nod (1) 108:22	occurred (2) 62:17,23 oclock (3) 101:22 205:9,25	occurred (2) 62:17,23 oclock (3) 101:22 205:9,25
matters (5) 64:2,14 90:15 101:5 189:15	met (6) 39:12 113:3 117:9 132:18 184:15,15	mindful (1) 50:2	multiple (1) 163:8	nods (1) 148:7	october (13) 6:6 81:20 82:16,19 86:10 87:9,21 89:21 109:2 170:24 175:15 177:15 183:10	october (13) 6:6 81:20 82:16,19 86:10 87:9,21 89:21 109:2 170:24 175:15 177:15 183:10
max00000216 (1) 115:2	method (1) 178:14	mindful (1) 50:2	multiple (1) 163:8	nonbearing (1) 144:10	offer (13) 37:10 47:23 48:14 57:13 81:24 92:5 94:13 103:22 121:22 167:17 171:9 174:12 182:8 offered (5) 55:11 58:17 86:10 92:25 99:16 offering (6) 34:1 50:11 55:6 57:2,18 58:14 office (3) 38:25 39:12 82:1	offer (13) 37:10 47:23 48:14 57:13 81:24 92:5 94:13 103:22 121:22 167:17 171:9 174:12 182:8 offered (5) 55:11 58:17 86:10 92:25 99:16 offering (6) 34:1 50:11 55:6 57:2,18 58:14 office (3) 38:25 39:12 82:1
maybe (7) 79:25 83:21 89:3 91:25 106:15 134:3 191:18	metre (3) 4:19 127:7 129:9	mindful (1) 50:2	multiple (1) 163:8	none (1) 110:15 nonetheless (2) 55:3 64:17	offices (1) 12:19 often (5) 35:23 44:4 77:5 83:20 167:12 oh (3) 18:15 48:11 165:2	offices (1) 12:19 often (5) 35:23 44:4 77:5 83:20 167:12 oh (3) 18:15 48:11 165:2
mc (2) 39:14 48:1	metreage (1) 12:16	mindful (1) 50:2	multiple (1) 163:8	nonetheless (2) 55:3	o (3) 117:5 152:16 183:14	o (3) 117:5 152:16 183:14
mean (36) 5:5 7:8 10:1,15 17:15 18:10 19:24 38:9 41:15 53:1,23 55:8 62:2 64:22 78:4 79:4 84:12,19,21 110:21 112:2,24 128:19 144:5 152:12 154:12 160:25 170:13 175:1 176:2 178:16 180:9 181:23 188:20 200:23,23	metres (29) 3:18,18 7:15,22 8:3 18:7 28:8 29:3 33:25 34:17 42:22,25 62:1,14 67:4 92:25 93:7,12 120:3,14 126:10,16 128:15 129:17 131:9 134:18,18 175:7 179:15	mindful (1) 50:2	multiple (1) 163:8	nonetheless (2) 55:3	o (3) 117:5 152:16 183:14	o (3) 117:5 152:16 183:14
means (3) 10:9 27:23 122:17	micromanaged (2) 111:19 112:1	mindful (1) 50:2	multiple (1) 163:8	nonetheless (2) 55:3	o (3) 117:5 152:16 183:14	o (3) 117:5 152:16 183:14
	middle (4) 64:8 85:11 116:25 202:21	mindful (1) 50:2	multiple (1) 163:8	nonetheless (2) 55:3	o (3) 117:5 152:16 183:14	o (3) 117:5 152:16 183:14
	midjune (1) 97:5	mindful (1) 50:2	multiple (1) 163:8	nonetheless (2) 55:3	o (3) 117:5 152:16 183:14	o (3) 117:5 152:16 183:14

Opus 2 International
Official Court Reporters

transcripts@opus2.com
+44 (0)20 3008 5900

q (748)	93:5,11,14 94:22,25	187:9,14,24	40:19,24 41:1,5 43:25	8:21,22	registered (1) 202:24	75:1,8 86:24 88:2 91:9
2:5,8,11,14,17,19,22,25	95:8 97:4,10 98:18,21	188:6,23,25	44:3,3 104:8,18	recall (25) 6:16 7:5	regs (1) 200:4	125:11 137:16
3:3,7,9,15,24 4:1,6,9	99:1,5,7,11,15,21,24	189:4,16,18,21	120:13 147:5,9 159:10	13:11 22:7 28:25	regular (1) 111:21	145:14,15 175:21
5:7,11 6:13,15,21,25	100:3,9	190:5,8,10,24	161:24 164:2 170:16	35:25 38:1 44:20 60:4	regularly (6) 111:23	176:25 178:13,15,17
7:5,10,18,25	103:11,13,15,19	191:1,11,16,20,25	171:12,21 174:17	68:20 73:15 76:9	112:7 114:13 122:6	179:21 180:17
8:6,15,17,20,24	104:4,15,20 105:16,21	192:5,14	175:7 177:2 179:14	77:3,23 79:4 92:12	173:22 180:10	181:5,8,15 183:12,15
9:2,6,16	106:1,6,10,13,17	193:2,7,10,15,17,19,21	184:17 187:11 192:23	104:13 105:25 106:5	regulate (1) 135:25	186:18 187:2 195:6
10:1,6,11,19,22	108:19	194:9,13,22	195:4 197:25	113:4 127:8 129:18	regulation (1) 135:1	reported (1) 113:20
11:3,10,22 12:8,21	109:1,8,11,15,17,19,22,25	195:2,9,16 196:12	rainscreens (1) 103:23	160:25 161:9 167:21	regulations (19) 33:3,14	reports (1) 87:13
13:2,5,9,12,16,21	110:3,8,11,13,16,18,21,25	197:1,22,25	raise (1) 101:5	receive (3) 61:22 197:8	62:15 67:5 111:11	represent (1) 179:13
14:1,5,22	111:8,10,13,15	198:3,5,16,20,23	raised (3) 191:7,17	203:17	132:1 134:15	representation (1)
15:4,11,15,23 16:1,25	112:9,12,16,21,24	199:1	198:10	received (6) 23:24 32:3	135:7,10,12,17	36:17
17:9,15,18,24	113:2,9,13,15,20,22	200:1,6,13,17,20,22	raising (1) 204:4	60:1 80:12 125:20	136:3,7 137:23 141:1	representative (8) 170:2
18:1,7,10,15,19,21,24	114:8,20,24	201:1,4,8,15,23 202:2	range (15) 1:21 2:6	180:10	157:7 163:22 199:15	199:22 200:8,10,14,18
19:2,4,9,13,18,20	115:7,9,13,16,19,21	203:10,14 204:3,15,18	91:3 110:24 111:3	receiving (1) 122:6	201:19	201:6 203:5
20:3,12,24	116:3,5,8,14,22	qa (1) 149:14	115:25,25	recently (1) 109:15	regulatory (2) 132:3	represents (1) 58:9
21:14,18,22	117:3,11,15,19,23	qualification (2)	116:17,18,19,20	recipient (3) 73:4 121:5	153:7	reputation (1) 83:2
22:13,17,23	118:1,4,7,11,23	194:9,10	118:19 150:24	122:15	related (4) 30:15 62:10	request (7) 60:20
23:2,10,14,20 24:24	119:1,3,7,9,16,18,23	qualifications (1)	152:17,17	reciprocating (1) 54:6	173:10 194:5	61:13,16 63:14 64:17
25:3,9,11,13,16,19,22	120:5,7,10,15,17,24	110:16	ranges (1) 116:16	reckless (1) 195:16	relates (5) 5:19,22	72:24 95:15
26:2,8 28:4,7,11,21	122:8,11,23	qualifies (1) 27:3	rated (1) 194:7	recollection (3) 7:14	29:11 38:23 121:1	requesting (1) 69:14
29:18,22	123:1,8,11 124:17,20	quality (1) 189:11	rather (9) 22:3 26:3	46:12 64:13	relating (5) 47:19 85:5	required (3) 134:11
30:3,7,13,15,19,22	125:1,5,21	quantity (4) 30:10 51:5	93:5 95:10 100:19	recommends (3)	119:25 135:17 157:14	167:9 197:14
31:1,6,13,15,22	126:1,4,14,19,22,25	54:20 78:1	130:13 164:12 170:5	156:14,18 166:22	relation (24) 14:24	requirement (2) 68:9
32:2,6,11,14,22	127:22 128:5,11,24	query (1) 17:5	200:4	record (8) 6:19,25	33:25 63:15,20	197:11
33:19,21,23,25	129:4,14,24	question (42) 15:1,23	rating (7) 60:17,18 66:2	10:16,18,21 48:24	64:14,20 65:3,15 66:7	requirements (9) 31:15
34:7,11,14,20,23,25	130:2,11,15,19,24	19:19 22:9	103:8,16 149:20	133:5 167:19	70:18 79:11 83:23	128:14 134:17 140:21
35:4,12,16,20,22	131:2,5,7,13,15,18,21	26:10,11,25 27:10	150:24	recorded (2) 32:9	84:11 85:6 106:14	141:14 153:8 156:2
36:1,21 37:3,16,22,25	132:1,6,8,24	40:24 41:7,13,19 44:9	ray (1) 26:8	158:23	110:21 111:1,8,10	187:1 199:23
38:13,18,22 39:3,7,10	133:1,3,5,7,14,18,20,25	61:9 64:3 66:14 75:10	rbkc (1) 10:24	records (3) 16:12 39:11	125:14,24 131:15	research (13) 4:4
40:1,6,11,18,22	134:5,8,21,23	85:24 104:11	re (4) 49:23 54:12 69:3	106:6	186:9 198:7	111:5,25 130:1 131:18
41:1,4,7,11	135:2,9,13,15,18,20,23	108:10,12 118:11	170:25	red (1) 182:13	relationship (2) 5:12	132:10 134:24 135:4
42:2,6,10,19,24	136:1,5,9,13,19,23,25	126:4 149:18 151:11	reaction (3) 154:16	reduce (1) 37:11	81:16	136:11,17 140:23
43:4,6,8,11,20,23	137:7,13,21	168:18 169:8	186:1,15	refer (8) 20:17 33:8	relayed (2) 57:9 130:4	163:17 169:2
44:7,12,16,21	138:1,3,11,18	174:18,19	read (32) 6:9,13 8:21	46:19 84:4 133:10	release (3) 63:13 66:8	researched (1) 111:24
45:7,11,15,18,21,24	139:3,6,9,11,20,22	175:11,19,19 177:4	19:14,22 29:19 61:19	159:8 168:16 169:9	84:2	researching (1) 132:3
46:3,9,14,18,20,22	140:5,13,19	179:22,23 180:2	71:3,8,13 78:11,12,12	reference (16) 6:23	released (2) 67:25 68:21	residential (1) 155:7
47:3,14 48:8,11,17,21	141:4,10,13,18,20,22	182:21 183:10 188:17	82:2,5 109:15	22:4 29:20 63:17	relevance (5)	resignation (2) 2:23
49:2,4,20 50:17,21,24	142:4,23	201:17 204:21,24	136:9,11 141:18	77:13 85:13 88:13	20:18,20,25 21:10	100:1
51:8,10 52:2,6,10,12	143:2,6,11,15,20	questioning (1) 164:9	142:4,20 143:18 144:2	100:23 106:8 122:11	91:18	resigned (2) 99:12,24
53:7,13,23 54:1,3,7,16	144:5,13,15,20,23,25	questions (44) 1:14	145:6 154:23 155:14	134:9 159:5,5 176:17	relevant (12) 20:14	resistance (5) 32:22
55:3,6,16 56:24	145:22 146:1,4,9,19	13:16 61:23 62:11	176:17 177:13 199:11	193:13 196:5	21:2,21 22:12,16 33:6	147:7 155:19 162:3
57:5,8,13,18,22	147:16,19,22,25	63:20 64:5,7,14,19,22	201:4,8,15	references (2)	88:2 90:13,19 110:13	187:20
58:1,9,18,20	148:8,10	65:1,3,9 66:8,23,25	readacross (1) 186:12	102:12,13	134:14 184:22	resistant (6) 115:18
61:8,12,16,23	149:1,5,12,18	70:8,15,17 71:1,10,17	readily (1) 201:19	referred (9) 32:18 60:4	reliant (1) 127:18	116:2,5,10,13,14
62:4,8,17,20,23	150:2,6,13,16,19,25	91:13 100:15,20,22,25	reading (5) 7:23	77:21 78:13 105:19	relied (1) 121:18	resolve (2) 197:7 204:9
63:8,14,19,23,25	151:3,7,16,20,25	101:6,7,20 102:8	143:22,24 185:5 186:8	117:6,13 140:24	relieving (2) 181:21,23	resolved (2) 200:2
64:4,7,12,17,22,24	152:4,11,18	106:21,22 107:4	reads (1) 138:19	176:25	remained (1) 183:23	204:23
65:8,12,18,20	153:1,5,10,14,18,21,25	108:5,10 135:3 146:11	ready (2) 1:10 59:15	referring (9) 13:17,19	remaining (1) 161:23	respect (4) 5:13 29:22
66:14,20	154:8,10,15,23	148:12,23 205:2,8	real (1) 195:4	78:8 84:6 135:18	remains (1) 106:23	93:7 199:7
67:2,7,11,19,23	155:3,14,16,24	207:5,10	realise (6) 18:1 25:6	136:22 138:9 153:22	remember (33) 9:3	respond (2) 76:4 95:22
68:1,17,25	156:10,12,16	quick (1) 168:3	28:7 29:14 30:3	169:10	10:12,15,19 44:19	responding (1) 28:12
69:15,18,20	157:13,18,22,25	quickly (4) 115:14	129:18	refers (7) 12:8,21 39:21	78:15 85:7 87:1 88:17	responds (6) 24:1,12
70:2,8,15,20	158:7,12,21	180:14 186:7 204:9	realised (2) 71:2,12	54:15 116:23 123:2	89:6,16 90:12,15	82:15 104:22 175:14
71:1,8,12,16,19,21	159:8,13,16,23	quite (20) 36:22 44:5	realistic (1) 204:7	156:21	101:25 124:3,10,11	178:4
72:3 73:1,7,12,17,23	160:5,21,24	93:11 97:12 99:16	reality (2) 42:19 202:2	reflect (5) 7:1,5 40:16	135:15 140:22	response (22) 26:10
74:3,6,8,17,20,22	161:1,7,10,13 163:25	100:4,12 101:21	really (24) 10:6 19:23	122:1 199:7	143:22,24 144:20	36:22 60:25 71:21
75:3,5,10,15 76:1,4,10	164:6,11,19,23	107:3,5 129:19 130:18	31:13,17 50:16	reflection (3) 25:10,25	148:24 149:8 160:24	72:23 73:3 75:17
77:7,10,16,20,23,25	166:17,22	147:19 150:3 174:19	55:12,13,15 62:21	81:14	161:8,10 167:18,19	93:22,23 95:1 96:7,21
78:9,11,14,17,21,24	167:3,18,22,25 168:18	180:10,14 182:21	83:17 84:19,23 105:4	reflects (1) 192:25	170:19 189:2 196:10	97:11 121:14 162:5
79:2,4,9,13,16	169:8,12,14,21,24	194:9 205:11	113:7 114:20 120:23	refresh (2) 77:6 89:10	197:19	181:10,15 185:15,20
80:3,11,20,25	170:4,12,18,22	quiz (1) 149:16	140:25 152:6,15 163:1	refurb (1) 6:2	remind (1) 87:17	188:22 196:23 203:17
81:2,5,7,9,12,15	172:3,11,13,18,23	quotation (6) 53:16,17	180:9 190:21 201:4,23	regarded (2) 172:14	reminder (2) 38:4 47:5	responsibility (9) 46:25
82:22,24	173:1,14,24 174:9,22	54:7,8 61:3 63:4	reason (8) 26:2 31:19	174:3	render (1) 159:11	127:15,17,25
83:2,6,15,18,22	175:1,4,10,13	quote (2) 53:20 140:25	35:20 48:1 70:11	regarding (13) 9:22	rendered (1) 159:10	128:5,7,8 181:21,23
84:3,11,17,24	176:7,15,17	quotes (1) 45:2	96:25 143:7 183:21	12:3 43:12 60:2 77:1	repeat (1) 108:11	responsible (2) 45:22
85:4,10,24	177:4,9,11		reasonably (1) 101:21	79:18 87:12 129:23	rephrase (1) 176:6	46:11
86:6,9,13,19 87:4	178:2,11,19 179:11		reasons (4) 65:8 96:23	147:1 161:20 168:4	replicated (1) 171:23	rest (2) 125:25 138:25
88:12,16,19,25	180:4,7,20 181:1,3,23		99:25 168:22	191:8 197:9	replied (1) 170:19	result (11) 32:6 35:8
89:4,6,9,12,16,18	182:1,21 183:2	radar (2) 176:19,20	rebranded (5) 2:12	regardless (1) 201:1	reply (3) 167:18,19	52:7 103:16 117:10
90:9,15,18	184:9,19,22	rainscreen (40) 1:25	3:5,13 117:21 139:6	regards (3) 106:14	177:11	134:5 157:2 168:14
91:1,6,20,24	185:4,9,12,14	3:16 4:24 5:2,23 10:25	rebranding (1) 127:6	192:7 194:14	report (31) 29:10 71:25	185:5 186:7 193:25
92:2,13,16,21	186:12,19,21	13:13 22:25 23:5 28:2	recalculate (3) 6:7	regime (1) 62:6	72:10 73:18,19 74:1,1	resultant (1) 36:18

results (11) 18:5 19:11 36:10 60:7,12,15,16 66:1,4,6,15 resume (1) 107:16 retail (2) 98:14,15 return (4) 89:3 95:25 144:23 190:15 returned (1) 105:2 returns (1) 95:10 revealed (2) 67:3,12 revenues (1) 131:2 review (12) 11:10,15 17:14 21:13 38:6,9 47:8 66:25 93:22 98:3 103:7,15 revisit (1) 118:11 reynobond (11) 10:24 190:15 192:8 193:12,13 194:15,19,25 195:4,10,13 rich (3) 121:23 122:13,16 richard (4) 48:9 93:19 96:21 97:11 rig (8) 75:11 144:19 171:10 181:20 188:11,22 190:3,7 righthand (7) 22:21 23:7 47:20 115:4 136:19 145:10 155:9 rigid (3) 139:16 155:25 181:18 risk (6) 34:20,23 95:10 130:8 137:4,9 rob (17) 93:19,21 95:1 96:16,19 97:17 98:7 111:14 129:1,19 134:25 140:10 141:7,13 143:8 172:17,18 robs (1) 163:21 rock (1) 139:16 rockpanel (1) 188:13 rockwool (1) 69:9 role (13) 46:17 57:12 99:19 109:25 110:1,3 113:10,13,16,25 114:21 128:21 132:22 roles (3) 100:7 111:18 123:24 roof (2) 116:6,11 room (7) 59:6 83:22 100:25 101:5,11 102:1 165:12 roome (22) 1:5,6,7,8,16 11:25 27:25 28:25 49:16 59:4,15,20 100:19 101:3,14 102:7,16 106:20,23 107:3 148:15 207:3 roper (19) 1:18 3:21 48:8 87:10 103:13 107:23,24,25 108:6 123:24 165:10,24 166:5 186:7 194:9 201:4 202:12 205:6 207:8 round (1) 73:13 roundrobin (1) 91:22 rounds (4) 43:20 76:24 78:4,5 route (15) 18:21 26:11	80:18,21,24 81:9,12 141:3 157:6 180:22 181:12,13 192:6,10,13 routes (6) 18:8 80:16 137:22 142:18,19 158:5 rs (5) 7:25 38:7 39:15 44:3 60:7 rs5 (1) 54:14 rs5000 (124) 1:25 2:2,11 3:4,12,18,18 4:1,20,23 5:8 6:5,22 7:1,3,6,7,9,12,16 8:11 10:19 12:11,16 13:13,16,22 15:20 19:5,24 24:4,6 28:4,8,15 29:7 30:5 31:3,4 32:18 35:7 36:12,15 37:18 38:16 40:13,16,20 41:14,20,23 42:11,22 43:1,9 44:2 49:13,17 50:13 54:19 56:3 57:20 58:3 60:2 61:25 62:13 63:10 65:1 66:1 67:3,14 69:3,18 70:22 78:2 80:5 81:3 84:14 85:2 88:2 90:1,2,10,22 91:4 92:14 93:7,20,24 94:1 95:12 96:10 97:14 98:3,18 99:18 100:11 103:5 105:9 106:15 117:21,24 118:1,8 119:19 127:4,10,12,16 128:3,8 129:9,12 139:6 153:13,14,17 154:7 157:9,15 180:5 187:11 193:23 194:24 rs5080 (1) 58:2 rs5160 (2) 53:16 54:12 ruled (1) 193:24 rumour (1) 92:13 rumours (2) 92:4,24 run (7) 32:4 50:3 55:18 57:23 178:6 195:24 202:16 runs (1) 55:19 rydons (4) 39:14,18 47:10 48:2 <div>S</div> safe (5) 26:23 27:1,11 28:4 50:1 safely (3) 19:6 67:4 180:22 safer (1) 159:2 safety (8) 28:5 105:16 111:8 135:13,22 136:10 137:4 199:15 saint (3) 123:22,25 127:18 saintgobain (5) 122:20,25 124:13 130:12 160:2 saintgobains (1) 159:23 salary (1) 125:22 sale (3) 19:4 26:3 130:17 sales (19) 3:2 73:21 91:23 105:18,24 106:4 109:25 121:13 122:6 125:11 130:6 133:17	146:18 149:4 157:12 159:25 172:24 180:10,13 salesforce (7) 5:15 8:20 38:23 43:12 47:17 88:23 89:2 same (52) 2:24 8:12 13:24 21:6 23:6,17,22 25:23 31:6 34:17 35:20 39:4 56:9 58:11 64:19 68:3 76:5 89:20,22 92:17 99:5 102:13 114:3,21,23 117:23 118:10,14,17 147:12 152:25 162:7 177:14 183:4,17,21,23 185:6,9 189:19,24 192:10,13,24 198:10,20 200:3 201:11 202:15,19 203:3,18 sanctioned (1) 191:14 sand (1) 159:11 sarah (6) 81:19,21 85:10,25 86:3 88:20 sarcasm (1) 99:8 sat (2) 112:6 168:5 satisfied (2) 186:19 202:16 satisfy (3) 27:10 122:8 140:14 saw (16) 5:7 13:2 26:20 73:9 78:11 85:7 105:14 112:8 154:5,6,16 155:10,12 157:5 160:22 189:24 saying (6) 26:23 60:25 108:21 110:4 121:20 124:23 scale (10) 113:2,4 137:18 185:25 186:5 199:22 200:8 202,22,22 scenario (1) 142:10 scenarios (1) 163:8 sceptical (1) 168:5 schedule (3) 47:9 88:8 135:6 scheduled (3) 108:14 197:2,17 scientific (2) 110:16 111:1 scope (10) 55:14 90:14,20 162:11 166:20 178:14 187:5 188:7,9 190:16 screen (6) 21:6 96:3 109:4,6 154:2 185:18 screenshot (1) 5:20 scribble (1) 82:4 scroll (1) 56:8 sealants (1) 138:22 searched (1) 134:3 seaton (1) 46:23 second (24) 9:7 12:8,21 23:21 32:20 46:21 77:21 81:18 96:7 103:20 118:21 125:9 129:6 141:16 142:3 146:14 158:21 161:15,15 168:2 169:9 178:11 198:5 202:20 secondly (2) 40:1 169:2 section (6) 132:10	136:14 138:19 141:1 143:18 162:15 sections (4) 135:11,14,15 136:11 see (191) 1:19,21 2:25 3:17 5:17,17,25 6:3 9:14 11:4,8 12:5 16:8 20:10,18 22:13,21,23,24 23:2,7,7,9,24 24:12,18,22 25:1,2 28:13 29:6 31:6,15 32:2,11,18 36:4,22,25 39:10,11,21 43:10,23 44:7,8,9,21 45:1,4 46:22,24 47:14,20 48:11,19 50:21 51:25 52:2 53:7,11,13 54:9 55:3,5 56:9 57:5 58:5,7,11,18 60:6,16,24 63:17 66:5 69:1 70:10 72:1 73:7 74:1,6,8 75:15 76:4 77:9 78:9 80:14,16 81:10 82:15 85:10 86:13 87:8,10,15,19,21 89:22,25 92:2 94:19 95:6 96:6,21 97:11 99:7,11 100:14 102:7 103:9,20 104:21 105:7 111:16,24 114:24 115:3,5 116:23,25 117:19 122:11 123:8 125:5,6 126:1,4,14 129:5 130:2 131:7 133:8 135:2,13,20 138:8,12,13,24 141:5 142:4 144:5,25 145:6,8 146:11,24 149:15,16 152:18 153:1 154:3 155:8,16 156:12,14 157:22 158:13,19 159:13,16 160:14,18 162:5 173:2 175:14,18 178:2,2,7,7,8,19 180:20 183:5,6 184:1,19 185:15,20 186:21 187:7 189:16 194:13 196:17,18,24 199:3,9 203:17 seeing (1) 44:20 seek (4) 18:24 50:12 167:22 201:20 seeking (4) 49:17 159:14 163:1 188:17 seem (6) 5:5 76:23 100:5 154:18 182:17,23 seemed (6) 123:21 124:14 127:18 184:25 195:6 200:3 seems (6) 11:11 16:12 39:2 88:9 196:24 203:3 seen (27) 12:8,21 15:7 35:6,13 46:5 61:3 65:21 74:3,13,16 75:13 76:14 77:8 78:22,24 79:1,6 80:12 81:3,5 92:19 97:5 131:7 144:18 191:21	198:1 selecting (1) 22:3 sell (4) 83:24 92:13 124:4 175:6 selling (7) 63:10 91:19 98:18 174:5,16 180:23 195:7 seminar (1) 85:5 send (18) 10:7 16:15 17:14 21:12 38:14 53:20 68:21 71:23 72:8,23 73:18 78:23 82:3 91:20 93:18 94:20,22 96:24 sending (12) 6:17 14:4 46:6 72:4 73:13,16,17 74:25 78:21 95:11 141:7,10 sends (1) 53:14 senior (5) 91:25 99:25 114:16 125:3 129:1 sense (12) 4:3 42:20 43:8 98:18 106:1,17,17 116:9 124:6 139:24 166:24 183:19 sensible (2) 41:8 203:3 sensitive (3) 88:3 105:17,23 sent (36) 4:13 7:24 8:8 9:3 11:12 16:21 21:16,21 22:2 23:23 26:22,25 31:7 32:3 35:6,23 36:16 44:18 58:10 61:21 66:11 72:21 73:7,8,9 94:24 104:13 105:1 141:5,13 146:15 160:12 168:1 185:21 189:24 203:20 sentence (5) 21:1 85:14 129:6 137:7 158:22 separate (2) 2:8,9 separately (1) 151:20 september (11) 5:19 9:8 10:13,20,24 113:9 114:5 120:25 122:2,22 123:4 sequence (1) 56:24 sequentially (1) 21:7 series (5) 4:25 5:3,9 26:19 183:4 serious (1) 63:9 services (5) 56:17 57:4,7 60:21 65:22 session (1) 149:6 sessions (1) 108:15 set (20) 1:21 11:22 56:14,23 60:13 70:17 80:14 86:13 87:25 92:18 112:12 128:19 136:9 142:19 156:13 159:17 164:15 187:3,14 199:10 sets (2) 56:9 199:19 setting (1) 192:15 seven (1) 130:22 sfs (4) 147:1 161:21 164:9 187:17 shake (1) 108:22 share (6) 123:19 128:24 129:22 130:7 174:24 203:6 shared (2) 72:16 134:21	shareholders (1) 130:22 sheath (1) 170:9 sheathing (2) 90:4 187:25 shed (2) 105:8 182:19 sheet (1) 72:12 sheets (1) 37:10 shell (1) 205:20 shes (1) 53:16 short (13) 59:4,13 91:8 101:4,7,9,12 102:5 104:25 105:8 107:19 165:8,22 shorten (1) 157:13 shortest (1) 29:1 shortly (2) 99:13 157:4 should (28) 8:23 22:11 24:1 33:2,13 40:1 42:24 52:19 72:23 77:13 95:14 98:12 137:2,14 138:5,23 156:2 161:2,14 166:18 173:11 178:6 187:15 193:23 199:14,21 200:24 204:11 shoulders (1) 128:7 shouldnt (3) 35:18 192:7 194:14 shout (1) 148:23 show (19) 13:1,2 20:15 21:23 25:9 26:8,9 38:15 59:24 60:13,22 102:19 105:3 109:5 123:3,12 160:8 161:14 178:6 showed (9) 11:18 20:22 21:11 22:19 82:7 85:13 89:22 173:16 202:17 showing (14) 12:12 16:17 17:1 35:7 36:9 60:17 66:24 71:25 72:5,13 74:11 75:11 121:4 156:18 shown (11) 6:21 40:18 47:16 50:22 58:11 60:22 84:3 102:16 154:2 156:20 198:5 shows (2) 24:24 124:22 side (6) 22:21 46:22 47:20 136:19 145:11 172:19 sift (1) 22:7 sig (19) 52:16,22 53:3,20 54:8,25 55:6,7 56:25 57:1,4,5,9,11,13 58:4,14,16,22 sig00000022 (1) 58:1 sight (1) 197:14 sign (2) 26:23 27:1 signature (2) 109:12,13 signed (2) 27:21 125:1 significance (2) 112:16 117:3 significant (4) 127:16,22 128:9 159:19 signify (1) 117:12 signing (1) 198:12 silicate (5) 170:8,16 183:23 184:14 188:2 simco (8) 133:14,16 190:2 191:2,14 192:20	194:16 197:23 similar (4) 138:22 147:6 171:10 184:7 simmons (1) 190:10 simple (4) 46:1,5 79:3 119:12 simplistically (1) 44:5 simulated (1) 189:9 since (5) 97:14 103:3 110:5 127:12 196:8 sir (49) 1:3,8,10,12 14:6,14 49:10 51:17,20 59:3,8,15,17 98:4 99:2 101:2,13,17,19,24 102:7,10 107:2,8,9,11,15,21,25 108:4 164:25 165:3,5,8,17,24 166:2 182:3,7,15 195:23 202:8,11,14 205:4,11,17,19,24 sirs (1) 54:11 sit (1) 108:1 site (8) 6:6 37:11 39:20 47:7,13 48:17,20 49:2 sits (2) 108:20 188:3 sitting (1) 89:6 situ (1) 171:23 situation (2) 27:6 95:25 six (2) 125:17 130:22 size (3) 51:19,21 52:19 sizes (1) 178:23 skills (1) 79:10 skin (2) 23:3,8 skip (1) 149:15 skipped (1) 52:15 slab (2) 69:9 189:9 slide (7) 1:17,20 3:16 4:10,17 5:7 91:11 slides (4) 15:7 31:7 149:9,13 slideshow (1) 2:2 slightly (2) 91:7 192:14 slociak (2) 44:23 45:8 small (2) 36:23 185:25 smallscale (2) 186:13,15 smoothly (1) 53:6 snapshot (1) 201:18 software (4) 6:7 8:22,24 16:14 sold (6) 43:1 80:5 120:3 129:9 173:23 181:19 sole (1) 130:17 solely (4) 58:13,16 119:11 155:19 solution (2) 1:22,25 solutions (2) 3:17 104:10 somebody (5) 44:23 64:13 99:8 133:22 134:2 somehow (1) 64:24 someone (5) 70:6 73:5 79:25 80:1 93:4 something (27) 14:8,10 17:13 21:12 30:1 31:25 32:1 48:25 54:13 56:19,20 58:14 96:20 112:25 119:3 133:21 152:11 155:22 156:7 176:19,21 182:13 184:13 191:14
--	---	--	---	--	--	---

193:7 194:11 196:8	151:3,5,21 155:18,20	193:7	suggests (3) 96:19	180:18,19 181:5,7,16	182:18,24 191:2,13,25	85:22 92:8,16 93:2,8
sometimes (1) 14:7	162:14 163:11,15	stone (1) 24:15	181:17 198:6	182:12 183:18	192:20 201:9	143:11 145:14,16,23
soon (10) 21:20 29:14	164:16	stood (7) 35:23 44:3	suitability (1) 13:12	184:4,19,23 185:6,25	temperatures (1) 72:5	148:6 151:14,14,20
94:16 101:21 110:23	sqm (1) 158:24	115:16,18,22 116:5,10	suitable (6) 29:2 120:13	187:12 190:17,17	template (3)	156:5 158:17 163:24
116:15 124:13 150:3	square (1) 12:16	stop (4) 107:16 157:21	163:13 172:1 177:3	191:3 198:19,23	43:13,14,20	169:3 171:10
155:13 171:3	squiggly (1) 22:19	165:10 205:7	188:24	200:10,19 201:10,11	ten (3) 49:9 101:8,10	174:11,15 175:5
soonest (1) 98:2	stage (19) 2:13,14	storey (2) 33:7 138:20	suited (1) 164:8	systemic (1) 123:20	tendered (1) 2:22	178:14 179:5 180:19
sort (20) 14:12,20	17:18 18:15 28:17	storeys (1) 161:23	summarise (2) 95:18	systems (42) 70:23	tengrenfell (1) 54:12	182:12 183:13
15:3,5 23:9 40:4	37:5 40:6 41:4 70:20	strange (1) 61:22	170:14	80:5,8 83:20,25	tenure (5) 55:10 97:7,7	190:16,18 191:3,9
43:16,22 48:24 53:5	94:15 96:22 114:4,6	strategy (5) 95:12	summarising (1) 35:8	90:4,22 91:4 95:16	129:20 152:14	193:2 194:18 198:15
56:18 60:19 66:10	123:4 130:24 142:10	96:17 123:4,9 160:1	summary (3) 104:25	137:17 143:7 144:10	term (1) 52:9	200:19 201:11,22
73:3 79:21 83:18	148:5 176:19 178:20	stream (1) 181:14	105:8,9	145:3,23 170:2 171:10	terms (18) 56:11,14	203:5
91:16 100:6 162:24	stages (3) 2:20 92:4	string (3) 52:13 87:5	supervised (1) 126:19	173:23 174:14	57:15 58:15 112:23	testing (38) 60:10 62:6
186:8	94:9	120:25	supplier (1) 41:16	175:18,22,24 176:9	118:13 121:2 122:3	80:2,10 84:1 90:12,19
sorted (1) 50:15	stand (3) 86:17 135:15	stronger (1) 124:14	supply (4) 52:24 53:5	177:18 178:25 179:25	130:6 134:16 140:24	94:5 100:6
sorts (1) 64:7	182:4	structural (4) 14:20,22	54:18 202:25	180:1 181:19 184:7,17	154:19,20 167:17	103:5,22,25 104:3
sotech (15) 132:17,18	standard (11) 33:19	70:5 144:11	support (1) 60:11	188:12 190:20	168:13 170:1 175:25	106:15 131:16 132:10
168:5,15,16,20,23	43:22 52:19 56:11	structure (1) 60:12	supported (1) 144:11	191:5,10,13 192:2,18	192:10	133:11 160:17 161:17
169:19 177:25 182:9	103:6 116:17,20 117:7	studied (1) 110:8	supports (1) 37:8	193:4 195:8 198:14	terracotta (4) 174:13	164:17 168:20 169:24
193:13 194:1,3,17	148:21 152:17 178:15	studies (17) 37:25	suppose (23) 3:8 26:23	199:20 200:15 201:21	175:21 179:18 188:14	170:25 171:6,11
195:11	standards (2) 199:8	45:1,7 46:6 90:25	41:16 42:13 43:25		terry (5) 55:21 56:16	173:22 175:22 182:23
sotechs (1) 169:5	204:4	94:3,5 95:15 97:4	51:3 55:14 62:16	T	57:1,3,5	188:2 192:6 193:24
sought (1) 133:21	stapley (1) 12:24	100:13 110:9	67:17,17 69:16 70:5	table (3) 152:25	test (186) 4:2 13:24	197:3,15 199:22
sounds (2) 130:11	start (12) 16:7 49:11	157:10,17,20	73:2,3 78:25 79:1,8	156:2,21	17:22 18:5,9,12,17	200:8,22,22,25
155:21	55:19,20 76:16 86:19	176:18,18,20	83:20 84:23 90:11	takeaway (1) 89:1	19:11 23:17 26:18	tests (26) 26:19 84:9,12
source (1) 142:15	87:6 96:3 108:6 121:7	studio (1) 27:16	91:18 92:20 106:14	taken (6) 100:19	28:9 30:20 31:4 34:18	90:13,20 100:11
southern (1) 91:23	157:16 163:25	study (36) 18:14,16,19	sure (41) 3:14 6:8 8:14	107:3,5 130:3 154:21	35:2 40:14	117:7,10 146:22
spare (1) 196:7	started (7) 29:14	26:24 38:8,14,18,20	9:5 12:20 13:4 15:18	186:6	60:7,13,15,17,18	149:19 150:10,14
speak (6) 11:14 50:4	39:15,16 120:1 140:23	39:17,22	18:23,24 19:17 25:23	taking (1) 89:16	66:1,4,15,18,21	151:7,12 161:25
52:23 68:11 76:1	149:3 173:8	40:2,3,9,12,15	34:19 45:9 52:11,24	talk (3) 88:1 101:25	67:18,21 69:16 70:24	168:23 173:11
183:9	starting (2) 47:22	41:2,9,14,23	53:5,22,23 64:11,16	165:14	72:6,8,15 73:19,25	186:1,5,10,13,14,16
speaking (2) 53:9	163:14	42:2,6,12,20 43:13,20	68:8 73:6 77:19 78:10	talked (3) 38:13 120:21	74:15,18 75:2,12,12	190:3 192:22 195:11
121:17	starts (5) 36:2 60:25	44:17 45:16 80:19,20	80:4 82:9 90:17 91:22	183:12	80:18 83:14,23	text (16) 4:21 24:24
spec (2) 121:19,22	87:7 144:5 177:12	81:3 95:22 154:22	93:9 101:15 105:20	talking (2) 59:5 128:6	84:15,20,22 85:1	32:23 36:4 37:1
special (3) 49:25 50:21	stated (4) 6:5,22 7:1	157:3,7,14,19	106:9 112:8 141:21,22	talks (1) 98:11	86:24 90:23 94:2	43:15,17 45:13 75:25
56:3	203:20	stuff (2) 27:20 88:3	154:9 155:15 181:8	tall (1) 137:10	117:13 118:5	84:16 89:22 100:5
specialised (1) 15:3	statement (28) 7:1	stumbled (1) 141:11	201:10 204:3 205:13	target (2) 125:12	121:11,24 122:14	145:12 178:8 199:6,11
specialist (17) 15:6,13	20:12,15 59:21 61:4	subconsultant (1) 79:14	surely (4) 29:23 62:8	127:11	123:2 125:11 127:24	thank (46) 1:6,12 6:15
18:12 31:16 65:5,10	63:5 65:20 70:1 88:14	subcontractor (5) 64:9	71:1,6	targeted (1) 127:12	129:23 130:9 132:24	14:14 21:7 22:23 37:3
67:1 70:5,5,11,13,14	92:5,11,23 93:16,20	78:18 79:6 133:16	surface (9) 138:14	targets (2) 113:3 127:18	135:4 137:18 138:1	47:3 49:12
72:17 78:18 79:5,5,13	94:18 97:1	190:4	151:3,4,9,21	task (6) 48:19,25	140:17 141:3	59:8,11,17,19 80:11
specialists (7) 14:2	109:1,9,12,15 111:15	subject (19) 11:10 31:4	155:18,20 183:14	125:24 130:17 141:24	143:10,11,17	86:22 91:6 100:18
69:10,14 70:2,16 78:7	113:22 123:12 127:1	43:14 47:6,7 69:3 77:1	202:22	171:25	144:9,19,20,25	101:23 102:3,9
79:24	129:5 132:8 156:22	79:18,20 90:5 93:19	surfaces (2) 138:4,5	tasked (4) 46:16	145:1,4 146:9,12	106:20,23,25
speciality (1) 31:20	157:12	102:22 125:18 146:15	surmise (2) 74:25 75:5	129:8,12 132:3	147:4,8,9 148:2,5,22	107:1,8,9,14,17,22,25
specials (1) 54:19	statements (1) 32:16	151:21,22 161:1	surmising (1) 74:23	tasks (4) 103:1 111:20	150:8,17,19,21,25	123:1 133:7 160:13
specific (8) 15:1 28:17	states (2) 51:13 60:5	181:22 196:18	surprise (2) 78:24	112:8 114:23	151:4,17,22,23 157:3	165:16,20,20 166:2,4
42:17 52:2 110:16,19	stating (2) 200:19	subjected (1) 151:17	182:22	team (41) 3:1,2,2	161:5,7,11 162:19,25	174:9 182:15
111:2,18	202:23	submitted (1) 94:2	surprised (6) 3:7 72:9	12:3,25 14:2 15:2,11	163:4,7,12,17,21	205:1,4,19,22,24
specifically (17) 4:23	status (1) 135:24	subsequently (5) 113:18	79:4 179:18 182:16	16:14 21:12 32:1,4	164:2,8,15,21	206:1
5:1,8 10:20 14:25	stayed (1) 118:9	128:21 158:6 194:6,11	183:2	37:5,17,19 42:17	166:10,18,21,25	thank (2) 76:16
21:24 33:17 92:8,16	steed (3) 44:24	substantial (5) 3:19,22	suspicion (1) 180:7	43:2,12 45:10,20,21	167:10,23 168:4,7	108:6
93:2,8 94:11 110:25	46:14,15	4:6 57:18 160:1	sussex (1) 11:7	46:16 56:17,23	169:7,17 171:15,18,19	thanks (7) 75:20 76:19
127:7 136:11 151:17	steeds (1) 46:18	substantive (1) 149:12	synopsis (2) 40:5,6	57:4,7,17 60:21 61:21	172:6,8,14,14,15,21	96:1 107:2 160:15
199:16	steel (9) 144:11 146:7	substrate (2) 177:22	system (93) 8:12	65:22 73:21 79:25	173:2,3,4,5,9,17,17,18	162:9 175:17
specification (1) 167:10	147:5 161:24 170:10	187:21	10:3,4,17 13:13,14,24	91:23 122:6 125:11	174:3,4,4,6 176:5,13	thats (83) 2:4,7 5:10
specifications (2) 11:16	179:17 187:16,19	success (1) 127:19	18:2,3,4 19:24 23:17	126:11 128:25 149:4	177:1,5,5,6,20 178:13	9:1 16:24 22:5 24:11
121:18	189:8	successful (2) 84:20	28:2,9,9 29:5,16,24,25	172:24 180:10,14	179:20 180:1,16	25:21 26:17 29:21
specified (3) 8:1	stems (1) 164:4	95:21	30:9 32:10 34:15	teammates (1) 3:9	181:1,5,8,15,20	30:1,18,25 32:9
27:16,24	stephen (18) 86:4	successfully (3) 100:10	37:19 40:13 62:6	teams (3) 32:12 43:2	182:25 183:18	39:6,25 41:21 42:9
specifying (1) 145:17	87:1,7 88:21 89:7	179:5 183:13	64:15 74:12 84:14	80:9	184:2,13,19,24	43:25 47:2 48:7,9
specimen (2) 197:5,23	102:18 104:14,16	suggest (8) 16:21 26:2	85:21,22 88:23 103:5	technical (28) 17:14	185:2,2 186:3	49:5,19 51:22 54:25
specimens (1) 168:12	105:21 147:24 170:24	67:11 95:9 101:5	137:9 142:12,16,25	21:12 23:24 32:1,4,12	187:2,16 188:8,18,21	56:20 57:25 58:24
speed (2) 54:5 151:4	171:1 183:7 185:20	187:17 192:18 201:8	143:2,10,11,11	33:10 35:1 36:5,17,19	190:8,14 192:10,19	59:1 66:19 68:16
spent (1) 111:4	186:22 189:4,24 191:8	suggested (5) 98:7	145:3,10,13,16,17,24	42:17 60:21 65:22	195:3	73:8,24,24 77:21 83:1
spoke (3) 12:3 78:23	stepped (1) 113:15	133:17 169:19 180:18	147:5 156:4 159:11	76:13 78:3 80:13	197:5,5,17,18,19,20,23	86:5 87:6 90:7 94:21
86:25	steve (7) 86:21,25	184:11	161:24 162:11,19	87:14 98:8 105:10	198:11,23,24 201:24	99:3 101:15 105:16
spoken (3) 36:5 51:4	87:25 103:2 104:6	suggesting (4) 122:24	163:18,19,21 164:3	111:12 128:13 143:23	203:1 204:19	106:15 110:10,20
189:6	183:8 186:24	163:9 170:5 186:15	166:10 171:18	149:8 153:15,18,25	tested (52) 8:13 18:4	113:12,21 115:19
spot (1) 25:20	still (13) 12:11 17:7	suggestion (2) 66:13	172:2,6,19	155:8	19:25 25:24 26:21	117:17,22 118:25
spotlight (1) 4:12	28:18 82:7 90:23	97:22	173:9,10,11,18 174:4	technology (1) 153:11	29:5,16 34:17	120:4 126:4 129:7
spread (12) 137:3	97:19 113:20,25	suggestions (2)	176:12,23 177:6	telephone (1) 203:11	35:16,18 37:19 60:9	133:5 139:5,8
142:17 143:4	114:9,21 128:20 174:2	188:11,21	178:23 179:14	telling (11) 36:19 58:20	64:15 70:23 83:21	143:2,14 145:3
				121:8 159:24		

151:15,24,25 162:23 163:22 168:16 175:8 176:14,15 178:18 180:3 182:21 187:21,22 188:3 191:17 194:9 200:16 202:2,13 205:6 theme (1) 148:10 themselves (2) 157:20 198:11 therefore (19) 2:8 7:10 18:7 51:6 67:7 71:12 82:24 95:17 96:13 127:16,22 136:25 139:6 141:2 143:11 164:19 168:8 184:15 204:23 theres (9) 7:10 10:21 17:10 32:19 44:9 77:13 183:20 185:15 205:11 thermal (9) 32:22,25 41:24 42:7,11,14 44:14,15 111:1 thermocouple (2) 72:4 145:9 thermosetting (2) 140:1 155:25 theyd (16) 129:25 168:24 171:22 180:11 181:1 191:8 theyre (4) 64:22 112:13 199:9 200:18 theyve (1) 32:22 thick (1) 23:5 thicker (2) 29:23 119:1 thickness (12) 17:12 13:20 17:6 24:14 29:20 30:5 36:11 37:11 42:15 52:3 54:15 90:3 118:19 119:20 thicknesses (2) 36:18 119:13 thing (9) 5:21 25:22 34:4 51:21 61:22 68:22 101:14 106:16 192:24 thinking (7) 11:17 30:23 124:3 130:19 199:7 204:11,23 thinks (1) 39:18 thinner (2) 119:1,2 thirld (18) 3:19 29:6 76:21 80:23 97:13 141:4,8,18 142:1,6 146:21 147:17 155:17 161:13 173:15 184:20 187:14 201:12 thirdparty (1) 53:19 thoroughly (3) 15:19 78:11,13 though (8) 8:7 34:25 73:17 93:1,7 123:21 192:11,16 thought (31) 4:8 6:24 7:4,20,25 8:4 10:1,10 22:12 26:15 30:15,23 31:1 37:22 41:21 61:13 66:16 78:20,25 80:23,25 85:17 94:14 115:19 141:15 147:2 172:19,20 173:1	191:22 193:7 thoughts (2) 26:16 45:3 three (15) 1:23 24:19 31:7 80:16 116:1 126:13 145:11 156:13,18 187:3,14,15 188:21 194:13 205:14 through (30) 8:9,17 16:12 17:11,16,20 20:21 22:7 33:1 37:8 49:17 50:8 51:11 56:6 64:17,18 68:8 71:9 75:22 78:12,12 82:2,5,25 108:15 115:24 147:3 148:20 182:13 184:9 throughout (6) 116:24 117:12 151:10,15 152:1,5 thumbed (1) 82:1 thursday (1) 1:1 thursdayfriday (1) 9:21 tier (2) 15:7 31:18 tiers (1) 31:7 tile (1) 103:7 tiles (1) 103:15 till (1) 75:21 timber (1) 90:1 time (106) 2:20,24 4:8 5:19,24 9:4 10:23 16:5 18:1 21:6 23:10 26:1 30:24 34:12,23 35:24 39:20 43:21 45:5 46:4 48:18 56:5,13 61:8 62:4,17,18,23 63:8 64:12 71:2,19 73:8 74:3,6 76:16,19 81:8 83:18 89:10 91:20 94:13 97:2 100:9,22,25 107:4,6 111:4,14 112:3,19 116:21 117:16 122:1 123:20 128:3,12,19 129:17 130:3,5 135:4 136:5 140:10 142:20 146:1,5 147:13 148:10 150:24 152:5 154:11 155:10 156:10 157:4,8 160:13,15,19,21 161:7 163:5 164:12 165:1 167:2,25 169:21 170:24 171:16 173:3,7,25 174:1 176:15,17 178:18 180:13 186:1 193:1 194:4 196:3 200:24 201:4 204:7 205:11 times (7) 47:12 50:5 58:5,6 71:9 121:20 167:24 title (4) 137:16 142:7 170:25 199:19 today (7) 1:4 76:16,19 85:19 97:24 108:7 109:20 today's (1) 1:4 together (5) 31:10 96:16 104:25 105:5 123:8 told (23) 3:1 52:15 56:25 63:14 85:25 88:20 90:18 94:20,22 96:24 116:5 117:5	120:18 146:4 150:2 151:13,16 154:25 167:13 189:25 191:22 193:2 203:7 tolerate (1) 192:21 tolerated (1) 191:16 tony (16) 146:15,17,20 147:12,14,23 160:9 161:4 163:8 164:5,9 166:8,14,17 168:1 170:19 too (7) 82:1 101:12 150:23 186:6 188:2,16 195:24 took (5) 27:22 47:11 88:9 89:7 204:15 topic (11) 37:25 48:20,25 49:7,8,13 91:7 114:25 195:20 202:6,6 topics (1) 90:6 total (2) 54:23 104:9 touch (1) 83:12 towards (2) 85:12 124:14 tower (56) 5:13 6:2 7:15,21 8:2,12 9:12 10:14 11:1 12:5 13:10,23 15:21 19:6 23:11 25:7 26:13 28:2,5 34:1 38:7,19 39:1,13,22 40:1,11 41:14,20 42:19,21 43:8,13,14 44:17 47:7,19 48:17 49:14,18,23 50:13 60:3 63:16,18,21 64:20 65:2,3,15 69:22 70:12,18 77:17 78:2 80:22 towerw11 (1) 54:12 traffic (1) 31:7 training (20) 110:19,21,23,25 111:8,10,18 115:23 117:5,17 120:19 136:2,6 148:19,24 149:4,6,8 150:23 154:13 transcriber (1) 108:20 transcript (2) 22:5 108:23 transmittance (1) 32:25 trespa (2) 147:7 188:13 tried (2) 167:6,16 trinity (1) 16:16 trouble (1) 51:11 true (1) 109:17 truth (3) 194:20 195:15 201:16 try (7) 19:20 75:22 84:17 126:14 192:14 195:24,25 trying (14) 83:8,10,15 90:11 190:15 204:6 163:3,6,17 166:20,25 181:11 184:5 198:11 201:20 tuesday (2) 86:20 121:11 turn (13) 5:12 7:5 37:25 48:2 49:7 81:16 93:15 103:19 114:25 119:24	129:14 145:5 156:12 turnover (1) 124:15 tweaking (1) 55:14 type (7) 5:23 44:4 100:7 162:11,19 166:10 193:17 types (4) 51:14 90:3 103:7 172:5 typical (2) 144:20 145:10 typically (1) 170:9 typographical (1) 75:7 <hr/> U <hr/> u (5) 6:4 16:14 36:10,12 37:7 uk (1) 43:3 ultimately (2) 129:2 156:6 unavailable (1) 47:13 uncertain (1) 84:25 uncertainty (7) 82:8 84:4,6,11,13,18 105:10 underlined (1) 103:21 undermined (1) 98:19 underneath (9) 1:22 11:11 29:9 32:17 33:11 46:23 89:22,23 104:4 understand (42) 2:1 23:16 29:22 41:13 62:4 63:16 65:6 69:11 80:7,7 90:9 96:9,23 104:7,16,17 105:19 115:16 116:14 117:3,11,23 120:10 128:14 134:16 135:23 137:21 138:7,13,25 139:25 143:6 150:25 151:5 158:1 176:2,10 187:4 190:18 191:4,11 192:15 understanding (19) 27:25 62:2 70:3 103:1 108:9 112:18 117:15 122:1 134:14,21 135:20 139:13,18 140:4 164:12 168:7 169:14,17 173:24 understood (29) 2:4 7:14 8:15 19:14,23 29:21 62:5,8 71:5,13 131:10 136:25 137:5,11,19 140:13 141:23 146:1,5,11 148:4 150:12 151:23,24,25 155:22 176:15 191:16 201:19 undertaking (1) 131:24 underwent (1) 127:24 unfortunately (4) 30:25 52:11 190:15 204:6 university (3) 110:6,8,11 unless (11) 10:3,21 13:23 34:1 70:22 77:13 80:15 88:23 92:8,16 179:20 unlikely (2) 67:7,11 unrealistic (3) 170:1,5,13	until (11) 22:15 73:12 87:10 94:4,6 95:9 96:12 154:6 157:8,11 206:3 unusual (3) 63:25 64:4,6 update (1) 76:19 updated (3) 48:25 96:19 141:12 updates (1) 111:24 uphold (1) 97:25 upon (5) 18:9 34:6 90:25 95:16 142:13 ups (1) 146:23 uptodate (1) 98:9 used (80) 7:7 8:12,25 13:3,6,23 18:7 19:6 25:7 28:2 30:11 37:20 38:16 40:13,18 42:22 43:8,24 44:2,6,9 50:14 51:3 52:9,10 53:3 57:23 60:11 61:25 67:4 69:16 72:1 84:8 90:13,19 91:4 92:9,17 93:2,8 94:10 119:21 121:20 123:17 126:16 127:7 128:15 138:22 163:7,19,24 170:2,7,9 171:22,24 178:23 179:12,15,19 180:18 184:17 185:3 187:25 188:10,12 190:6,19 191:5,9,12 192:2,17 193:23 194:10,24 200:11 201:2,21 203:1 useful (5) 41:8 63:3 67:13 96:2,20 useless (1) 41:2 usher (4) 59:9 101:25 165:17 205:20 using (31) 6:4,7,22,25 8:21 12:11 16:13 24:6 28:8 52:16,22 83:25 92:6 122:9 137:17 138:1 140:17 147:4 169:18 179:6,15 184:16 187:17 190:15 192:8,21 194:15 195:2,12 198:13 200:15 usual (1) 45:2 uvaluations (1) 34:14 uvalue (14) 17:12 24:4,7 28:15 31:23 32:25 33:11,19 34:1,6,7 35:8 36:14 41:17 uvalues (2) 22:9 36:18 <hr/> V <hr/> vacant (1) 113:18 valid (2) 30:3,11 validating (2) 34:4 142:1 value (9) 6:4 16:14 36:10,12 37:7 42:7 44:12 88:6 131:5 values (1) 42:11 vap (1) 121:12 variable (1) 80:4 variation (1) 188:10 variations (1) 190:13 varieties (1) 187:11	variety (12) 90:22 179:16,24 185:12 190:19 191:5,9,13 192:2,18 193:4 195:8 various (1) 28:21 varying (1) 163:20 ventilated (1) 179:13 version (6) 44:17 73:10 141:12,16 144:3 152:24 via (5) 121:22 141:3 157:7 178:14 193:13 viable (1) 186:18 viewed (8) 38:19 139:24 143:9 167:2 171:17,19 172:5,7 viewing (1) 173:19 views (6) 99:1 111:25 162:18 166:9 176:22 199:10 visit (9) 39:20 48:20 49:2 66:3,21 67:20 86:23 204:16,20 visited (2) 204:17,18 visually (1) 22:14 voice (1) 108:19 volume (1) 121:12 vulnerable (1) 97:19 <hr/> W <hr/> wait (1) 95:9 waiting (2) 45:2 105:5 walker (4) 53:9,14 57:4,5 wall (11) 53:17 136:20 138:14,23 144:23 159:4,9 164:3 179:6 187:19 199:20 walls (4) 136:15 137:14 138:5 199:12 warn (1) 108:21 warranties (3) 92:6,25 93:6 warren (8) 93:19 95:1 111:14 140:21 141:7,13 172:17,18 wasnt (40) 4:5 5:3 18:5 23:12 28:10 29:20 31:8 35:17 45:14,17 51:18 61:22 65:9 68:21 70:17 73:12,20 79:11 88:20 93:2 113:5 128:25 134:2 144:11 147:17 150:17 154:12 157:20 160:1 171:14,23 173:13 174:20 179:8 188:24 193:15 194:4 195:17 201:24 203:25 way (32) 14:16 17:12 19:20 29:21 30:25 32:7,9 43:10 44:1 57:2 62:4,5 63:16 84:17 87:16 108:11 116:19 121:22 126:15 140:14 167:2 169:24 174:5 184:9 185:4 189:19 192:14 195:7 198:3,10 200:17 203:23 ways (2) 26:15 157:6 web (1) 134:3 wed (2) 15:6 51:4	week (7) 81:23 86:22 88:1 95:25 168:4 189:5 196:15 weekend (1) 55:23 weighting (4) 125:13,14,15,23 welcome (1) 1:3 went (8) 53:6 68:19 97:14 115:24 129:18 147:2 150:23 200:9 werent (11) 66:10 94:20 99:19 118:24 121:5 122:15 126:22 132:4 133:12 186:19 190:2 weve (15) 29:8 35:6,13 46:5 53:9 65:21 76:14 81:2 85:18 92:18 131:7 140:15 148:20 161:19 198:1 whatever (3) 23:12 40:8 79:9 whats (6) 40:24 80:17 159:8 182:7 187:22 203:5 whenever (1) 76:7 whilst (1) 171:11 whole (8) 5:21 13:14 26:19 62:5 85:15,19 136:5 199:11 whom (2) 77:2 79:19 whose (2) 12:22 123:24 wide (3) 91:3 179:16,24 widely (1) 67:15 widen (1) 178:14 wider (2) 192:23,23 width (1) 28:17 willing (2) 50:22 190:12 windows (1) 153:10 wing (1) 190:15 wish (2) 48:3 61:18 withdrew (1) 107:10 witness (34) 1:9,11 20:12 59:7,16,20 61:4 63:5 65:20 88:14 93:16 94:18 101:23 102:9 107:1,8,10 109:9,15 111:15 123:12 127:1 129:4 132:8 148:7 157:12 165:16 166:1 182:5 202:13 205:10,16,18,22 wonder (4) 63:19 151:9 163:25 191:1 wondering (1) 99:7 wont (2) 102:14 188:10 woodham (1) 121:1 woodhams (2) 121:14 122:11 woods (1) 82:12 wording (5) 33:19 97:18 201:5,9,12 work (14) 20:8 26:4 31:10 34:11 70:8 82:25 96:12 111:20,22 112:19 113:7 126:17,19 194:23 worked (7) 32:8 56:16 62:6,6 132:15 150:25 204:1 working (6) 31:9 56:12 91:16 96:9 128:25 130:23
--	--	--	--	--	---	--

Opus 2 International
Official Court Reporters

transcripts@opus2.com
+44 (0)20 3008 5900