

OPUS 2

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Grenfell Tower Inquiry

Day 9

March 5, 2020

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Thursday, 5 March 2020

1
2 (10.00 am)
3 SIR MARTIN MOORE-BICK: Good morning, everyone. Welcome to
4 today's hearing. Today we're going to hear more
5 evidence from one of the architects at Studio E.
6 Yes, Mr Millett.
7 MR MILLETT: Mr Chairman, I now call our next witness,
8 Mr Neil Crawford, please.
9 SIR MARTIN MOORE-BICK: Yes, thank you very much.
10 MR NEIL CRAWFORD (sworn)
11 SIR MARTIN MOORE-BICK: Thank you very much, Mr Crawford.
12 Sit down and make yourself comfortable there.
13 All right? Yes, Mr Millett.
14 Questions from COUNSEL TO THE INQUIRY
15 MR MILLETT: Good morning, Mr Crawford.
16 A. Good morning.
17 Q. Can I ask you, please, first, to give the Inquiry your
18 full name.
19 A. Neil Stuart Crawford.
20 Q. Thank you. Thank you very much, I should say, first of
21 all, for coming to the Inquiry and assisting us with our
22 investigations.
23 I'm going to be asking you questions today and
24 probably beyond today. If you have difficulty
25 understanding anything I'm asking you, then please just

1

1 say and I can put the question in a different way or ask
2 a different question.
3 Can I also ask you just to keep your voice up so
4 that the transcribers, who are on your right there,
5 behind those screens, can hear you clearly and get down
6 accurately what you say.
7 A. Yes.
8 Q. Now, you have made a witness statement for the Inquiry,
9 and you will find it in a file in front of you on the
10 desk, and it will also appear on the screen. I would
11 just like to show it to you, please. It's
12 {SEA00014275}. That is the first page of it.
13 Can you please formally identify that as the first
14 page of your witness statement.
15 A. Yes.
16 Q. Thank you. It's dated 9 November 2018.
17 You also provided an exhibit, I think, if we can
18 bring that up, please. That's {SEA00014276}, if we can
19 please have that.
20 Have you read this witness statement recently?
21 A. Yes.
22 Q. Can you confirm that the contents are true?
23 A. Yes.
24 Q. Can I ask you, please, to turn to page 82
25 {SEA00014275/82}. There is a signature there. Is that

2

1 your signature?
2 A. Yes.
3 Q. And the date is 9 November 2018. Thank you.
4 Now, I want to the start, if I can, please, by
5 asking you some questions about your qualifications and
6 your experience. All right?
7 A. Yes.
8 Q. Okay.
9 Now, first of all, qualifications. You set out your
10 experience from paragraph 20 of your witness statement
11 onwards, and you have also, helpfully, provided us with
12 your CV. Can we look at that, please. That's
13 {SEA00014276/2}. This is, I think -- correct me if I'm
14 wrong, Mr Crawford -- as at 2018; yes?
15 A. Yes. I think I put in two CVs. There is that one and
16 my previous employment also.
17 Q. Yes. I just want to look at this one with you, if
18 I can.
19 A. Sorry.
20 Q. That's quite all right. If there's anything you think
21 I should look at which we're not looking at, please do
22 tell me.
23 The reason I say 2018 is because if you look at the
24 fifth entry down on "Project experience at Studio E",
25 you can see James Allen's Girls' School,

3

1 Completion: 2018. So I'm assuming this was a 2018 CV.
2 A. Yes.
3 Q. Now, on the left of the page there, you can see
4 "Qualifications, Dip B Arch (Hons)". Does that mean
5 that you have completed parts 1 and 2 of the architects
6 qualification?
7 A. Yes, that's correct.
8 Q. Okay.
9 Now, I think you tell us in your statement -- and
10 this is paragraph 20, and if you want to look at it you
11 can -- you trained at the Mackintosh School of
12 Architecture.
13 A. Yes.
14 Q. That was between 1991 and 1997; yes?
15 A. Yes.
16 Q. Yes, and I think -- is this right? -- you undertook your
17 part 1 sandwich year in 1994 through to 1995 at
18 BDP Glasgow?
19 A. Yes, I worked at BDP Glasgow and Morphosis Architects in
20 Los Angeles.
21 Q. Yes, exactly, and that was for something like six
22 months?
23 A. Yes.
24 Q. And that would be, what, during the summer of 1995?
25 A. Yes.

4

1 Q. Okay.
 2 Can you just help us with Morphosis Architects. In
 3 what capacity were you working there? What was your job
 4 at Morphosis?
 5 A. I worked on, as I recall, a project in South Korea that
 6 at that time was going under the heading of
 7 Village Fashion, although it was re-branded as something
 8 else, but I was working as an architectural assistant.
 9 So I was obviously fairly junior at that point in my
 10 career, so it was model-making and then some drawing,
 11 and also worked on a small master plan project with the
 12 principal for a theoretical master plan in Cuba.
 13 Q. Right. In Cuba?
 14 A. Yeah.
 15 Q. Thank you very much.
 16 Can you just tell us, when did you complete your
 17 part 2 qualification?
 18 A. That would have been 1997.
 19 Q. Is it right that you, at least as at 2018 when you did
 20 this CV we're looking at, hadn't completed the RIBA
 21 part 3 final qualifying exam?
 22 A. That's correct.
 23 Q. Am I right in thinking that the part 3 RIBA exam
 24 involves quite an intensive unit study of the building
 25 regulations and the related approved guidance?

5

1 A. Amongst other things, yes.
 2 Q. Amongst other things, yes.
 3 Did you study the building regulations and the
 4 approved guidance that goes with them at any part of
 5 your parts 1 and 2?
 6 A. We had building science as part of our course, I think
 7 an undergraduate and I think in the postgraduate as
 8 well, and that did cover quite a number of elements of
 9 building regulations.
 10 Q. I see. Are you able to remember what elements of the
 11 building regulations those parts covered?
 12 A. L.
 13 Q. L?
 14 A. But other sections as well, I'm sure. It was -- bearing
 15 in mind that would have been over 20 years ago.
 16 Q. Indeed.
 17 A. Maybe a bit hazy.
 18 Q. Exactly. Can I just be clear, are those the English and
 19 Welsh regulations or the Scottish regulations that you
 20 studied?
 21 A. It was in Scotland, so it would be the Scottish.
 22 Q. Right. So did you, as part of your parts 1 and 2, have
 23 any opportunity to study the English and Welsh building
 24 regulations and associated approved guidance?
 25 A. Where they'd be different, no, in the sense that some of

6

1 the regulations are basically the same and some aren't.
 2 So --
 3 Q. Yes.
 4 A. Yeah. In the sense that there would be parts that were
 5 different, I think it's illogical that I would have
 6 studied them, but I couldn't say definitively.
 7 Q. Did any of those regulations that you studied in parts 1
 8 and 2 relate to fire safety?
 9 A. I couldn't tell you. It's so long ago.
 10 Q. Right.
 11 Now, we have been told in the appendix to Studio E's
 12 opening submissions to the Inquiry that you began your
 13 part 3 training but stopped part-way through for
 14 personal reasons. I don't want to know about the
 15 personal reasons, just to be clear about that, but is
 16 that correct?
 17 A. Yes.
 18 Q. Okay. Can you tell us the dates when you started and
 19 when you stopped, do you think?
 20 A. As I recall, it was 2007 --
 21 Q. That you started?
 22 A. Yes, and I think I did the course for five/six months,
 23 something like this.
 24 Q. Okay. So during 2007?
 25 A. Yes.

7

1 Q. Right.
 2 A. As I recall.
 3 Q. Okay.
 4 Do you know or can you remember how far through the
 5 part 3 training you got?
 6 A. I would hazard a guess at about half to two-thirds.
 7 Q. Right. Did any of that half or two-thirds cover the
 8 building regulations and associated guidance?
 9 A. It may have done, but what I would say is at that point
 10 in my career I would have been exposed massively to
 11 building regs before then, so, I mean, I couldn't say --
 12 I wouldn't have noted it, if you see what I mean.
 13 Q. When you say exposed, you mean exposed as a result of
 14 in-the-field practice as opposed to classroom learning?
 15 A. Yeah, because I had been working for ten years, so I was
 16 more than familiar with them.
 17 Q. In which country did you do your part 3 studies in?
 18 A. England.
 19 Q. That was in London?
 20 A. Yeah.
 21 Q. Okay.
 22 Is there a reason, other than personal reasons,
 23 which I should stress I don't want to know about, why
 24 you never resumed your part 3 training?
 25 A. No.

8

1 Q. Okay.
 2 Can you give us a general impression, apart from the
 3 formal study that we have explored together, you and I,
 4 just now, what level would you say of familiarity you
 5 had, as at about July 2014, when you started working on
 6 the Grenfell Tower project, with part B of the Building
 7 Regulations and Approved Document B?
 8 A. I would say the way that, as an architect, you use
 9 building regulations is much in the same way you use
 10 an encyclopedia; ie you don't read it from front to
 11 back, you look at the documents as they become relevant.
 12 So, for example, 2014, I had done dozens of projects, so
 13 in each project you would look at the regulations that
 14 were relevant to that, pertinent to that project or
 15 pertinent to what you were doing on that project. So
 16 part B I was familiar with because I had worked on
 17 projects where clearly that was a large part of the
 18 building, and the fire strategy is fundamental in any
 19 project.
 20 Q. Right, thank you.
 21 Between 2014 and 2016, were you a member of the
 22 RIBA?
 23 A. No.
 24 Q. Can I turn to some of your in-the-field experience, if
 25 I can call it that.

9

1 A. Yeah.
 2 Q. Before working at Studio E, I think you worked at
 3 Foster + Partners between 1997 and 2009.
 4 A. Yes.
 5 Q. In what capacity or role were you working there
 6 initially, at the start?
 7 A. Initially I would be working as a part 2 graduate.
 8 Q. Right.
 9 I think you were then promoted to associate in 2004.
 10 We get that from your statement, I think.
 11 A. Yes. Yes.
 12 Q. How senior was an associate position within Fosters?
 13 A. The Fosters structure's changed over the years -- well,
 14 sorry, I'm speaking about the time I was there. The
 15 structure and the hierarchy changed over time, including
 16 in the period that I was there. So I think at the time
 17 the structure was sort of part 1, part 2 architects,
 18 associates, I think it was directors then, and then
 19 senior partners. But I think the firm did
 20 restructure -- I'm really struggling now with dates, but
 21 towards the end of my time there, and then the whole
 22 system was kind of recalibrated.
 23 Q. I see. So at the end of your time there, in 2009, were
 24 you still an associate or did you have another job
 25 title?

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1 A. I was still an associate.
 2 Q. Okay.
 3 Can we please look at your witness statement,
 4 {SEA00014275/74}. I would like to look with you,
 5 please, at paragraph 241, where you refer to your work
 6 on a project at 3 & 4 Hardman Square, Spinningfields,
 7 Manchester. Do you see that?
 8 A. Yes.
 9 Q. That I think was something that Foster + Partners
 10 designed in around 2004, as you say.
 11 A. Yes.
 12 Q. You say there that you were the Project Lead --
 13 capital P, capital L -- for Foster + Partners on that
 14 project. Was that in relation to that particular
 15 project or was that a broader job title?
 16 A. No, on that project, which I worked on pretty much start
 17 to finish, at senior level there was a partner, and then
 18 within the time period I worked on that project, I was
 19 made an associate. So I was -- I had a team, at that
 20 time, I recall, sort of six/seven people working on that
 21 project. So I, for example, would be going to
 22 Manchester, doing meetings and so on.
 23 Q. Project lead, was that the lead architect on the project
 24 or were you answerable to somebody else supervising your
 25 work?

11

1 A. Oh, there was a partner above me.
 2 Q. Okay. Did that partner supervise you on a daily basis
 3 or only on a sporadic basis from time to time?
 4 A. I would say on that project -- because of course the
 5 team's flux, depending on what stage you're at and
 6 resourcing and so on -- at the start of the project, the
 7 partner was very involved, and then later on, as the
 8 project procured on site, I was left more to deal with
 9 the whole project.
 10 Q. Right, I see.
 11 Did you work on any other projects at
 12 Foster + Partners as a project lead?
 13 A. If you have my CV from Foster + Partners, if you could
 14 pull that up, I could tell you.
 15 Q. Certainly. We have that at {SEA00014276/3}.
 16 A. That's not right.
 17 (Pause)
 18 Q. I'll tell you what we'll do: we will find it and we will
 19 come back to it if we need it.
 20 A. Okay.
 21 Q. I will move on then.
 22 A. Oh, that's it there.
 23 Q. We have got it, okay. So have a look at that.
 24 A. Okay, so for example on the Millharbour Quarter
 25 project --

12

1 Q. I'm going to come to ask you some questions about that,
2 but yes, do tell me now about that.
3 A. On that project, it was the same partner above me, and
4 I was sort of, if you like, overseeing that team or
5 leading up that team.
6 Q. Yes.
7 A. On the India Tower, no, I came in later to help. On the
8 Yale School of Management, again, I was working under
9 a partner and I travelled to New Haven every
10 three weeks, quite intensively over a period, working on
11 that. I worked in the initial competition phase of that
12 and worked with a separate partner on that that led up
13 the competition team that won the project, and then --
14 so in that sense, yes, you might say I was in some sense
15 project lead at periods of that.
16 But the typical structure in F+P is to work under
17 a partner.
18 Q. I see. So I think --
19 A. Then if you go down the list, Hardman Square, we have
20 explained. I think there's more if you can scroll up.
21 Q. Yes, if we could just scroll up.
22 A. I think there might be another page.
23 Q. There is certainly another page, page 4 {SEA00014276/4}.
24 A. So the top project there, I was working with the chief
25 executive of Foster + Partners at that time, and --

13

1 Q. Just to be clear, is that the "Residential Projects,
2 London and Malaga"?
3 A. Yes, and I worked directly with him and these were his
4 personal houses, private houses. And the one in London
5 was part Albion Riverside, which is the project below
6 where I helped and assisted on for a bit. I also worked
7 on a building that was part of the Albion Riverside
8 complex which never got built but is now -- has now been
9 built out, albeit with a different scheme, and I kind of
10 headed up that portion of that project. It is very much
11 smaller than the building you see here; it was the
12 building behind.
13 Q. Right.
14 A. And then these other projects, I was more junior.
15 Q. Thank you very much.
16 Now, I just want to ask you about the Millharbour
17 development. You referred to that at paragraph 21 of
18 your statement. I'm happy to go back to that if you
19 want me to, but since you have mentioned it and we can
20 see it on this CV.
21 Did that include a residential tower?
22 A. Yeah, the Millharbour project was part of a master plan
23 for a large developer. We worked in --
24 Foster + Partners worked in combination with SOM,
25 another large practice, and the whole site was divided

14

1 in two, so it was kind of a colossal site in terms of
2 scale and square metreage. The portion that we dealt
3 with was effectively four buildings: one was a market
4 office building, one was a private market residential
5 building, a tower of about 450 units, and then there
6 were two tower buildings south of affordable housing,
7 and I think they were very mixed units. So along the
8 ground you had sort of townhouses, then various types of
9 apartment above, so it was quite varied as you went up
10 through the building. So there were two of those blocks
11 at the front, the office block behind, and then the
12 market tower on the corner.

So that -- those four buildings were the
Foster + Partners site, and then to the east of that
there was the SOM site. But the whole project was one
submission, so we were working -- although we were
working sort of independently on that half, we were
still working with SOM co-ordinating the whole master
plan with the other half.

20 Q. If you go back to your Fosters CV at page 3
21 {SEA00014276/3}, please, on the screen -- we have it
22 there -- you can see that next to the Millharbour
23 picture, 2008, there is a little bit of text. If we
24 could have that blown up. It says at the end of the
25 description, "Planning submission now complete". Do you

15

1 see that?
2 A. Yes.
3 Q. Did it ever get beyond the planning stage, the
4 Millharbour Quarter --
5 A. No. Unfortunately, that project was very much
6 a casualty of the 2008/2009 financial crisis.
7 Q. Okay.
8 If I could take you, then, to your witness
9 statement, paragraph 21, that's {SEA00014275/9}, where
10 you talk about the Millharbour development. You say
11 there that you were "the project associate reporting to
12 the partner at Foster + Partners co-ordinating a team of
13 up to 20 people".
14 A. Yes.
15 Q. Just to be clear, does that mean that you were one of
16 a team of 20 people rather than the principal architect
17 on the project?
18 A. No, the planning submission was colossal, as you might
19 imagine, just because of the scale of it.
20 Q. Yes.
21 A. So the structure was the partner, then me, then the
22 team.
23 Q. I see.
24 A. So I suppose you might argue -- well, it was the case
25 that, because of the scale of the project, I was very

16

1 much in a managerial role, I was doing less drawing,
 2 although I did do some cladding renders as part of that
 3 work.
 4 Q. Yes, I see. I was going to ask you, did that project
 5 involve overcladding of an existing high-rise building?
 6 A. It was all -- it was new-build overcladding.
 7 Q. You have referred to the Hardman Square project, and we
 8 still have paragraph 21 up on the screen there,
 9 Mr Crawford. You say there in the second line that you
 10 were involved "from inception to completion and on
 11 cladding issues", which you then discuss at
 12 paragraph 241.
 13 A. Yes.
 14 Q. That was a project on which you acted as project lead.
 15 When you say "completion", do you mean completion of
 16 the project as a whole, or just up to the end of
 17 Fosters' involvement?
 18 A. With the Hardman Square project it was part of
 19 a development by Allied London, and Allied London owned
 20 a large tract of land in central Manchester known as
 21 Spinningfields. Fosters were appointed at that point to
 22 do buildings 3 and 4, as they were termed at that point,
 23 and that was the portion I was involved with from start
 24 to completion.
 25 It also included a car park and associated

17

1 landscaping that connected the two buildings, and that
 2 whole development. There were developments -- there
 3 were buildings that were being built at -- I think
 4 Sheppard Robson were doing a tower simultaneously, and
 5 then there is another phase that came much later that we
 6 weren't involved with.
 7 Q. I see.
 8 Can I ask you, then, to go to paragraph 241 of your
 9 statement, which you have referred to here at
 10 paragraph 21. That's on page 74, Mr Operator, of the
 11 same document {SEA00014275/74}. You say in the last
 12 sentence there that you were the project lead, and you
 13 say:
 14 "... I now recall that Arup Facades assisted in
 15 designing the cladding as a façade consultant with
 16 Metalbau Frueh as a subcontractor."
 17 Was that a project on which you had a specialist
 18 fire consultant, namely Arup Façades?
 19 A. I wouldn't term it like that. There was a -- there
 20 would have been a fire strategy. It would have been
 21 by -- I can't remember offhand who it was, but there
 22 would have been a separate fire consultant doing the
 23 fire strategy.
 24 Q. I see.
 25 A. A façade consultant doesn't specifically just deal with

18

1 fire; a façade consultant generally is used to assist in
 2 the design and procurement process of a specialist
 3 façade. So it's not that they're allocated to fire in
 4 façades, if you see what I mean.
 5 Q. I see what you mean. So do we take it from that that it
 6 was Arup Façades which designed the cladding and
 7 effected the procurement of materials?
 8 A. No, they didn't design the cladding; they would -- they
 9 were consulted on the development of the design of the
 10 cladding, and they wouldn't have procured the materials
 11 either.
 12 Q. Right. I see. Do I take it from that that you also had
 13 a separate specialist fire consultant or fire
 14 subcontractor?
 15 A. There would have been a fire consultant that would have
 16 dealt with the fire strategy for the building, yes.
 17 Q. Yes, I see. That was a non-Fosters entity, was it?
 18 A. I can't remember who it was, but in all likelihood, yes.
 19 I'm not aware that there was a specialist fire entity --
 20 Q. I think you have already told us, but just confirm: the
 21 Hardman Square project wasn't a residential project?
 22 A. It was a commercial mixed use, so it was predominantly
 23 office with retail at the ground levels, yes.
 24 Q. I think it didn't, therefore, involve a high-rise
 25 residential building above 18 metres?

19

1 A. No, it was an office building above 18 metres.
 2 Q. I think it's right also that the Hardman Square project
 3 involved predominantly glazed curtain walling with metal
 4 spandrel panels.
 5 A. Yes, it was a unitised curtain walling system.
 6 Q. Okay.
 7 Can we now turn to a different topic, Mr Crawford --
 8 I should ask you: what was your actual job on the
 9 Hardman Square project in respect of the façade
 10 specifically, do you remember?
 11 A. I did most of the drawing for the façades, and I was --
 12 in the project -- let's say when the project started and
 13 was evolving, I was -- the packages that I was
 14 responsible for and developing up was the building
 15 envelope, the façades and the roofs.
 16 Q. I see. Did that involve detailed façade design?
 17 A. It was a design and build project, as I recall. It
 18 involved designing the building -- designing the façades
 19 to a level of architectural intent, I would say.
 20 Q. Right, okay. We will come back to look at what that
 21 means later on in your evidence.
 22 Did it involve the procurement of materials for the
 23 façade, your involvement? Selection and procurement?
 24 A. Erm ... up to a point.
 25 Q. Can you help us what point?

20

1 A. For example, it is pretty obvious from the investigative
 2 studies you do, when you start to, let's say, explore
 3 options with the façade and design it, that, okay, you
 4 might want this material or that material for it to
 5 appear as aluminium or terracotta or whatever you happen
 6 to choose. So, yes, we knew how we wanted it to look
 7 and it was reviewed internally from the perspective of
 8 its appearance. But when it was -- when it went to
 9 tender, there were aspects of it that were at the
 10 discretion of the specialist cladding contractor to
 11 procure and specify.
 12 Q. I see. Thank you.
 13 Now I do want to turn back to the topic I was going
 14 to: your introduction to the Grenfell Tower project.
 15 A. Yes.
 16 Q. All right?
 17 Now, you worked as an associate architect on the
 18 Grenfell Tower project.
 19 Can I just ask you: when you moved to Studio E in
 20 2009, you came in, I think, as an associate, didn't you?
 21 A. No, not immediately. I was made an associate quite
 22 quickly afterwards, but not immediately.
 23 Q. I see, all right.
 24 At the point you joined Studio E in 2009, can you
 25 remember who your line manager was?

21

1 A. I've always worked with Andrzej at director level.
 2 Q. Right.
 3 A. Yeah.
 4 Q. So just Andrzej, not other --
 5 A. The other directors at that time would have been Garry
 6 and David, and I don't think I've ever actually worked
 7 directly with them.
 8 Q. All right.
 9 What about Mr Sounes, Bruce Sounes?
 10 A. Yes.
 11 Q. He was already there. Was he more senior to you? Or
 12 when you were appointed to associate level soon after
 13 your joining it, was he at the same level as you or was
 14 he more senior to you?
 15 A. When I started at Studio E, Bruce was senior to me;
 16 in fact, the first project I worked on, the Ark Academy,
 17 he had been working on with Andrzej and I slotted in
 18 underneath him. When I got made an associate, although
 19 Bruce still went by the title of associate, I would
 20 consider him senior to myself.
 21 Q. I see. Did there ever come a time when you considered
 22 him no longer as senior to you but your equal in terms
 23 of the hierarchy at Studio E?
 24 A. Erm --
 25 Q. He may not have seen it the same way, but that doesn't

22

1 matter.
 2 A. I think to be fair and to be respectful, given the time
 3 that he had been there and his standing within the
 4 practice, he would probably be viewed as slightly senior
 5 to myself.
 6 Q. Thank you.
 7 Your involvement in the Grenfell Tower project
 8 started in July 2014, I think, didn't it?
 9 A. Initially, yes.
 10 Q. Initially. Were you the formal project architect at
 11 that point, or did that come later?
 12 A. Well, the term "architect" I believe is protected, and
 13 so technically I can't call myself an architect because
 14 I don't have part 3.
 15 Q. I follow.
 16 A. Yeah.
 17 Q. Were you occupying in practical terms the same role that
 18 a project architect would carry out from that point on?
 19 A. When I started, it was very much a phased introduction
 20 to the project. I think somewhere in my witness
 21 statement it mentions there's initial contact with
 22 building control, which was logical because of my
 23 involvement in KALC.
 24 Q. Yes.
 25 A. But my sort of, if you like, day-to-day involvement in

23

1 Grenfell was phased in and it wasn't in mid-July, I took
 2 control of all the reins. Bruce was very much still
 3 involved, particularly with aspects where he had the
 4 continuity, for example in the planning and so on.
 5 So, if you like, when I started, I was working,
 6 I would say, to his introduction, initially. There were
 7 certain things he was aware of that had to be done, and
 8 so he drew those to my focus.
 9 Q. Do you remember who appointed you to the role that you
 10 were appointed to on the Grenfell Tower project?
 11 A. It would have been a management decision because there's
 12 always the equation of the practice's workload and the
 13 people available to work on it, and so it would have
 14 been -- it would have been a decision that Bruce and
 15 Andrzej would have taken.
 16 Q. I see.
 17 Now, Mr Sounes told us in his evidence -- just for
 18 the transcript, it is {Day6/172:19} -- that a project
 19 architect would normally be someone that has completed
 20 their part 3 examination. Would you agree with that?
 21 A. Normally, but not exclusively. I mean, there's loads --
 22 well, I don't want to go off topic, but there are plenty
 23 of practices that have very senior people who are not
 24 fully qualified.
 25 Q. Right.

24

1 In the light of your experience up to the point we
 2 have discussed so far, is it fair to say -- and if it's
 3 not, please tell me -- that when you started work on the
 4 Grenfell Tower project in July 2014, you had no real
 5 experience of refurbishment of an existing high-rise
 6 residential building?
 7 A. Yeah, I think that's probably fair.
 8 Q. Now, I'm going to ask you some questions next about your
 9 practice and your continuing professional development
 10 within Studio E.
 11 A. Yes.
 12 Q. Can I ask you, please, first, to look at {SEA00014421}.
 13 This is the Studio E LLP training policy dated
 14 1 February 2013. Do you see that?
 15 A. Mm-hm.
 16 Q. That's the first page of it. If I can look at page 2
 17 {SEA00014421/2} under "CPD", in the left-hand column, or
 18 second paragraph down under "CPD", it says:
 19 "The practice operates a Continuous Professional
 20 Development system for all members of the office."
 21 Do you see that?
 22 A. Yes.
 23 Q. "This is based on the RIBA CPD policy required of its
 24 members and can be split into formal accredited courses
 25 or seminars and informal in house research or training

25

1 sessions. The detail of the CPD policy can be found in
 2 the CPD procedure sheet The RIBA requires individuals to
 3 accumulate a minimum of 100 points of formal and
 4 informal training during the year."
 5 Then just a bit lower down than that it says, in the
 6 next paragraph, second line down:
 7 "CPD Professional Development Plans are submitted by
 8 each member of staff annually with the CPD Record Sheet
 9 submitted for director review prior to the staff reviews
 10 each year."
 11 Then just one more bit for you to look at,
 12 Mr Crawford. At the very bottom of that column it says,
 13 at the bottom of the page:
 14 "All Partners and staff within Studio E LLP
 15 participate in the company's Continuing Professional
 16 Development."
 17 Now, as I say, that was as at 2013, February 2013.
 18 Just a few questions about it.
 19 Did you create and update a CPD plan?
 20 A. I certainly partook in all the CPD sessions that we had.
 21 I did fill in a plan. Whether I filled it in diligently
 22 every year that I had been at SEA, I'm not sure.
 23 Q. Did you submit those that you did create and update for
 24 director review?
 25 A. The sheets that recorded our CPD attendance were held by

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1 our office manager in a folder, and so we would be
 2 required to fill in our sheets as and when we attended
 3 a CPD seminar.
 4 Q. I see. Did the office manager keep records that they
 5 collected from you?
 6 A. They kept the ultimate records, yes.
 7 Q. Do you happen to know whether they still exist?
 8 A. I think some exist. I don't know if they all exist.
 9 Q. All right.
 10 Now, Studio E's solicitors have disclosed lists of
 11 seminars that were organised for Studio E partners and
 12 staff in the years 2011, 2012 and 2013, 2016 and 2017,
 13 but not for 2014 and 2015. Just to be clear for you, we
 14 have been told that no training seminars were actually
 15 organised by Studio E in those years, 2014 and 2015.
 16 Does that reflect your understanding?
 17 A. Yeah, I think that probably does.
 18 Q. Do you know why there were no training seminars
 19 organised by Studio E in those years?
 20 A. I'm not sure whether there were none organised,
 21 I suspect there were some, but possibly not with the
 22 frequency of other years. I think the practice had some
 23 issues where it changed from the Limited -- from the
 24 LLP -- well, it was Limited, then to LLP, then back to
 25 Limited, and so -- well, the two entities in existence,

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1 and we also had workload issues. The practice downsized
 2 and moved location. This may have been a factor in it.
 3 Q. I see.
 4 A. But, having said all that, a lot of CPD is not just
 5 restricted to formal seminars; there are, of course,
 6 lots of other aspects of CPD which we undertake
 7 continually and as individuals and related to projects.
 8 Q. I see. Did you personally undertake your own CPD as you
 9 went along during those years?
 10 A. I think, if I had to answer that, I would say that,
 11 you know, if you're working, you are, because you're
 12 constantly looking at other buildings, constantly
 13 visiting buildings, constantly reviewing aspects of
 14 buildings that are interesting to you or relevant to you
 15 on projects.
 16 Q. Did you fill in -- sorry, do you want to finish your
 17 answer?
 18 A. No.
 19 Q. Did you fill in CPD sheets and give them to the office
 20 manager in respect of those personal, private CPD
 21 development --
 22 A. No. The sheets that were kept by the office manager in
 23 relation to CPD logs were a sort of Excel spreadsheet
 24 that were purely in relation to the formal one-hour
 25 lunchtime seminars.

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1 Q. I follow. So, to summarise it -- is this right? --
 2 where there was a formal seminar put on for CPD, there
 3 would be an attendance sheet and that would go back to
 4 the office manager --
 5 A. Yeah, yeah.
 6 Q. -- but where you did it privately, by researching
 7 something online, you wouldn't necessarily fill out a --
 8 A. No. I think some people might have kept their own logs
 9 because it would have been relevant to their RIBA
 10 requirement.
 11 Q. I follow.
 12 Can we look, please, at a list of the seminars that
 13 were organised in the years when they were.
 14 {SEA00014424}, please, Mr operator. This is a CPD
 15 seminar list for 2010.
 16 If we just look at that, do you agree -- and we can
 17 see it -- looking at the titles of those seminars, there
 18 are no seminars listed there which would have been
 19 relevant to anybody's experience or learning for
 20 overcladding work or fire safety? When I say
 21 overcladding work, overcladding work on a high-rise
 22 building.
 23 A. To overcladding specifically, no.
 24 Q. What about fire safety?
 25 A. Well, I wouldn't -- I would argue that some of those did

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1 have fire safety components to them. For example,
 2 Just-Swiss, as part of their presentation, would have
 3 discussed their product in relation to fire, I would
 4 expect.
 5 Q. I see. Can you give me an example, perhaps, on this
 6 page of which seminar might include a fire safety
 7 element?
 8 A. Amwell wouldn't, because it's bathrooms. Ecophon may do
 9 because it's an internal lining product. Solus Ceramics
 10 is unlikely. Latchways may have had -- may have had
 11 some overlap with that, because it's a roof access
 12 system, polarised system, although I wouldn't normally
 13 associate it with fire issues. Desso is flooring, so
 14 there may have been some -- well, there would have been
 15 perhaps some issues in relation to the fire performance
 16 of the flooring. The Expanded Metal Company, there may
 17 have been. Just-Swiss, I suspect there would have been
 18 something, because there would be limitations on how you
 19 used timber structures in relation to fire. M3fx, that
 20 was just computer visualisations, so no.
 21 Q. Okay. It sounds very much from what you have just said
 22 that these were effectively manufacturers of specific
 23 products coming in to the office and giving you
 24 a discussion or lecture or presentation about the topics
 25 there in the context of their own products.

30

1 A. That's very much the way CPD seminars are run. What
 2 happens is manufacturers and consultants and ... get
 3 accredited to give an RIBA CPD seminar. If you're
 4 cynical, you might say that there is a marketing
 5 dimension to some of that.
 6 Q. Yes. Okay. Interesting.
 7 Let's look at some more specifically. If you go to
 8 the next document, which is {SEA00014427}, this is
 9 a seminar list for 2011. I would like you to look,
 10 please, at the third one down: Kingfell, "Fire Safety
 11 Management & BS9999".
 12 Do you remember whether you attended that seminar,
 13 7 September 2011, lunchtime?
 14 A. Erm ... I can't say I recall whether I did or not.
 15 Q. Right. Does this trigger a recollection: did it cover
 16 or do you remember a seminar on B4 of the Building
 17 Regulations involving someone called Kingfell?
 18 A. I specifically can't recall it, no.
 19 Q. You can't recall, okay.
 20 Can we look at the next document, which is
 21 {SEA00014423}, please. This is the 2012 list. In that
 22 list, there is a seminar given on 12 September, third up
 23 from the bottom, where the CPD provider is Celotex, and
 24 the description is, "Using Celotex to Meet Part L 2010".
 25 Do you remember attending that seminar?

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1 A. I may have done. I don't specifically --
 2 Q. We can see it was given by Celotex. Did Studio E have
 3 a contact at Celotex?
 4 A. A specific contact --
 5 Q. Yes.
 6 A. -- I'm not aware of.
 7 Q. Do you know how Celotex came to get the invitation to
 8 provide the training to Studio E?
 9 A. I don't know specifically. I mean, it's not unusual for
 10 manufacturers to solicit to give seminars. It may be
 11 that it's often quite -- it's often the case that the
 12 products will be being used on another project and the
 13 manufacturer or supplier or consultant may offer to give
 14 a practice-wide seminar off the back of that, let's say.
 15 Q. Right. And that offer would normally be made to whom?
 16 Would it come to the contact on the project, or would it
 17 come through the office manager or a partner?
 18 A. It initially might go through the contact on the
 19 project, but they would usually be directed to the
 20 office manager to then organise it.
 21 Q. Right, I see.
 22 I know it's difficult, but your experience overall,
 23 would most of these seminars be instigated by the
 24 product producer or would they be instigated at an
 25 invitation from Studio E to that product producer?

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1 A. No, I think -- thinking back, there's been cases where
 2 we've as a practice asked people to volunteer
 3 suggestions for CPD seminars, because they were either
 4 of interest or relevant to them. But sometimes -- but
 5 they can come from all these different angles.
 6 Q. I see. When you say "people" in that last answer, you
 7 mean --
 8 A. Staff.
 9 Q. Staff?
 10 A. Yeah.
 11 Q. Okay.
 12 I think you told us you can't recall whether you
 13 attended this or not, this seminar.
 14 A. That specific one, I can't recall definitively
 15 whether ...
 16 Q. Okay. Can I ask you then to look at the next one, which
 17 is 2013, {SEA00014420}.
 18 This is 2013, a by now familiar list of lunchtime
 19 seminars from suppliers of materials.
 20 There is a seminar, second down, Butler & Young,
 21 17 April, and the topic is "Building Regulations
 22 Update".
 23 Do you remember whether you attended that seminar?
 24 A. I may have done. I really couldn't say definitively.
 25 Q. Who are Butler & Young?

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1 A. Butler & Young are -- well, among other things, they are
 2 approved inspectors.
 3 Q. I see. Approved inspectors being ...?
 4 A. The privatised version of building control.
 5 Q. That's what I was going to suggest. Right. I see.
 6 Can you look at the next one, which is 2016, which
 7 is {SEA00014419}. This is 2016. Five seminars in that
 8 year, between March and November, and the first one is
 9 Tetra Consulting, "New CDM Regulations 2015". Do you
 10 see that?
 11 A. Yes.
 12 Q. Do you remember whether you went to that?
 13 A. I think I did.
 14 Q. It was quite an important one.
 15 A. It would have been, yes, because it's the advent of the
 16 principal designer role.
 17 Q. Yes. That was 23 March 2016, and the regulations
 18 I think had come in, or come into force, in the October
 19 of the previous year. Do you remember that?
 20 A. Yes, that's correct.
 21 Q. So who are Tetra Consulting?
 22 A. I'm not sure I could say definitively.
 23 Q. Can we proceed on the assumption -- and if we can't,
 24 please say -- that by the spring, March of 2016, you
 25 were reasonably familiar with the new CDM Regulations

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1 2015?
 2 A. I was familiar with the -- well, I would caveat that,
 3 because I think the industry full stop was struggling to
 4 get its head around what the new CDM 2015 regulations
 5 actually were. So to say I was familiar with them --
 6 I would say I was familiar with the issues that they
 7 were presenting.
 8 Q. Fair enough.
 9 Finally on this list, can I ask you to look at
 10 {SEA00014422}, which are the seminars for 2017, from
 11 February to November. If you look at the seminar just
 12 below halfway down, "Tremco Illbruck, do you see that
 13 there?
 14 A. Mm-hm.
 15 Q. There is a seminar on 21 June at lunchtime, "A Guide to
 16 Detailing of Interfaces on Windows and Façades". Did
 17 you attend that seminar, do you think?
 18 A. I couldn't say definitively.
 19 Q. Right. It postdates the fire, but my question is: do
 20 you remember what had given rise to a need within
 21 Studio E to have a seminar on that subject matter?
 22 A. I mean, you say it postdates the fire, but by a week.
 23 Q. Indeed. So --
 24 A. These seminars would have been organised in advance.
 25 Q. Exactly. So the question is -- I will put it again --

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1 do you remember what had given rise to a need within
 2 Studio E to have a seminar on that subject matter?
 3 A. I wouldn't have thought there would have been a specific
 4 need. I think it's just that you go through a variety
 5 of subjects and topics and that one was deemed
 6 appropriate then. I mean, I'm not sure that there was
 7 a specific need in that sense.
 8 Q. Who are Tremco Illbruck, do you know?
 9 A. I'm not entirely sure, actually, but I suspect they're
 10 connected with windows and façades.
 11 Q. Do you remember whether you went to that seminar?
 12 A. I couldn't definitively say.
 13 Q. Right.
 14 More generally, Mr Crawford, prior to or during your
 15 work on the Grenfell Tower project, did you ever attend
 16 any training on part B4 of the Building Regulations?
 17 A. Specific B4 training?
 18 Q. Well, any training which was on or perhaps included
 19 part B4 of the Building Regulations.
 20 A. It's possible, but the regulations are -- building
 21 regulations are so extensive, it would be unusual to
 22 think of them in those terms, in terms of CPD seminars.
 23 Q. Right.
 24 I take it that the same answer would apply to
 25 a question relating to Approved Document B: did you ever

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1 attend any training on Approved Document B?
 2 A. Specific training?
 3 Q. Yes.
 4 A. In isolation, no, I can't think --
 5 Q. Well, either in isolation or together with other related
 6 topics.
 7 A. Well, this is the point I'm trying to make. I think
 8 with other related topics, it's inevitable. So, for
 9 example, if you have someone who comes in and talks --
 10 let's say they talk about a cladding system or something
 11 like that, then they're going to reference part B.
 12 Q. I see, okay.
 13 A. Do you see what I'm saying? So, for example, even
 14 something as mundane as flooring, it might start to
 15 reference sustainability and other parts of the
 16 regulations relevant to that. It's not that you have
 17 had a specific session on part L or whatever that --
 18 Q. Right. Well, do you remember ever having any incidental
 19 training as part of a wider topic on either part B4 of
 20 the Building Regulations or Approved Document B?
 21 A. Specifically, no, but I would have inevitably.
 22 Q. Just a couple more questions on a similar topic.
 23 Prior to or during your work on the Grenfell Tower
 24 project, do you recall ever attending any training on
 25 how to design a rainscreen cladding system?

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1 A. Not a specific training, no.
 2 Q. Did you ever attend any training specifically or as part
 3 of a wider topic on fire classification and testing and
 4 certification of materials?
 5 A. Not specifically, no.
 6 MR MILLETT: No.
 7 Mr Chairman, I'm going to turn to a different topic,
 8 but we have been going just about 55 minutes.
 9 SIR MARTIN MOORE-BICK: Yes.
 10 MR MILLETT: I'm happy to continue if the witness is happy
 11 to continue for a bit longer, because the next topic is
 12 quite short.
 13 SIR MARTIN MOORE-BICK: Let's ask Mr Crawford. We normally
 14 have at least one break during the morning, which we
 15 take roughly halfway through the morning, but we can
 16 have more frequent breaks if the witness feels that that
 17 would be helpful. How do you feel? Would you like
 18 a break now or are you happy to carry on for another
 19 25 minutes, say?
 20 THE WITNESS: I'd prefer hourly breaks, to be honest.
 21 SIR MARTIN MOORE-BICK: Yes, of course. All right. So you
 22 would like a break now?
 23 THE WITNESS: If now is a good time.
 24 SIR MARTIN MOORE-BICK: It is a good time for Mr Millett, so
 25 we will take it now.

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1 All right, we will break now and resume at 11.05.
 2 That will give you ten minutes to stretch your legs and
 3 such.
 4 Can I ask you, please, not to talk about your
 5 evidence or anything related to it until you have
 6 finished altogether.
 7 THE WITNESS: Yes.
 8 SIR MARTIN MOORE-BICK: Thanks so much.
 9 Would you like to go with the usher, please.
 10 (Pause)
 11 11.05, then, please. Thank you.
 12 (10.57 am)
 13 (A short break)
 14 (11.05 am)
 15 SIR MARTIN MOORE-BICK: All right, Mr Crawford?
 16 THE WITNESS: Yes.
 17 SIR MARTIN MOORE-BICK: Good, thank you.
 18 Mr Millett.
 19 MR MILLETT: Thank you very much, Mr Chairman.
 20 Mr Crawford, I'm now going to turn to a new topic,
 21 which is your familiarity with the Building Regulations
 22 and ADB, which we have already touched on. At the
 23 moment I'm going to keep these quite general.
 24 At the start of your work on the Grenfell Tower
 25 refurbishment in July 2014, were you generally aware of

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1 the requirements of schedule 1, part B, "Fire safety",
 2 of the Building Regulations 2010?
 3 A. Generally, yes.
 4 Q. Generally, yes. And were you generally aware of
 5 part B3, "Internal fire spread"?
 6 A. Generally, yes.
 7 Q. Were you generally aware of part B4, "External
 8 fire spread"?
 9 A. Yes.
 10 Q. At the start of your work on the Grenfell Tower project,
 11 did you take any steps to familiarise yourself or
 12 refresh your memory with the requirements of schedule 1,
 13 parts B3 and B4, internal and external fire spread?
 14 A. Erm ...
 15 (Pause)
 16 I would have looked at them, where and if I thought
 17 they were relevant as they came up.
 18 Q. So is this fair generally: you would consult them, both
 19 the regulation and the schedule, as and when you thought
 20 you needed to look at them?
 21 A. Yes.
 22 Q. I see.
 23 More generally, do you agree with the general
 24 proposition that fire safety is fundamental to the work
 25 of an architect's practice?

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1 A. Yes.
 2 Q. Do you accept -- and this is a proposition that I want
 3 your comment on -- that any competent architect would at
 4 least have an awareness of the existence, importance and
 5 the purpose of the provisions within the building
 6 regulations and the related approved documents?
 7 A. Yes.
 8 Q. At the outset of your work on the Grenfell Tower
 9 refurbishment, did you take any steps to familiarise
 10 yourself with the guidance in Approved Document B on
 11 fire safety?
 12 A. I would look at that as and when I thought it was
 13 applicable.
 14 Q. Again, on an as-and-when basis?
 15 A. Yeah.
 16 Q. So can I take it from that that you didn't sit down,
 17 open Approved Document B and read it through when you
 18 started your work on the tower?
 19 A. No, I don't believe any architect opens a part of the
 20 building regulations and reads them from start to
 21 finish.
 22 Q. Right.
 23 A. It's quite illogical in terms of how architects use
 24 building regulations.
 25 Q. So can we take it from that that there was no time

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1 during your work on the project that you thought to
 2 yourself, "I must sit down and have a close look at
 3 Approved Document B and scan through it"?
 4 A. If I felt there was something in it that I needed to be
 5 aware of, I would look at it.
 6 Q. Was there an occasion when you did consult Approved
 7 Document B specifically on the Grenfell Tower project?
 8 A. Oh, yes, there were.
 9 Q. In general terms, can you remember what the issue was
 10 for which you were consulting Approved Document B?
 11 A. One would have been cavity barriers.
 12 Q. Cavity barriers. Anything else?
 13 A. Well, one of the first tasks I looked at when I started
 14 work on the project was the -- there were changes being
 15 made to the lower floors, and in fact -- well, as
 16 I understand it, there were consistently changes being
 17 made, and when I started, one of the things Bruce
 18 alerted me to was that some of the -- the client -- by
 19 client, I mean KCTMO -- had wanted to make some
 20 additional changes to the configurations of I think it
 21 was the mezzanine and walkway level, and in doing those
 22 I would have referred to part B.
 23 Q. I see. We will come to this in a bit more detail in due
 24 course, but just while we're on the topic, do you ever
 25 recall any issue arising which prompted you to look at

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1 that part of Approved Document B which dealt with
 2 external wall construction?
 3 A. Well, I'm certainly familiar with diagram 40 --
 4 Q. Right.
 5 A. -- external wall construction, and the sections that
 6 relate to relevant boundaries, for example.
 7 Q. I see.
 8 A. But things like relevant boundaries you would be looking
 9 at more at the start of a project. I mean, one of the
 10 things when you come on to a project, particularly very
 11 late, which I was, and Grenfell was coming on at J, K, L
 12 stages, those things have already been covered and dealt
 13 with, so you wouldn't be sort of going back to the start
 14 to check those.
 15 Q. Right.
 16 A. Unless you felt that there was something inherently
 17 wrong with what you had inherited.
 18 Q. You say in your last answer that you came on to Grenfell
 19 at a very late stage, and the [draft] transcript has it
 20 down as "JTL". I think you said "J, K, L".
 21 A. No, J, K, L. There's no -- well, in the old work
 22 stages, I'm not aware of any T section. It's J, K, L.
 23 Q. Okay. We will come back to look at that later.
 24 Just, again, a general question: what was your
 25 understanding of the purpose of Approved Document B?

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1 A. Approved Document B is guidance to fire regulations in
 2 buildings. It consists of five sections that deal with
 3 different aspects of fire and buildings.
 4 Q. Yes.
 5 Now, can I just ask you about your knowledge of
 6 industry guidance relating to fire risks.
 7 As an architect working on the Grenfell Tower
 8 project, can we take it that you were keeping abreast of
 9 developments in the industry --
 10 A. You can't technically call me an architect.
 11 Q. I'm so sorry, all right. What should I call you, then?
 12 A. Well, associate. Project lead.
 13 Q. All right. As the project lead, then, on the
 14 Grenfell Tower project, were you keeping abreast of
 15 developments in the industry that concerned the projects
 16 that you were working on?
 17 A. By keeping abreast, if you mean --
 18 Q. Keeping up with.
 19 A. Yeah. Am I reading, let's say, Building Design magazine
 20 or whatever architectural related press there is out
 21 there, yes, I look at this. But I don't -- I'm not
 22 actively looking for specific publications on specific
 23 issues unless I feel them pertinent to what I'm doing.
 24 Q. Did you keep yourself up to date with relevant industry
 25 guidance on the subject of cladding and external wall

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1 constructions?

2 A. Well, my experience, as you have probably seen from the
3 CVs, has meant dealing with a lot of different types of
4 cladding in different types of buildings, and so every
5 time you do a new project and you're looking at a new
6 type of cladding, then you start looking at those
7 things.

8 I think when you inherit a project or start working
9 on a project further down the line, when a lot of those
10 decisions have already been made, then you wouldn't
11 necessarily be going out and looking in the same
12 capacity at those things. You might look, if you
13 thought there was something inherently wrong in what
14 you're inheriting, as it were. But otherwise you
15 wouldn't be sort of ... how can I put it? You wouldn't
16 be analysing that information in the same context.

17 Q. Yes. Okay.

18 I'm going to move to a different topic. Just before
19 I do, can I go back one, which relates to Approved
20 Document B.

21 When you started working on the Grenfell Tower
22 project, were you aware that there were special rules
23 covering external wall construction above 18 metres?

24 A. Yes, that's in diagram 40.

25 Q. Right. Okay.

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1 We will come back to Approved Document B later in
2 your evidence.

3 I now want to change topic, if I can, and ask you
4 some questions about the contract between Studio E and
5 Rydon.

6 Were you involved in any way in the negotiation of
7 the contract between Studio E and Rydon?

8 A. No.

9 Q. Now, we know that Rydon and SEA Limited, the company,
10 agreed, if I can call it, bespoke or tailored
11 contractual terms, and we know that that produced
12 a final document, a deed of appointment, in
13 February 2016. Do you remember that?

14 A. Yes.

15 Q. Yes. Can I show you that, please. That is
16 {RYD00094228}. There it is. It's dated 3 February 2016
17 between Rydon Maintenance Limited, contractor, and
18 Studio E Architects Limited, consultant, and it's a deed
19 of appointment.

20 Do you remember whether you saw this deed at the
21 time it was executed, 3 February 2016, or thereabouts?

22 A. No, I remember what happened with this deed of
23 appointment is that it was issued -- well, clearly from
24 the date you can see -- right at the end of the project,
25 and I remember being on site and -- was it

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1 Stephen Blake? One of the -- or David Hughes, I can't
2 remember. One of them asked me to chase the appointment
3 relative to Bruce and Andrzej -- well, it was Bruce --
4 back at the office in terms of getting it signed off,
5 but I had no -- I had an overview of the document, if
6 you see what I mean, so I knew of it, but I wasn't
7 involved in the sign-off of it or the content of it.

8 Q. Just to be clear, the [draft] transcript has you down as
9 saying you had no overview. Did you have an overview or
10 did you not have an overview?

11 A. I had an overview in the sense that I knew the document
12 existed but not its content.

13 Q. I see. So can I take it you never saw a draft of this
14 before it was executed?

15 A. No.

16 Q. What about after it was executed, did you see it?

17 A. No, my only knowledge in relation to the draft after it
18 was executed is I was asked to issue as-built drawings
19 the next day or something similar to that.

20 Q. I see.

21 Did Mr Sounes or Mr Kuszell ever tell you at least
22 the gist of what was in the document?

23 A. I was aware that it generated some stress, because there
24 was -- we were effectively being held to ransom in our
25 final payment. So I was aware of the stress that it was

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1 generating at that level, if you like. But Bruce and
2 Andrzej would have and did isolate that from me, but
3 I was aware that that was happening.

4 Q. Right.

5 Let's go back in time, then, to April 2014, which
6 I think is before your involvement. Can I ask you,
7 please, to be shown {RYD00014215}.

8 Now, this is a letter dated 17 April 2014 which was
9 sent to Mr Sounes by Simon Lawrence, and if you look at
10 page 1, you can see halfway down it contains a number of
11 terms governing the appointment of Studio E by Rydon.

12 If you go to page 3 {RYD00014215/3}, you can see
13 that there is a schedule of architectural services. I'm
14 going to look at that with you in a moment in a bit more
15 detail. But you can see that there are some balloon
16 comments on the right-hand side of the document which
17 Mr Sounes put in when sending this back to Mr Lawrence.

18 My first question is: did you see this document in
19 this form or even another form when you joined the
20 project in the summer of 2014?

21 A. No, I don't believe I did.

22 Q. Did you ever see this document, do you think?

23 A. I don't think so.

24 Q. Did Mr Sounes ever explain to you that there was a draft
25 contract in existence which he was discussing with

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1 Simon Lawrence?
 2 A. I may have been subliminally aware of it, but I wasn't
 3 in the sense that -- let's say Bruce had been running
 4 with the project from the start, and so he had been
 5 dealing with contractual matters I guess from the
 6 outset, so I may have been subliminally aware that those
 7 were going on, just because of his proximity to me in
 8 the office at that time. I think he sat opposite me.
 9 But I personally was not involved with the contract or
 10 its contents or reviewing it or seeing it, let's say.
 11 Q. I see.
 12 When you joined the project, did you have
 13 a discussion with Mr Sounes, or indeed anybody else at
 14 Studio E, about the terms on which Studio E was then
 15 working?
 16 A. I don't recall having that kind of conversation.
 17 For example, the handover meeting that I think took
 18 place would have been to discuss more what was
 19 outstanding and what had to be done to complete the
 20 project. I don't recall having, let's say,
 21 a conversation about the contract and its contents or
 22 requirements.
 23 Q. Do you remember roughly when the handover meeting took
 24 place?
 25 A. Was it August 2014?

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1 Q. August 2014, you think?
 2 A. Yeah. August/September, maybe. I think it was
 3 August 2014.
 4 Q. Right. Were you working on the Grenfell Tower project
 5 before that handover?
 6 A. I had had a minimal involvement, yes. I mean, I think
 7 that handover meeting was meant to be a kind of,
 8 you know, sit down and, "This is where we are, this is
 9 what I want you to look at" type of meeting.
 10 Q. At that meeting, who was present? Mr Sounes?
 11 A. It would have been most likely between the two of us.
 12 Q. Between the two of you?
 13 A. Yeah.
 14 Q. Did Mr Sounes give you a file of important documents
 15 relating to the project?
 16 A. No, although it would be unlikely for Bruce to give me
 17 a hard copy of anything, because everything is held
 18 electronically, and especially Bruce's paperless office
 19 in terms of his mode of working. He does have a lot of
 20 paper, but he's more paperless than most of us.
 21 Q. Did Mr Sounes give you a list of documents that perhaps
 22 would have been obvious to you but you should look at,
 23 such as the stage D or stage E reports?
 24 A. I think I asked to see the stage E -- in fact, he had
 25 a hard copy -- I contradict myself -- he had a hard copy

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1 of the tender set of --
 2 Q. Right. We will come back and look in due course in your
 3 evidence to that.
 4 A. Yeah.
 5 Q. Just focusing on that handover meeting, do I take it
 6 that there was nothing discussed between you as to the
 7 terms on which Studio E was currently engaged?
 8 A. Well, let's say I knew it was design and build, and the
 9 objectives in terms of what was expected of us he would
 10 have made clear to me for the ...
 11 Q. You say you knew it was design and build; who did you
 12 think at that stage Studio E's client was?
 13 A. I knew we were being novated to Rydon.
 14 Q. I see. Did you not think to ask Mr Sounes about what
 15 terms Studio E had been novated to Rydon on?
 16 A. Well, he may have explained those to me. It's quite
 17 probable. I mean, I suppose from my earlier point,
 18 where I was talking about discussing the expectations of
 19 what I was to be working on, it's kind of rolled
 20 together with that in a sense.
 21 Q. Did you seek from Mr Sounes a clear explanation about
 22 what Studio E had actually agreed with Rydon it would
 23 do?
 24 A. Well, I think as I mentioned, the conversation was more
 25 about what the expectation was to complete the project,

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1 you know, the extent of the design work that had been
 2 completed and the things that hadn't been. In terms of
 3 strict sort of line-by-line contractual interpretation
 4 of that, no.
 5 Q. How did you think you were going to be able to perform
 6 your role as project architect without knowing, with
 7 some degree of precision, what the terms of the D&B
 8 contract were?
 9 A. Well, again, coming back to what I said earlier, at the
 10 handover meeting, Bruce was explaining what the
 11 expectation was in terms of what I would be working on
 12 to completion of the project.
 13 Q. Well, let's look at the draft that's on the screen at
 14 the moment. Can I just look at that with you.
 15 If you go to the schedule on page 3 {RYD00014215/3},
 16 this is the 17 April 2014 draft schedule of
 17 architectural services. You can see at item 4 under
 18 "Generally":
 19 "Seek to ensure that all aspect of the architectural
 20 designs comply with the Employers Requirement documents
 21 prepared by Artelia UK."
 22 Did you know when you came into the project that
 23 that obligation was something which was, even if not
 24 formally in place, something which Rydon expected of
 25 Studio E?

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1 A. I would expect architectural designs to comply with the
 2 employer's requirements. Is that what you're asking,
 3 sorry?
 4 Q. Not quite. My question was: did you know when you came
 5 into the project that Rydon was expecting Studio E to
 6 seek to ensure that all aspects of the architectural
 7 designs comply with the employer's requirement documents
 8 prepared by Artelia?
 9 (Pause)
 10 A. I'm not sure.
 11 Q. Okay.
 12 I've got a few questions of the same nature in
 13 relation to one or two of these other clauses.
 14 Look at 5 -- and they are drafts, of course.
 15 "Advise the Contractor where, in the Architects
 16 opinion, there are shortfalls within the Employers
 17 Requirements and advise of assumptions to be made."
 18 When you came into the project, did you know or did
 19 Mr Sounes tell you that Rydon were expecting Studio E to
 20 advise the contractor, in other words Rydon, where, in
 21 the architect's opinion, there are shortfalls within the
 22 employer's requirements and advise of assumptions to be
 23 made? Did he tell you that?
 24 (Pause)
 25 A. I think if you saw something that was explicitly

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1 a shortfall, you would highlight it, but I don't
 2 remember explicitly being quoted that terminology.
 3 Q. Very well.
 4 In relation to clause 7:
 5 "Obtain Building Regulation approval for and on
 6 behalf of The Contractor."
 7 And there is a comment there. Perhaps we can pass
 8 over that.
 9 Looking at 10:
 10 "Seek to ensure that all designs comply with all
 11 relevant Health Technical Memorandums, all relevant
 12 Health Building Notes, the Fire Code etc and any other
 13 relevant NHS publications."
 14 Did Mr Sounes tell you that that is what Rydon were
 15 after, but he was resisting it?
 16 A. He didn't -- I'm not aware that he -- well, I don't
 17 recall him categorically telling me that, but I wouldn't
 18 expect to see a clause like that.
 19 Q. Right.
 20 Just a few more. If you turn the page, please, to
 21 page 4 {RYD00014215/4} --
 22 A. When I say a clause like that, I mean the NHS comment at
 23 the end.
 24 Q. I'm so sorry, I have given you a wrong reference. If
 25 you stay on page 3 {RYD00014215/3} and go back up

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1 a little, I want you to look at number 8 which says:
 2 "Seek to ensure that all designs comply with the
 3 relevant Statutory Requirements, including Scheme
 4 Development Standards."
 5 Did Mr Sounes tell you that Rydon were then, when
 6 you came into the project, expecting that Studio E would
 7 seek to ensure that all designs complied with the
 8 relevant statutory requirements, including scheme
 9 development standards?
 10 A. I don't recall that he explicitly told me that, but
 11 I would probably expect that by default.
 12 Q. You would expect Studio E to be under that obligation,
 13 would you?
 14 A. Yeah.
 15 Q. Yes.
 16 Looking at number 20 on page 4 {RYD00014215/4}, if
 17 you could, please:
 18 "Provide 'as-built' drawings when required."
 19 Did Mr Sounes tell you that Rydon were expecting
 20 Studio E to provide as-built drawings when required, or,
 21 again, was that something you would ordinarily expect?
 22 A. I don't think you would -- no, I wouldn't say that you
 23 would ordinarily expect it. That said, it's not
 24 unusual, but I wasn't aware that we had to.
 25 Q. I see.

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1 Looking at page 4, number 28:
 2 "Provide The Contractor with general arrangement
 3 drawings, interface details, performance specifications
 4 and other technical information reasonably necessary to
 5 seek quotations from Subcontractors and Suppliers."
 6 Was that something that Mr Sounes told you when you
 7 came into the project that Rydon were expecting Studio E
 8 to do?
 9 A. Well, I would argue that that information already
 10 existed in the tender set or stage E information. But
 11 in response to your specific question, he didn't
 12 specifically tell me that.
 13 Q. He didn't?
 14 A. No.
 15 Q. Then number 29, just below it:
 16 "Examine Subcontractors' and Suppliers' drawings and
 17 details, with particular reference to tolerances and
 18 dimensional co-ordination, finish, durability,
 19 appearance and performance criteria and report to The
 20 Contractor."
 21 Did Mr Sounes ever tell you, when you came into the
 22 project, that Rydon were expecting Studio E to do that?
 23 (Pause)
 24 A. He didn't explicitly tell me to do that, but I might
 25 have assumed that to be normal.

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1 Q. Then if you look, please, over the page at page 5
 2 {RYD00014215/5} --
 3 A. At least in part, sorry.
 4 Q. I'm so sorry, do you want to --
 5 A. Yeah, at least in part.
 6 Q. At least in part?
 7 A. Yeah.
 8 Q. Which part? I'm so sorry to go back. Which part would
 9 you think was normal and --
 10 A. Well, I think the bit where I hesitate slightly is
 11 performance, in precisely what's meant by that.
 12 Q. Right. Does that mean that if Mr Sounes hadn't
 13 explained to you that that was what Rydon were
 14 expecting, you wouldn't expect to have to examine the
 15 subcontractors' and suppliers' drawings with
 16 a particular reference to performance?
 17 A. Again, define "performance", but yes.
 18 Q. Performance criteria. I see.
 19 If you can go back where I was going to, which is
 20 page 5 {RYD00014215/5}, paragraph 33:
 21 "Provide supplementary notes to drawings and provide
 22 further drawings to show sufficient information to
 23 construct the project to completion consisting (but not
 24 limited to) the following ..."
 25 Then there is a long list, a to t:

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1 "a. External wall/internal wall and partition
 2 construction details ..."
 3 Again, is that something which Mr Sounes told you
 4 Rydon were expecting Studio E to do?
 5 A. That specific list, no.
 6 Q. Right. So would it be fair -- and if it isn't fair,
 7 please say -- to summarise your position in the summer
 8 of 2014, when you came into the project, that you were
 9 not aware of the precise obligations that Studio E
 10 either had undertaken or was expected by Rydon to
 11 undertake to them?
 12 A. I think my understanding of the obligations came from
 13 verbal discussion with Bruce. So, you know, your
 14 question, have I seen precisely this list and checked it
 15 off, no. My obligations were understood from the
 16 conversations with Bruce in relation to where the
 17 project was and what the final expectation was.
 18 Q. Can I look at the deed with you, which we looked at
 19 earlier, the 2016 deed of appointment, {RYD00094228/3}.
 20 I want to look at it in a little bit more detail with
 21 you, because we know that this was what was formally
 22 executed.
 23 Again, you didn't see it at the time, but I want to
 24 see if I can get your sense of where matters stood.
 25 Can I ask you, please, to look at paragraph 2.3:

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1 "The Consultant warrants it has exercised and will
 2 continue to exercise reasonable skill care and diligence
 3 in the discharge of services to the standard reasonably
 4 to be expected of a competent professional experienced
 5 in the provision of professional services for works
 6 similar to the size scope complexity quality and nature
 7 of the Development."
 8 Were you at any time aware that Studio E had made
 9 that warranty?
 10 A. No. I mean -- well, let me rephrase. I knew -- I think
 11 I would have known there's a -- there was a warranty in
 12 place, but not the specifics of it.
 13 Q. Right. So one of the specifics of it is that it was
 14 warranting that it has in the past exercised reasonable
 15 skill and care and diligence in the discharge of the
 16 services, which are defined. Did you know that? In
 17 other words, it was warranting its past quality?
 18 A. No.
 19 Q. Can I ask you to look at paragraph 8 on page 5
 20 {RYD00094228/5} under the heading "CDM Regulations":
 21 "The Consultant is aware of the Construction (Design
 22 and Management) Regulations 2015 ('the CDM Regulations')
 23 and acknowledges that in relation to the Services it is
 24 a 'designer' as defined in the CDM Regulations and will
 25 use reasonable skill care and diligence to comply with

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1 its obligations and duties as a designer as defined and
 2 specified within the CDM Regulations."
 3 Did you at the time -- this is February 2016 -- have
 4 any understanding of what that required Studio E to do?
 5 A. There had been a lot of discussion within the practice
 6 when the new 2015 regulations came in and the
 7 implications of principal designer and whether that was
 8 something the practice could adequately provide, and the
 9 industry generally was struggling with how -- I think
 10 coming to terms with that new regulatory set. So
 11 I understood the conversations to some extent in
 12 relation to that.
 13 Q. Yes, I see. So that's similar to what you told us
 14 before.
 15 Can I ask you then to turn on, please, to the annex,
 16 which is page 8 of this document {RYD00094228/8}.
 17 That's where it starts, which is the schedule of
 18 architectural services. Can I look, please, first of
 19 all, at item 4 {RYD00094228/9}, which we looked at in
 20 similar terms -- the same terms -- in the April 2014
 21 draft:
 22 "Seek to ensure that all aspect of the architectural
 23 designs comply with the Employer's Requirement documents
 24 prepared by Artelia ..."
 25 So similar question: as at February 2016, was that

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1 something that you knew Studio E had contractually
 2 promised to Rydon?
 3 A. Specifically , no.
 4 Q. Moving to item 5:
 5 "Advise the Contractor where, in the Architect's
 6 opinion, there are shortfalls within the Employer's
 7 Requirements and advise of assumptions to be made."
 8 Again, was that something that you knew Studio E had
 9 contractually promised to Rydon?
 10 A. I didn't know categorically that it had contractual --
 11 contractually obliged to provide it, but I would have
 12 expected it .
 13 Q. Right 7:
 14 "Responsibility for co-ordinating Building
 15 Regulation approval for and on behalf of the
 16 Contractor."
 17 Did you know that Studio E was obliged to Rydon to
 18 do that?
 19 A. I understood that we had a responsibility for
 20 co-ordinating the building control submission.
 21 Q. Similarly , statutory requirements, including scheme
 22 development standards. By February of 2016, did you
 23 know that Studio E was obliged to do that?
 24 A. Sorry, which number is this?
 25 Q. Item 8, I'm so sorry:

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1 "Seek to ensure that all designs comply with the
 2 relevant Statutory Requirements, including Scheme
 3 Development Standards."
 4 So, again, February --
 5 A. Yeah. Again, I didn't categorically know it, but
 6 I would have assumed that.
 7 Q. Right.
 8 Would you agree with me that statutory requirements
 9 would include the obligations in the building
 10 regulations?
 11 A. Yes.
 12 Q. And the CDM Regulations?
 13 A. Yes.
 14 Q. And indeed, as we look at item --
 15 A. Sorry, just to clarify , this document is from -- what
 16 was the date of this?
 17 Q. This is the deed of 3 February 2016.
 18 A. So this is the retrospectively signed --
 19 Q. Yes.
 20 A. -- version? And that all designs comply with the
 21 relevant statutory requirements, in as far -- but only
 22 in as far as they were our designs.
 23 Q. Is that how you understood it?
 24 A. Yeah.
 25 Q. So you understood all designs -- well, you say you

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1 hadn't seen this document.
 2 A. No.
 3 Q. Are you saying that "all designs" means all designs done
 4 by Studio E?
 5 A. Yes.
 6 Q. Why do you say that?
 7 A. Well, if you had a specialist -- if you had a specialist
 8 contractor, then it would be for them to seek to comply
 9 with the regulations .
 10 Q. Was that your understanding throughout your involvement
 11 in the Grenfell Tower project?
 12 A. Yes.
 13 Q. Did anybody tell you that that was what was agreed with
 14 Rydon?
 15 A. Categorically? I don't think so.
 16 Q. Did you have any discussions within Studio E which
 17 reflected that understanding?
 18 A. Okay, if I can just step back a bit, I think ... I'm
 19 thinking specifically in terms of: if you comment, let's
 20 say -- if you comment on the cladding, then you would
 21 comment from the perspective of architectural intent .
 22 Q. Well, we'll come to that in detail in relation to some
 23 specific documents in due course, so I'll park the
 24 questions on that for the moment.
 25 Just looking at item 9, obligation to produce a CDM

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1 design risk assessment, did you know that Studio E was
 2 obliged to do that?
 3 A. Well, we did have our own internal risk assessments.
 4 Q. Yes. Then item 11, Studio E to:
 5 "Co-operate with the Contractor's Buying Department
 6 in the consideration and selection of alternative
 7 materials."
 8 Did you know that Studio E was obliged to do that?
 9 A. Not categorically , no.
 10 Q. Item 12:
 11 "With other Consultants, where appointed, develop
 12 the scheme designs, agree with the Contractor the type
 13 of construction and quality selection of materials."
 14 Did you know that Studio E was obliged to do that?
 15 (Pause)
 16 A. Not categorically .
 17 Q. Item 13 --
 18 A. Sorry, can I just say, these were all taken from
 19 a document that I've said that I didn't look at or
 20 review, so I can't categorically say --
 21 Q. No.
 22 A. -- in any of them that I understood that.
 23 Q. No, indeed, and I understand that. All I'm asking you
 24 for is your understanding, without the document, but
 25 given this is what the document says --

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1 A. Yes.
 2 Q. -- and I take it that that's how you understood my
 3 questions?
 4 A. Yes.
 5 Q. Okay, thank you very much.
 6 Then item 13 {RYD00094228/10}:
 7 "Co-ordinate any design work done by consultants,
 8 specialist contractors, subcontractors and suppliers."
 9 I'm very sorry, the same question again: did you
 10 know that Studio E was obliged to do that?
 11 (Pause)
 12 A. It's quite a general statement. You could interpret --
 13 well ... co-ordinate in the sense of lead designer,
 14 I guess.
 15 Q. All right.
 16 Then if we move down the page to item 27 -- we're
 17 now on page 10. We have already looked at 19, as-built
 18 drawings. Item 21:
 19 "Provide a Collateral Warranty for all designs as
 20 detailed in the Employer's Requirements."
 21 Did you know that Studio E had agreed to do that, to
 22 provide a collateral warranty for all designs as
 23 detailed in the employer's requirements?
 24 A. No.
 25 Q. Right. You know what I mean by a collateral warranty?

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1 A. I understood there's a collateral warranty required but
 2 not specifically in those terms.
 3 Q. Right. Item 27:
 4 "Examine Subcontractors' and Suppliers' drawings and
 5 details, with particular reference to tolerances and
 6 dimensional co-ordination, finish, durability,
 7 appearance and performance criteria and report to The
 8 Contractor."
 9 Did you know that Studio E was obliged to Rydon to
 10 do that? Again, we see the "performance criteria"
 11 phrase used.
 12 A. Yeah, I mean, it's the same comment as before.
 13 Q. Okay.
 14 Second from last, you will be glad to hear, item 30,
 15 "Superstructures", there is an obligation there to
 16 "Design and provide general arrangement drawings as
 17 follows". Do you see that?
 18 A. Yes.
 19 Q. And there is a list of things there.
 20 Did you know that Studio E was obliged to do that,
 21 or those things?
 22 A. I think we did do that, so --
 23 Q. Right.
 24 A. -- to say did I know that we were obliged to do it?
 25 Q. Yes.

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1 A. Well, no, but we did -- I knew that we had done that.
 2 Q. I see, and then under 31, just over the next page,
 3 page 11 {RYD00094228/11}, Studio E was required to:
 4 "Provide supplementary notes to drawings and provide
 5 further drawings to show sufficient information to
 6 construct the project to completion consisting (but not
 7 limited to) the following:
 8 "a. External wall/internal wall and partition
 9 construction details (1:20/1:10/1:5)."
 10 Did you know that Studio E was obliged to provide
 11 external and internal wall and partition construction
 12 details up to 1:5 scale?
 13 A. I wasn't aware that we had a specific obligation to
 14 produce specific walls at specific details.
 15 Q. Then item c:
 16 "Window jamb/head/cill details ..."
 17 A. The same.
 18 Q. And again the same: 1:20, 1:10, 1:5 -- it says "1/15",
 19 but 1:5. Did you know that Studio E was to provide
 20 that?
 21 A. Specifically, no.
 22 Q. Specifically, no.
 23 Then at the very bottom of page 12 {RYD00094228/12},
 24 if I can ask you to look at that, it says, "Site
 25 visits", do you see, at the very, very bottom under

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1 paragraph 44:
 2 "Site visits = 25no. is required."
 3 Do you remember that being an obligation?
 4 A. I wasn't aware of that as an obligation from this
 5 document for the reasons I mentioned before, not seeing
 6 the document, but it was brought to my attention very
 7 late in the project that that was in fact an obligation.
 8 Q. Right.
 9 You were the main project person -- I don't want to
 10 use the word "architect" -- in respect of the
 11 Grenfell Tower from July 2014. Would you normally run
 12 a project without having close familiarity with either
 13 the proposed contractual terms or the actual contractual
 14 terms in a design and build contract that you either
 15 were going to or had undertaken to the design and
 16 builder?
 17 A. I think there's a number of comments I would make on
 18 this. I think, first of all, it's not unusual for
 19 projects to run with no contract until the end. And
 20 it's also not unusual for projects to run with very
 21 badly put together contracts that don't actually reflect
 22 what's being expected on site or by the contractor.
 23 It's not unusual to find projects where you have
 24 contracts that are -- that have been pieced together
 25 from other contracts by contractors, to the extent where

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1 even names and references are wrong.
 2 In this instance, to answer your question
 3 specifically, Bruce was still very much the lead in
 4 terms of having the overview of the project. He had
 5 worked on it from start to finish, and he had worked
 6 specifically on the -- with Andrzej on the contractual
 7 side of things. My briefing from Bruce was what I was
 8 expected to do to complete the project.
 9 So, in this instance, no, I don't think I -- if
 10 I had been brought on earlier, I would have perhaps been
 11 more concerned with this, but not from the stage
 12 I was -- in the work I was being asked to do on it, no.
 13 Q. So at any time prior to February 2016, when this deed of
 14 appointment with its deed of architectural services we
 15 have just looked at together --
 16 A. Yes.
 17 Q. -- was executed, did anybody at Studio E, Bruce Sounes
 18 or Andrzej Kuszell, ever come to you and ask you whether
 19 it was safe for Studio E to enter into the contractual
 20 undertakings we have just been looking at together?
 21 A. On the 2016 version?
 22 Q. Yes.
 23 A. No, but I was -- I think I alluded to it earlier this
 24 morning. I was aware that it was an issue of ... that
 25 was troubling them, because let's say we were being held

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1 to ransom on the final payment, and we were under
 2 pressure to sign the agreement.
 3 Q. Can I go back to your statement -- well, before I do,
 4 I'm so sorry, are you in a position to agree with me --
 5 and if you're not, then say so -- that this document,
 6 this deed, accurately reflects the services that
 7 Studio E had been appointed to provide to Rydon from the
 8 outset?
 9 A. From the outset, I can't say, because I wasn't involved
 10 from the outset.
 11 Q. All right. From the outset of the relationship with
 12 Rydon. From the novation.
 13 (Pause)
 14 A. I think that would have to be a question to Bruce.
 15 Q. I see.
 16 A. Yeah. But I suspect not.
 17 Q. You suspect not?
 18 A. Yeah.
 19 Q. Why would you suspect not?
 20 A. Because I don't think that was his understanding of the
 21 expectation.
 22 Q. We can, I hope, explore that with him.
 23 Now, can I just ask you three general questions
 24 about what Studio E was required to do.
 25 Would you agree with me that Studio E was, at least

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1 in general terms, required to check for itself whether
 2 the design complied with the building regulations?
 3 A. Where they were our designs, yes.
 4 Q. So you are adding a qualification?
 5 A. Yes.
 6 Q. I see. That qualification, I'm interested in where it
 7 comes from. Was it your own private understanding, or
 8 was it something you ever discussed within Studio E,
 9 either with Bruce Sounes or with anybody else?
 10 A. Well, I don't see how you could -- sorry, what was the
 11 exact terms you used?
 12 Q. Well, I was asking you whether the qualification you're
 13 adding, which was that your --
 14 A. No, no, before that.
 15 Q. I will rephrase the question again.
 16 Would you agree with me that Studio E was, at least
 17 in general terms, required to check for itself whether
 18 the design, which was the basis of being the completion
 19 of the building, complied with the building regulations?
 20 A. Ah, okay, sorry. My qualification was on the basis that
 21 this aspect of design which we were not involved in,
 22 which were specialist design -- so, for example, if you
 23 have a specialist mechanical and electrical component,
 24 then you're not qualified to verify that it's compliant,
 25 how would you?

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1 Q. So that qualification, was that something that you ever
 2 discussed internally within Studio E?
 3 A. I think that's what would have been assumed. I mean,
 4 how can you qualify compliance of something you have no
 5 knowledge of?
 6 Q. Can you explain, from your own understanding, why it was
 7 that nobody at Studio E put that qualification into the
 8 deed of appointment, or ever told Rydon in terms that
 9 that was the limitation of Studio E's responsibility so
 10 far as building regulation compliance was concerned?
 11 A. I think Bruce in some of his comments on that earlier
 12 version of the contract went some way to addressing
 13 that, when he put "shall seek to comply" rather than
 14 "will verify that it complies".
 15 Q. Right.
 16 In answer to my question a few moments ago, you
 17 said -- let me just find the answer -- you would not
 18 expect to be involved in design "which we were not
 19 involved in", and this was {Day9/72:10}.
 20 But it's right, isn't it, that you, as in Studio E,
 21 were definitely involved in the façade and the façade
 22 design?
 23 A. Sorry, your previous reference I haven't seen.
 24 Q. That's just for the transcript. When you answered my
 25 question a moment ago, you said that your qualification

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1 was on the basis of "this aspect of design which we were
2 not involved in, which was specialist design", and then
3 you gave an example of a specialist mechanical and
4 electrical component.

5 Looking at that qualification you have introduced,
6 the façade was something that you were definitely
7 involved in, wasn't it? You as in you, and you as in
8 Studio E.

9 A. Yes, we were involved in the design of it to -- until it
10 was let as a specialist contractor package
11 post-novation.

12 Q. So you're drawing a line, are you, between the previous
13 involvement and the time of novation?

14 A. To answer the question I think you're asking, and I know
15 you have alluded to wanting to go on to it later, what
16 I'm saying specifically is the cladding package, we
17 commented on architectural intent.

18 Q. Can I ask you then to look at your statement at
19 {SEA00014275/7}. This is paragraph 14, please, where
20 you say:

21 "Rydon was appointed as the main contractor on 30
22 October 2014. After its appointment, it took over
23 responsibility for the design of the Project following
24 the 'novation', which is a common feature of projects
25 procured under a 'design and build' route (see from

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1 paragraph 32 below)."

2 When you say there that Rydon took over
3 responsibility for the design of the project, do you
4 mean that Rydon took over responsibility to the TMO for
5 the design? Is that what you are saying?

6 A. No, they took over responsibility for the whole of the
7 design on the project.

8 Q. Yes, to whom? To whom are you saying that Rydon took
9 over that responsibility?

10 A. To whom? To their client, yes, K --

11 Q. Okay.

12 If we look, then, at paragraph 32 of your
13 statement -- that's on page 14 of the same document
14 {SEA00014275/14} -- you say in the last sentence there:

15 "However, under a main contract for a design and
16 build project, Rydon, as the main contractor, is
17 responsible for the design and construction of the
18 Project."

19 You say that.

20 Correct me if I'm wrong, but it's right, isn't it,
21 that Rydon appointed subcontractors and subconsultants
22 actually to carry out the detailed design work on the
23 façade and, indeed, other aspects of the project?

24 A. Yes, but they sat under Rydon.

25 Q. And Studio E, after novation, was one of those

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1 subcontractors or subconsultants sitting under Rydon.

2 A. We were employed by Rydon, yes.

3 Q. Yes. So if you go, then, to paragraph 34 of your
4 statement, same page, just a bit lower down, you say:

5 "My understanding (Studio E was not involved in the
6 contractual arrangements with Rydon's subcontractors) is
7 that Rydon began to put together its detailed design
8 team quite soon after its appointment ..."

9 Then you go to give some dates, and then you say:

10 "... key members of the design team at this point
11 were:

12 "34.1 Harley - specialist cladding designers (which
13 designed the details of the cladding) ...

14 "34.2 JSW - the M&E contractors ... and

15 "34.3 Curtins Limited ... the structural
16 engineers ..."

17 Are you suggesting by that list, which doesn't
18 include Studio E, that Studio E was not a key member of
19 Rydon's design team?

20 (Pause)

21 A. Well, that's -- that specifically says "Rydon confirmed
22 its subcontractor designers". We were employed as
23 consultants, not ...

24 Q. Just to be clear, the list that you're setting out at
25 34.1, 2 and 3 is your list; yes?

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1 A. Yes.

2 Q. I'm suggesting to you --

3 A. I mean, possibly the easiest thing to do is look at,
4 under paragraph 10, the diagrams.

5 Q. Yes, absolutely, we can do that. If we can go back to
6 paragraph 10 of your statement, which we will find on
7 page 4 {SEA00014275/4}, there is a diagram I think below
8 on page 5 {SEA00014275/5}.

9 A. Yes, the next page.

10 Q. Is that what you want to look at?

11 A. Yes, this shows the --

12 Q. Just a moment, I'm so sorry, it may need to be expanded
13 so everybody can read it. It's not a very easy document
14 to read.

15 I'm so sorry, Mr Crawford, this is not that easy to
16 see. It's easy in portrait, less so in landscape. If
17 you look at the page, it's divided into two: "Key
18 relationships prior to Rydon's appointment", and then,
19 lower down, "Key relationships after Rydon's
20 appointment".

21 A. Yes.

22 Q. Is that what you want to look at, the lower part?

23 A. Yes, so that makes the distinction in the blue boxes
24 from contractor to consultant.

25 Q. Just so that everybody looking at this document can

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1 follow it, after Rydon's appointment, we have two red
 2 boxes, KCTMO as the top red box, and they appoint Rydon
 3 as their contractor, bottom red box. Yes?
 4 A. Yes.
 5 Q. Then looking to the right, you have got blue, green and
 6 a blank box. The blue boxes are subcontractors, one of
 7 which includes Harley Façades, and one of the green
 8 boxes is Studio E, architect.
 9 So after novation, you were a subcontractor or
 10 subconsultant of Rydon.
 11 A. Subconsultant, yeah.
 12 Q. Subconsultant. Going back to your list of design team
 13 members in your statement at paragraph 34, page 14
 14 {SEA00014274/14}, if we can, having shown you that, can
 15 I just repeat my question.
 16 The list that you have set out here doesn't include
 17 Studio E, and my question is: why not, given that you're
 18 setting out key members of the design team?
 19 A. Well, I suppose if you were to rewrite that, you would
 20 say "Rydon confirmed its subcontractor designers as" and
 21 then list the blue ones, and then its subconsultants and
 22 list the green ones.
 23 Q. What's the difference that you are drawing between
 24 subcontractor designers and subconsultants?
 25 A. The subcontractors took complete responsibility for

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1 their package of works.
 2 Q. And the subconsultants?
 3 A. Were retained on a consultancy basis.
 4 Q. Now, that distinction that you're drawing, I just want
 5 to understand where it comes from. We have seen it
 6 doesn't come from the contractual documents, so where
 7 does that distinction come from? Is it something you
 8 assumed at the time, or is it something that you were
 9 told at the time? When I say "at the time", I mean July
 10 2014 onwards.
 11 A. Well, for example, if you take the subcontractor
 12 designers, they're designing it, they're manufacturing
 13 and producing and installing the products; the
 14 consultants aren't.
 15 Q. We will come to that in due course.
 16 Can we look at your statement at paragraphs 15 to
 17 17, which is on page 7 {SEA00014275/7}. This is under
 18 "Executive summary" at the top of the page, Mr Crawford,
 19 but if you look at paragraphs 15, 16 and 17, and just
 20 read those to yourself.
 21 (Pause)
 22 So to summarise, you are saying here, I think, that
 23 Studio E's role was to comment on whether the work
 24 carried out by others was in line with architectural
 25 intent set out in the employer's requirements. That's

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1 the final sentence of paragraph 15.
 2 A. Mm-hm.
 3 Q. That is a distinction that was drawn at the time by you,
 4 was it? Or that was a role, I should say, that you
 5 understood at the time, that your role after novation
 6 was limited to commenting on whether the work carried
 7 out by others was in line with architectural intent?
 8 A. Yes, that's the role that I understood at the time, yes.
 9 Q. Right.
 10 Can you explain -- and if you can't, you can't --
 11 why the distinction that you have been drawing on
 12 a number of the different documents we've seen is not
 13 one which ever found its way into the formal contractual
 14 documents such as the deed of appointment,
 15 February 2016?
 16 A. That's my experience on all projects. That's how you
 17 comment.
 18 Q. Right. But can you explain why that distinction, which
 19 is quite an important one from Studio E's point of view,
 20 was never reflected in the deed of appointment of
 21 February 2016? Do you know why that was?
 22 A. Personally, no. I think that's a question for Bruce.
 23 Q. That's a question for Mr Sounes, is it? Very well.
 24 SIR MARTIN MOORE-BICK: Can I just be clear: are you saying
 25 that this was your understanding of how things worked

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1 based on your experience in the construction industry?
 2 A. Yes, and I suspect it would be Bruce's as well, but
 3 I can't comment on his behalf.
 4 SIR MARTIN MOORE-BICK: Yes, all right.
 5 Mr Millett, I wonder whether we ought to --
 6 MR MILLETT: I was about to suggest another break.
 7 SIR MARTIN MOORE-BICK: Right.
 8 I think we will have another short break now,
 9 Mr Crawford. Again, please don't talk to anyone about
 10 your evidence while you are out of the room. We will
 11 resume at 12.20.
 12 THE WITNESS: Yes.
 13 SIR MARTIN MOORE-BICK: Thank you very much.
 14 (Pause)
 15 Right, 12.20, please.
 16 MR MILLETT: Very good.
 17 SIR MARTIN MOORE-BICK: Thank you.
 18 (12.09 pm)
 19 (A short break)
 20 (12.20 pm)
 21 SIR MARTIN MOORE-BICK: Right, Mr Crawford, ready to carry
 22 on?
 23 THE WITNESS: Yes.
 24 SIR MARTIN MOORE-BICK: Yes, Mr Millett.
 25 MR MILLETT: Mr Crawford, I now want to ask you some

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1 questions about architectural intent .

2 Can I ask you, please, to go to your statement at

3 paragraph 54, which is at page 23 {SEA00014275/23} on

4 the document which is still up on the screen.

5 Now, this paragraph sits under a heading "Cladding:

6 Studio E's input on the Harley Drawings", and then you

7 go on to say:

8 "From time to time, Harley asked me to comment on a

9 drawing or a set of drawings. I discuss this in the

10 context of specific drawings further below, but in

11 summary I would then usually send back some

12 observations, commenting on the 'architectural intent' .

13 I would then record my comments on any particular

14 drawing using a stamp describing the documents as status

15 'A', 'B' or 'C' (the Status). The meaning of the Status

16 'A', 'B' or 'C' is a convention which is widely used and

17 commonly understood in the construction industry. It

18 essentially meant what was stated in the wording on the

19 stamp:

20 "54.1 'A' - Conforms to 'architectural intent' .

21 "54.2 'B' - Conforms to 'architectural intent' .

22 subject to incorporation of comments. Revise and

23 resubmit for A Status .

24 "54.3 'C' - Does not conform with 'architectural

25 intent' . Revise and resubmit."

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1 So you put "architectural intent" in quotation

2 marks. Is that because it's a special expression known

3 in the architectural profession?

4 A. I think it's known in the construction profession.

5 Q. Yes. You say that the meaning of the status is

6 a convention widely used and commonly understood in the

7 construction industry, but what does the expression

8 "architectural intent" mean, to your understanding?

9 A. It's basically the architecture, it's as you have

10 designed it. So appearance, aesthetics, spatial

11 utility, functional utility .

12 Q. I see. Appearance, aesthetics, spatial utility and

13 functional utility .

14 A. Spatial and functional utility .

15 Q. Spatial and functional. Does that mean that you don't

16 include in the expression "architectural intent"

17 technical requirements?

18 A. Yes, I would say that's fair .

19 Q. Would you also say that within the expression

20 "architectural intent" you don't include selection of

21 materials?

22 A. No, I think the architectural intent -- when I mentioned

23 appearance -- could imply material. It certainly

24 implies colour and finish .

25 Q. I follow. So selection of materials so far as the look

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1 and feel of a material is concerned?

2 A. Yes.

3 Q. Does that mean that an architect would not normally

4 consider technical requirements and specification of

5 materials?

6 A. Well, they would when they're designing -- well, let's

7 say up to tender stage, but if you're talking in this

8 specific context, when we're talking about architectural

9 intent, we're talking about architectural intent

10 commenting relative to specialist contractors'

11 interpretation of the employer's requirements.

12 Q. I'm not quite sure I really have got that answer clear

13 in my own mind. Are you saying that after the tender

14 stage -- first of all, do you say that after the tender

15 stage, whether or not a design and build, or at the

16 design and build contract stage?

17 A. No, what I'm saying, in the context in which this is

18 written, this is talking about commenting on

19 a specialist contractor's drawings.

20 Q. I see. So is this right: you are using the expression

21 "architectural intent" and what that implies and doesn't

22 include to describe the limits of Studio E's obligations

23 after novation?

24 A. Yes, but you could talk about a scheme and you could

25 say, "Oh, the architectural intent", at any point, and

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1 you could describe the architectural intent as I've

2 just -- as we've just agreed the description. But in

3 the context of what you're reading here, yes.

4 Q. I see.

5 Let me just ask you something on your statement.

6 Can I ask you, please, to be taken to page 60

7 {SEA00014275/60}, paragraph 187. You say -- and take it

8 from me that this is paragraph 187, although it starts

9 on the previous page -- in the last or penultimate

10 sentence:

11 "However, if I noticed anything that was obviously

12 not compliant with the Building Regulations I would

13 raise this with the specialist designer and/or Building

14 Control as necessary."

15 So can I take it from that that even though your

16 understanding was that Studio E's obligations were

17 confined by architectural intent in the way you have

18 described it post-novation, nonetheless, if you saw

19 anything in a design done by a subcontractor that was

20 obviously not compliant with the building regulations,

21 you had an obligation to raise that or you would raise

22 that with the specialist designer or building control?

23 A. What I would say is that we would comment in relation to

24 architectural intent, but if you see anything that's

25 manifestly wrong, then you have an obligation to --

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1 Q. I see. Yes.
 2 A. -- point it out.
 3 Q. We will come to manifest error in a moment, because you
 4 cover that in your statement, I want to show that to
 5 you.
 6 Before I do, do you accept that you were also
 7 responsible for identifying anything that a competent
 8 architect would be expected to identify if there was
 9 a divergence from building regulation requirement?
 10 A. Yes, I suppose so.
 11 Q. Now, can I ask you to look at paragraph 256 of your
 12 statement. This is page 78 of the same document
 13 {SEA00014275/78}.
 14 Paragraph 256 is under the heading "Reliance on
 15 third parties summary". You might want to look at the
 16 whole paragraph, just read that to yourself, so you have
 17 the context in your mind before my question.
 18 (Pause)
 19 A. Yes.
 20 Q. All right?
 21 What I want to focus on with you is the second
 22 sentence:
 23 "As set out in the section above, in order to fulfil
 24 my role in coordinating the Building Regulations
 25 approvals process for designs prepared by others,

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1 I would identify any potential problems with those
 2 drawings that would [be] manifest to an architect, say
 3 for example if a handrail was located at the wrong
 4 height in contravention of Building Regulations guidance
 5 and then rely on the expertise of those with either a
 6 more detailed knowledge of the design in question (ie
 7 the actual designer) or those with more specific
 8 expertise to coordinate the approvals process ..."
 9 Just focusing on the expression "that would be
 10 manifest to an architect", do you accept that where
 11 a design may have included technical matters beyond the
 12 scope of an architect's own expertise, that wouldn't
 13 absolve that architect of their duty to check the
 14 designs produced by others at all?
 15 (Pause)
 16 A. Well, you would check them in the capacity which is
 17 described there.
 18 Q. Yes. Just to be clear, just because a design might
 19 include technical matters which were outside the scope
 20 of your own expertise, you wouldn't just say, "Well,
 21 I don't need to check those at all", you would still
 22 check them.
 23 A. If you were asked to check them, yes.
 24 Q. If they came to you, if they crossed your desk.
 25 A. Yes.

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1 Q. If they hadn't crossed your desk but you needed the
 2 drawings in order to be able to co-ordinate the building
 3 control process, you would ask for them and look at
 4 them; is that right?
 5 A. Possibly.
 6 Q. Now, let's just look at an example. Can I ask you to be
 7 shown, please, {SEA00003242/1}. This is a Harley
 8 drawing dated -- and it's at the bottom on the
 9 right-hand side, it's quite small, but take it from
 10 me -- 30 September 2014. So it's after the start of
 11 your involvement. It's an elevation; you see?
 12 A. Yeah.
 13 Q. And it's marked "Approved for construction", and then
 14 above it there is a red stamp on the right-hand side,
 15 "Studio E Architects". You can see the A, B and the C,
 16 and you have ringed it with a B. Yes?
 17 A. Yes.
 18 Q. Then you have signed it, and you have dated it
 19 12 June 2015, and you have put your name, Neil Crawford,
 20 in the box.
 21 A. Yes.
 22 Q. You can see that the stamp status A just above it
 23 says -- it's not very easy to see on this one --
 24 "Conforms to Design Intent". Yes?
 25 A. Mm-hm.

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1 Q. Do you accept -- although this one is marked B, looking
 2 at A -- design intent would include the question of
 3 compliance with performance criteria of what is on the
 4 drawing?
 5 (Pause)
 6 A. Not necessarily.
 7 Q. Well, can you help me with the terminology? You talked
 8 about "architectural intent" in your statement and we
 9 had a discussion about that a minute ago. In the stamp
 10 you have used "design intent". Is there a difference?
 11 A. What I would say about the stamps is the stamps are
 12 an industry standard, so these exist across all
 13 projects, and that method of stamping is used for all
 14 projects, all contracts, types of project. That's why
 15 I've qualified "architectural intent".
 16 Q. So just so that I'm clear, you have explained your
 17 understanding of the expression "architectural intent",
 18 but we see that you have used the stamp which says
 19 "design intent". Is there a difference between the two
 20 expressions, or do we take it from you that when you
 21 used the stamp with "design intent", you meant
 22 "architectural intent"?
 23 A. I don't think there is a fundamental difference between
 24 the two interpretations, but, to be precise, it would be
 25 architectural intent.

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1 Q. I see. You say there is no fundamental difference; is
2 there any difference?
3 A. It's a different word.
4 Q. A different word for the same thing, you think?
5 A. Yeah.
6 Q. I see.
7 Now, I'm going to ask for the box to be blown up, if
8 I can, please, the big red stamp. Thank you very much.
9 Can you see that clearly, Mr Crawford?
10 A. Yes.
11 Q. It's not perfect, I accept.
12 You can see, three-quarters of the way down the box,
13 that there are three columns: "Date", "Checked By
14 Signature" and "Name", and then underneath that, "Date",
15 "Authorised Signature" and then "Name".
16 You say this is an industry stamp. Is it therefore
17 industry practice that each drawing which is looked at
18 and stamped will be looked at by two people, the
19 signatory and then the checker, or the checker and then
20 the authorised signatory?
21 A. Not necessarily. As I mentioned before, the stamp is,
22 if you like, a generic stamp.
23 Q. Yes.
24 A. So it allows for use across potentially any project
25 within the office. It might be more appropriate just to

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1 have written status B and not used the full stamp.
2 Q. What is normally, in your experience, the purpose of the
3 authorised signature, as opposed to the checked by
4 signature?
5 (Pause)
6 A. If you were to have a process where you are double
7 checking, some companies may have for larger projects,
8 for example, or specific types of project.
9 Q. There is no second signature on this drawing. Is that
10 because there was no system within Studio E whereby
11 a second person would check the stamp that you had
12 signed?
13 A. I'm not aware that we were operating a double-check
14 system.
15 Q. Right. Is that generally true across the whole
16 Grenfell Tower project?
17 A. Yes, and I think that's true across most offices.
18 Q. You have told us about your role being limited to
19 checking whether the drawings conformed to architectural
20 intent or design intent -- I'm going to assume we can
21 use those two words interchangeably, Mr Crawford, unless
22 you tell me we shouldn't. We have discussed that.
23 My question is: did you ever seek to agree with
24 Rydon or check with Rydon that they were happy that your
25 role should be limited to checking whether drawings

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1 conformed to architectural intent or design intent?
2 A. I believe that's what they would have expected us to be
3 commenting on.
4 Q. You say you believe that's what they would have expected
5 you to be commenting on. What was that belief based on?
6 A. Standard industry practice.
7 Q. Do we take it from that that you never actually had
8 a conversation with Rydon along the lines of, "We are
9 only checking the drawings we get from Harley
10 [for example] for design intent and nothing more"?
11 A. Well, design intent and anything that we saw in it that
12 was manifestly --
13 Q. Fair enough, I see.
14 Did you ever have a discussion with Rydon about what
15 you understood by architectural intent or design intent?
16 A. I think it would be a very unnatural conversation to
17 have that with a contractor. I didn't.
18 Q. Are you -- and this is a repetition, in a sense, of the
19 same question we were looking at on the contracts
20 before -- able to explain why the contractual
21 documentations didn't say that Studio E's role was
22 limited to checking drawings for architectural intent or
23 design intent?
24 A. I can't answer beyond what I said before.
25 Q. Now, you have used the expression "manifest to

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1 an architect" at paragraph 256 of your statement.
2 Perhaps we should just go back to that so that you're
3 clear. Page 78, please, {SEA00014275/78},
4 paragraph 256, just looking at the expression, it's in
5 the middle of the paragraph, "drawings that would" --
6 and the "be" is missing -- "manifest to an architect".
7 Just focusing on that, do you agree that issues such
8 as specification of materials which don't comply with
9 the building regulations should be manifest to
10 an architect?
11 (Pause)
12 A. In general terms, yes.
13 Q. Can I then, in light of that, take you to page 17 of the
14 same witness statement, {SEA00014275/17}, paragraph 42,
15 please. I'm sorry to jump around, and if you need to
16 look at this more widely, we can do that.
17 You say there in the first line:
18 "However, I did not consider that the review of
19 drawings of others during the Project was to double
20 check that they were technically correct, or necessarily
21 compliant with Building Regulations above and beyond
22 their consistency with the architectural intent."
23 Now, can you help me with this. We can do this by
24 way of an example, I think. Can you be shown
25 {SEA00003160}, Mr Operator. This is a document of

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1 a number of pages which comprises the Harley
2 specification notes, revision B, which started life on
3 15 January 2015, if you look at the very bottom
4 right-hand corner -- or not the very bottom right-hand
5 corner, but the bottom on the right-hand side.

6 If you look at the box to the left of that, it says
7 "Specification", and if you look at the box to the left
8 of that, it says 3 March 2015, "rvg [revision]
9 firebreak", and this is revision B of this
10 specification, just so that we're clear.

11 On the specification note, if we can focus on
12 page 1 -- can we blow up page 1 just to have that on the
13 screen. Thank you. The document contains some red
14 handwriting. Is that yours?

15 A. Yes.

16 Q. At page 1, we have got two arrows there. One is for
17 "key for colour areas", and the other points to the left
18 to "G value = 0.59", which is part of the section
19 "Glazing - G1 - vision". And you say:

20 "This seems quite high. Think MF expected 0.4(?)"

21 Is MF Max Fordham?

22 A. Yes.

23 Q. Okay. The G value of glazing, is that a matter of
24 architectural intent, or is that, would you say,
25 detailed design input?

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1 A. It's architectural intent, inasmuch as it affects the
2 colour of the glass.

3 Q. What is a G value?

4 A. G value is the energy transfer through glass.

5 Q. Right. The energy transfer through glass isn't --
6 sorry, I will put it differently.

7 Would you understand the energy transfer measurement
8 through glass to be an aesthetic or appearance or
9 spatial matter which would fall within --

10 A. Yes.

11 Q. Why is that?

12 A. The way energy transfer through glass is modulated is by
13 applying actually metallic coats that are applied onto
14 glass. So if you have a double glazed unit -- imagine
15 you have two pieces of glass and you have faces that are
16 numbered 1, 2, 3, 4. In order to control the energy
17 transfer through glass, you do it by using
18 low-emissivity glass, which deals with energy lost.
19 I think that goes --

20 Q. I see.

21 A. I always get this confused, which face the finish has
22 gone, I think that's face 4. But to control the G value
23 of glass, you use a metallic layer that goes onto the
24 glass. That effectively -- it rebounds the energy or it
25 makes the glass more thermally -- more energy efficient

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1 in terms of the transfer.

2 Q. I see.

3 A. Generally, the higher -- I always get this confused as
4 well -- the G value, the more metallic surface is put on
5 it, and so the darker it goes. So if you imagine
6 sometimes you see buildings that look almost like
7 sunglasses glass on them, then this is because -- well,
8 it might not necessarily be because of the G value, it
9 could be for other reasons, but generally, with the
10 higher G value, then the glass gets darker.

11 Q. I see. So, in a nutshell --

12 A. Yeah --

13 Q. -- you wanted the G value to be lower because it would
14 look better?

15 A. It would be in line with the architectural intent.

16 Q. All right.

17 Can I ask you to look, please, at page 10 of the
18 same document {SEA00003160/10}, which is a drawing, and
19 it's drawing C1059, number 31B. I just want you to look
20 at the -- it's on the top of the page. You stamp this
21 on 6 March 2015, Mr Crawford, I think, and this is
22 a drawing from Harley, revision A, 3 March 2015,
23 "Fixings, membrane, [construction]".

24 There is some red handwriting again, which I think
25 we can recognise as yours; yes? In the middle of the

95

1 page there is an arrow and it says:

2 "Is there risk of air leakage through here? EPDM?
3 (At ends?)"

4 Have I read your handwriting out correctly?

5 A. Yes. Yes.

6 Q. Okay. Is that a matter of architectural intent or would
7 that be a detailed design input?

8 A. I think that might have been something that came under
9 the heading of "manifestly" --

10 Q. I see.

11 A. -- "wrong".

12 Q. We will look at one more in the same run of documents.
13 Page 13, please {SEA00003160/13}. Looking at drawing
14 C1059-326, where you query the logic behind Harley's
15 positioning of breathable membranes behind the face of
16 the insulation.

17 I'm so sorry, it's page 13, which is on the screen,
18 near the bottom, above the tap consign.

19 "Doesn't breathable membrane go on outside face of
20 insulation -- please clarify logic (?)"

21 Have I read your writing correctly there?

22 A. Yes.

23 Q. Again, is that a matter of architectural intent or is
24 that a matter of detailed design input?

25 A. It's something that's manifestly wrong.

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1 Q. That's another manifest error, is it?
 2 A. Potentially .
 3 Q. Right. Because on the face of it, these look like quite
 4 detailed, granular, technical interventions by you, but
 5 you say they are manifest. So any architect looking at
 6 this drawing would say, "That's a manifest error, it
 7 needs to be corrected"; is that right?
 8 A. Well, I can't speak for any architect .
 9 Q. No, but in your experience of the standards to which you
 10 are used to operating.
 11 A. Yeah.
 12 Q. Fine.
 13 Now, can I ask you, please, to go to your witness
 14 statement. I'm going to turn to a similar topic, but
 15 just to tell you what it is, it's a conversation that
 16 you say you had with Mr Simon Lawrence of Rydon about
 17 design responsibility .
 18 If you could go to page 16 of your statement
 19 {SEA00014275/16}, please, paragraph 37. Would you read
 20 paragraph 37 to yourself, first of all, please, and then
 21 I'll ask you some questions about it .
 22 (Pause)
 23 A. Yes.
 24 Q. Thank you.
 25 Now, if we look at the fifth line down, you say:

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1 "However, Simon Lawrence (Rydon) said to me in an
 2 informal conversation around the start of my involvement
 3 in the Project that Rydon tended not to use its
 4 architects as much as it might do. As such, he
 5 envisaged Studio E's role being more responsive, with
 6 Rydon maintaining a greater degree of control over the
 7 design process, than I would normally expect from a
 8 design and build contractor. In that regard, I had less
 9 to do for Rydon than I expected."
 10 Now, first, can you remember, even roughly, when
 11 that conversation took place?
 12 A. Yes, it was very early on in the project, and he's
 13 on site with Simon, and maybe I should qualify what he
 14 said a little bit more. I've a very strong recollection
 15 of it, because it did surprise me. He said we tended
 16 not to use architects so much -- as much -- tended not
 17 to use architects at much through this stage -- at this
 18 stage of the project, or words to that effect .
 19 Q. You say that you were on site with Simon Lawrence.
 20 That's the Grenfell Tower site?
 21 A. Yeah.
 22 Q. Was that a site visit?
 23 A. No, it was near the start, and ... yeah, it might have
 24 been -- could have been a site visit or early design
 25 team meetings.

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1 Q. You say near the start of the --
 2 A. Early on in the project .
 3 Q. Early on --
 4 A. Of my involvement, sorry.
 5 Q. Right. So given that you started in or after
 6 July 2014 --
 7 A. Yeah.
 8 Q. -- we can place it to the summer -- is this right? -- of
 9 2014.
 10 A. Yes, it would have been August/September, something like
 11 that .
 12 Q. Okay. All right .
 13 Was anybody else present when he said that to you?
 14 A. No, although I do know -- and I think Bruce made the
 15 same comment, and he was equally surprised, that
 16 a similar comment was made to him at a separate time.
 17 Q. Given the surprise that you say, and indeed is reflected
 18 in your statement to some extent, did you report the
 19 gist of that conversation back to Bruce?
 20 A. I think I probably would have.
 21 Q. Did you report it back to Andrzej Kuszell?
 22 A. I might have done. I couldn't say definitively .
 23 Q. Did you think to make a written record of it?
 24 A. No. One thing I would say with contractors on projects
 25 is different contractors have different -- how can you

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1 put it? -- they have different sort of company ethos in
 2 terms of how they work, how much they use or don't use
 3 architects at certain stages of the projects. But,
 4 equally, when you go into a project, it can be very much
 5 down to the team of people that are working on that
 6 project. I mean, it's not -- well, one thing that's
 7 commonly known is that construction managers, project
 8 managers for the contractors, they move a lot between
 9 organisations, and so my experience has always been that
 10 you try and understand the team that's there as well as
 11 the ethos of the contractor, because the two together
 12 give you a sense of what and who you're working with.
 13 Q. Was it not important to record what Simon Lawrence was
 14 saying to you because it affected the scope of your role
 15 as architects on the project going forward in a way that
 16 you weren't expecting?
 17 A. Yeah, and, I mean, I think I had the conversation with
 18 Bruce, I'm sure I would have, because it struck me as
 19 slightly unusual.
 20 Q. Yes, which is why I'm asking you why, if it was slightly
 21 unusual, as you say, you didn't think to send him
 22 an email to confirm the conversation or record it in a
 23 note or something like that.
 24 A. Well, again, this is why I give that background of
 25 working with different people and different companies.

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1 You know, I had started working with Rydon, I hadn't
2 worked with Rydon before. I could contrast them against
3 Bouygues or whoever we were working with before as
4 a company ethos and then as a set of individuals on
5 a project. And one thing you learn is project to
6 project, this can vary quite dramatically.

7 But, sorry, to answer your question, did I think of
8 writing that down in some form, no. I think I had the
9 conversation with Bruce, but I personally didn't think
10 to note it or note it back, but only because you do get
11 this variance working with different contractors.

12 Q. Right.

13 You say in your statement that Rydon would maintain
14 a greater degree of control over the design process. Do
15 you see you say that three lines up from the bottom?
16 Was there any discussion of what Mr Lawrence actually
17 meant by a greater degree of control over the design
18 process?

19 (Pause)

20 A. No, but I would say -- I would -- he didn't state, but
21 the way he behaved, he did -- I mean, he was someone
22 I would describe as being very hands-on, so he would do
23 things that another contractor might automatically seek
24 to push out to consultants or subcontractors, he would
25 take on board himself and do it, and I think he just did

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1 it because he saw it as expedient to getting things
2 done.

3 I mean, I would -- I suppose one of the reasons
4 I didn't have any concern is because I did -- from
5 the interaction I had with him, I saw he was probably
6 more competent than your average person in that role.

7 Q. I just want to follow up on this answer, because you're
8 saying here, I think, that he would do things another
9 contractor might automatically seek to push out, but
10 you're describing his conduct on the project. I'm
11 asking you about the conversation.

12 In the conversation, when you had it, did he explain
13 what he meant by Rydon maintaining a greater degree of
14 control over the design process?

15 A. Well, he didn't say that. I mean, what he said was that
16 they tended not to use architects so much -- Rydon
17 tended not to use architects so much at this stage of
18 the works, is what he said.

19 Q. Right. Did that come as a disappointment to you?

20 A. I remember at the time not being entirely sure why he
21 said it. It was at a time when I was hounding him a bit
22 to get building control on board. I had sent several
23 emails saying -- and I don't know whether he was just
24 somebody who liked to have more control. Sometimes
25 project management jobs prefer to have more control and

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1 there might be good reasons for that.

2 Q. Given you remember not being entirely sure why he said
3 it, can I ask you why you didn't ask him what he meant
4 by having greater degree of control over the design
5 process?

6 A. No, what I'm saying is he didn't say "Greater degree of
7 control over the design process"; he said that Rydon
8 tended not to use architects much during this stage of
9 the work.

10 Q. I see.

11 A. This stage of the project.

12 Q. So when you say in your statement, "he envisaged
13 Studio E's role being more responsive, with Rydon
14 maintaining a greater degree of control over the design
15 process", that's your understanding of what he meant
16 when he said they don't use architects so much; is that
17 right?

18 A. That's my understanding of what he meant and what he
19 did.

20 Q. Right.

21 Had you worked with Rydon before the summer of 2014?

22 A. No.

23 Q. So it was your first experience of it?

24 A. Yes.

25 Q. When you had this conversation, was that early on in

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1 your professional relationship with Mr Lawrence?

2 A. Yes, I think I said that earlier, it was probably about
3 August/September or something.

4 Q. Right.

5 Did you think at the time that it was appropriate
6 that Rydon should say that it was going to seek to limit
7 Studio E's role in this way?

8 A. I think, as I stated earlier, I found it unusual, which
9 is why I remember it so clearly.

10 Q. Yes, and because you thought it was unusual, my question
11 is: did you think it appropriate for you to say to him,
12 "Look, Simon, that's a bit strange, why are you seeking
13 to limit our role in that way?"

14 A. Not necessarily, for the reasons I gave earlier, which
15 is that when you start a project -- well, this is me
16 talking from personal experience. When you start
17 a project and you meet the main contractor, the first
18 thing you try and do is try to assess the kind of ethos
19 and working method of the company and then of the
20 individuals. So in this case, you know, I was getting
21 an insight into Rydon and him as an individual, how he
22 chose to work, and the fact that that might be different
23 from another set of contractors.

24 There could be good reason for that. I mean, my
25 experience is different scale of contractors, you do get

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1 a very different experience. So, for example, coming
2 off the back of KALC, you're working with a large
3 international contractor that has, I suppose, a very
4 different way of operating.

5 Q. Yes, that is interesting.

6 In your experience at that time, had you ever come
7 across a successful tenderer, design and build
8 contractor, who had turned to you and said, "We don't
9 tend to use architects that much"?

10 A. Maybe not said it, but had actually done that.

11 One thing you find with smaller or domestic or
12 different sized contractors is you can get quite
13 a varied experience in terms of expectation or -- yeah,
14 how they expect you to respond or to what degree they'll
15 lean on you for information or to verify what they're
16 doing.

17 Again, this comes back to part of my role, part of
18 the architect -- part of the role I see -- that you have
19 to do as an individual early on is understand the ethos
20 and expectation of the project team and contractors
21 you're working with, because they can be quite
22 different.

23 MR MILLETT: Yes.

24 Mr Chairman, I have one or two more questions on
25 this line before we move to a slightly different topic.

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1 If it's convenient with you and the witness --

2 SIR MARTIN MOORE-BICK: Yes, what do you think you'll need,
3 another five minutes?

4 MR MILLETT: Five minutes, tops.

5 SIR MARTIN MOORE-BICK: Yes.

6 MR MILLETT: Thank you.

7 Can you explain, Mr Crawford, why it was, given this
8 conversation that you had with Mr Lawrence at that time,
9 can you explain why the effect of that, the limitation
10 on your role, wasn't recorded in the formal deed of
11 appointment when it came to be executed in
12 February 2016?

13 A. I think that's a question for Bruce.

14 Q. Again.

15 Can I ask you to look at paragraph 38 of your
16 statement, page 16 (SEA00014256/16). Again, if you want
17 to read the whole paragraph, please do. I just want to
18 focus on something you say in the second-from-last
19 sentence.

20 Perhaps, given what we have just been talking about,
21 you should read the whole thing.

(Pause)

23 A. Yeah.

24 Q. Just focus with me, if you will, on the second-from-last
25 sentence, where you say:

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1 "Rydon did not involve Studio E in all the site
2 meetings which took place or design decisions and we
3 were not copied into all emails."

4 Is that a description of the entirety of your
5 involvement in the project, in other words the general
6 experience that you had?

7 A. Yes.

8 Q. I see.

9 Did you ever object with Rydon to that approach?

10 Did you ever say to them, "Well, you should be involving
11 us in all site meetings and design decisions"?

12 A. Well, we were employed by Rydon; it was their discretion
13 to use us how and when they felt fit.

14 Q. Right.

15 A. In the capacity that they wanted. I mean, they're our
16 employer. We serviced their requirements as they
17 requested.

18 Q. Now, Mr Crawford, this may not be a question you can
19 answer, so if you can't, please say, but can you explain
20 how it came about that Studio E was able to warrant to
21 the TMO under its collateral warranty, give the
22 warranties that it did in respect of past performance
23 under the collateral warranty, in circumstances where
24 Studio E had not been present at every site meeting that
25 Rydon was at?

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1 A. Well, I don't think it's for me to answer that question,
2 but what I would say is that the notion that because
3 you're not at every site meeting -- I mean, it's quite
4 normal in any project, you wouldn't as an architect be
5 at every site meeting. I mean, depending on the scale
6 of project, there is a raft of specialists and a raft of
7 consultants, and you would never in any project be at
8 all meetings or you'd never on any project be involved
9 necessarily in all decisions or be copied in to all
10 emails. So that's not mutually exclusive to this
11 project.

12 Q. Are you able to explain how it came about that Studio E
13 was able to warrant to the TMO under the collateral
14 warranty or give the collateral warranty in respect of
15 all design decisions in circumstances where Studio E had
16 not been involved in all design decisions?

17 A. I couldn't comment on that.

18 MR MILLETT: I see.

19 Thank you very much, Mr Crawford.

20 Mr Chairman, is that a convenient moment to break?

21 SIR MARTIN MOORE-BICK: Yes, thank you very much.

22 Well, we will have a break now, Mr Crawford, so we
23 can all get some lunch, and we will resume at 2.05,
24 please.

25 THE WITNESS: Okay.

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1 SIR MARTIN MOORE-BICK: As I said to you earlier, please
 2 don't talk to anyone about your evidence or anything
 3 related to it.
 4 THE WITNESS: Okay.
 5 SIR MARTIN MOORE-BICK: Good, thank you very much. If you
 6 would like to go with the usher, please.
 7 (Pause)
 8 Right, 2.05, please.
 9 (1.05 pm)
 10 (The short adjournment)
 11 (2.05 pm)
 12 SIR MARTIN MOORE-BICK: All right, Mr Crawford, ready to
 13 resume?
 14 THE WITNESS: Yes.
 15 SIR MARTIN MOORE-BICK: Good, thank you very much.
 16 Yes, Mr Millett.
 17 MR MILLETT: Thank you very much.
 18 Mr Crawford, I'm going to ask you questions about
 19 comments on drawings, that's the topic.
 20 Could I ask you, please, to go to your witness
 21 statement at page 23 {SEA00014275/23}, paragraph 55.
 22 You say there:
 23 "In my opinion, it was technically incorrect for
 24 Harley to ask me to 'approve' a drawing. Specialist
 25 packages such as cladding, lifts, stairs, etc would be

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1 completed by, and the primary responsibility of,
 2 specialist subcontractors. We comment on their drawings
 3 only from the perspective of 'architectural intent'.
 4 I just want to ask you about why you say it's
 5 technically incorrect to say that Harley was asking
 6 Studio E to approve drawings.
 7 Do you accept that it's correct that an architect on
 8 this project would be obliged to comment on
 9 subcontractor design drawings?
 10 A. Yes, comment on them, yes.
 11 Q. Yes, and that, in doing so, you were obliged, as the
 12 architect or the project lead, if I can use the
 13 expression, to exercise reasonable skill and care in
 14 such comments?
 15 A. Yes.
 16 Q. Yes. In stamping a drawing with the red stamp that we
 17 looked at before lunch, is it fair to say that you, as
 18 the person putting the stamp on it and signing it, were
 19 representing or stating to whoever read it that Studio E
 20 considered that the design was compliant with statutory
 21 requirements?
 22 A. No, it confirms that we've commented on it, and the
 23 status reflects the level of comment.
 24 Q. Right. But if you had said, as we see, that the drawing
 25 complies or comports with design intent or architectural

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1 intent, would you expect somebody reading the drawing
 2 and your stamp on it to expect that whoever stamped it
 3 had satisfied themselves that the drawing complied with
 4 statutory requirements?
 5 A. No, I would stick by my initial comment. Architects
 6 generally don't approve drawings, they comment on them.
 7 That's the distinction.
 8 Q. If a subcontractor specified a non-compliant material,
 9 and you knew that, you wouldn't mark the drawing
 10 status A, would you?
 11 (Pause)
 12 A. If it was overwhelmingly evident to you, yes.
 13 Q. I see. Overwhelmingly evident; is that what you mean by
 14 manifest?
 15 A. Yes.
 16 Q. So does that mean that you would --
 17 A. I mean, let me give you an example. For example, if you
 18 were commenting on a lift package and there was some
 19 aspect in the lift motor that was not compliant, then
 20 you wouldn't be able to recognise it.
 21 Q. I see.
 22 Did Harley, who produced the specialist cladding
 23 subcontractor drawings, some of which we've seen, ever
 24 actually tell you that they had indeed checked the
 25 material in the cladding system they were designing for

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1 regulatory compliance?
 2 A. Well, my understanding is they proposed the materials in
 3 some instances, and for them, as specialist designers,
 4 to do so, they would be required to produce -- to do so
 5 in a manner that was compliant.
 6 Q. You say, "My understanding is that they proposed the
 7 materials in some instances"; what was your
 8 understanding in and after July 2014 about what
 9 materials Harley had specified?
 10 A. For example, the aspects of the internal construction,
 11 for example the support rails, the window infill panels.
 12 Q. Where did you get your understanding that those had been
 13 specified by Harley from?
 14 A. For example, in the employer's requirements under L10,
 15 there was specification for windows, and there is
 16 a performance spec related to, for example, the infill
 17 panel. Therefore, it was for the specialist
 18 subcontractor to meet the employer's requirements, ie
 19 the spec and the drawings, specifically the spec, in
 20 compliance with the spec. The spec required for them to
 21 be compliant. Therefore, whatever proposal they put
 22 forward would have to be compliant.
 23 Q. I think we're talking about something that happened
 24 before you came on the scene, though, aren't we? The
 25 specification or suggestion by Harley of particular

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1 materials to go into the NBS specification .
 2 A. Er --
 3 Q. Are we talking about the same thing?
 4 A. Partially , because our NBS spec, for example, under L10
 5 and the windows, there's a performance spec for the
 6 infill panel at the employer's requirements stage, so
 7 they had to meet that performance spec.
 8 Q. Let me go back to my question: did Harley ever
 9 positively tell you that they -- and this is after
 10 novation -- had checked the material in the cladding
 11 system -- so, for example, the insulation or the
 12 rainscreen -- for regulatory compliance?
 13 A. They assured building control that they were being
 14 compliant.
 15 Q. Did they ever tell you, Mr Crawford, that they had
 16 checked the material in the cladding system for
 17 regulatory compliance?
 18 A. Categorically to my face, I don't recall .
 19 Q. Do we take it that you proceeded on the assumption that
 20 they had satisfied themselves that those materials were
 21 compliant?
 22 A. Yes. I mean, I understood it was in their terms of
 23 appointment.
 24 Q. Did you ever tell Harley that in fact all you were doing
 25 after novation was commenting on whether there were any

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1 aesthetic issues or other matters falling within your
 2 definition , as you have explained it to us, of
 3 architectural intent?
 4 A. I would have expected them to understand the industry
 5 standard, and the industry standard, as I understand it,
 6 is that the architect comments on the specialist
 7 contractor's package drawings for architectural intent .
 8 Q. Can I ask you to go to {SEA00013312}. This is an email
 9 from Kevin Lamb, dated 5 August 2015, to Simon Lawrence,
 10 copied to you and some people at Harley. Do you see
 11 that?
 12 A. Yeah.
 13 Q. Attached to that email is a long list of drawings;
 14 correct?
 15 A. Yes.
 16 Q. Mr Lamb says to you:
 17 "Neil,
 18 "Please find attached curtain wall drawings for
 19 comment/approval."
 20 Do you see that?
 21 A. Yes.
 22 Q. If you go to another one, which is {SEA00002851/1}, this
 23 is a different pack of Harley drawings sent to
 24 Studio E -- to you, in fact -- for comment on
 25 22 August 2014. It says at the bottom right-hand

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1 corner, "Issued for approval". Certainly the first two
 2 pages do.
 3 These are, or they look like , two examples -- the
 4 email I showed you from August 2015 and these drawings
 5 from August 2014 -- of where Harley have asked you,
 6 Studio E, for approval of their drawings. Would you
 7 agree with that?
 8 A. Not necessarily . It 's stamped "Issued for approval".
 9 We comment on them, then the main contractor would
 10 approve them. The architect wouldn't approve them for
 11 construction, or say to Harley, "Oh, now you can go into
 12 construction".
 13 Q. Let's go back, then, to the email we looked at minute
 14 ago, {SEA00013312}, 5 August --
 15 A. It says, "comment/approval".
 16 Q. Yes. Clearly , we can read the email.
 17 When you received that email, what did you do by way
 18 of comment or approval?
 19 A. What date is that? 5/8.
 20 Well, I would have to check, but I'm assuming
 21 I commented on them and returned the comments.
 22 Q. I see.
 23 You can see that Mr Lamb used the word "approval".
 24 Did you go back to him and say "Dear Kevin" or "Dear
 25 Mr Lamb, surely you understand by now that we, Studio E,

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1 are not in the business of approving drawings?"
 2 A. I think, to be fair , this is commonly misused across all
 3 projects and has been for a long time, misunderstanding
 4 in the distinction between approval and comment.
 5 Q. He used the expression "comment/approval". Can you
 6 explain why you didn't correct his misunderstanding, if
 7 that's what it was?
 8 A. For the reason I've given, that I think the word
 9 "approval" is used very loosely within the industry,
 10 when that's not actually what it means.
 11 Q. Did you ever tell Harley at any time that your job
 12 wasn't to approve drawings, but just to comment on
 13 architectural intent or design intent?
 14 A. I don't recall doing so.
 15 Q. Right.
 16 Can I turn to a different topic , which is the impact
 17 of Studio E LLP's insolvency. We can take this quite
 18 quickly, I think.
 19 You started working on the project in or shortly
 20 after July 2014; yes?
 21 A. Yes.
 22 Q. Shortly after that, do you remember that, in
 23 August 2014, Studio E LLP was put into creditors '
 24 voluntary liquidation?
 25 A. Yes.

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1 Q. And you knew that at the time, did you?

2 A. I knew things were going on in the background. There's

3 always a delay, an understandable delay I suppose,

4 between what was happening at a high level with the

5 directors and then disseminating that information down

6 to the employees. I think that is consistent and

7 logical with those kind of decisions being made.

8 Q. Do you remember whether the insolvency of LLP was caused

9 in any way or contributed to in any way by payment

10 backlogs on the Grenfell Tower project?

11 A. No. I believe that was covered in the earlier hearing

12 with Andrzej. The matters relating to insolvency were

13 connected more to -- well, were connected to a separate

14 workstream.

15 Q. Did the insolvency of LLP and the move of the practice

16 over to Studio E Architects Limited take up your time?

17 A. Personally, no. I would have said the directors --

18 partners and then directors typically isolated that from

19 people who were working on projects. It was dealt with

20 at the management level.

21 Q. Can we take it from that that it didn't divert your time

22 from the Grenfell Tower project?

23 A. Not that I recall.

24 Q. Did it divert senior management attention away from the

25 Grenfell Tower project?

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1 A. I don't know if "away" is the correct word. It

2 obviously required time to address it as an issue, but

3 I'm not sure that to say that it took time away would be

4 necessarily correct or that I could necessarily -- or

5 should be the person to answer that.

6 Q. Right.

7 Did your employer change from Studio E LLP to

8 Studio E Architects Limited? Your formal employer.

9 A. Oh, I see what you're saying. Yes, and I remember

10 getting, I think, a letter to that effect.

11 Q. Do you remember when that was?

12 A. It would have been within that time period, but

13 specifically, no.

14 Q. Summer 2014?

15 A. Yeah.

16 Q. I see.

17 Now, we have heard from Mr Kuszell that Studio E

18 Architects Limited is now a much smaller entity than

19 Studio E LLP was when it existed, and he gave some

20 evidence about that.

21 In the opening submissions of Studio E, we were told

22 that when the project was transferred over to Studio E

23 Architects Limited, there were nine employees. Is that

24 correct? Do you recall that?

25 A. That sounds right to me.

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1 Q. Yes. Does that mean that there was a limited staff

2 available to work on the Grenfell Tower project after

3 Studio E LLP's insolvency?

4 A. Not in a material way. I don't recall a material

5 reduction or ... I mean, if you're saying there were

6 45 -- or there were however many staff, 40, and then

7 there were nine, then there was less of a pool of staff,

8 but there wasn't a reduction in staff.

9 Q. Can you remember when the majority of the staff that had

10 existed up to, I think, 45 in 2012 were made redundant?

11 A. I'm not sure. I think it was a slightly iterative

12 process, with some voluntary redundancies, so I couldn't

13 say.

14 Q. Do you remember when the bulk of them were let go?

15 A. I would have to check, I couldn't say.

16 Q. When you came into the Grenfell Tower project in the

17 summer of 2014, were you the only person available at

18 Studio E to take it over from Bruce Sounes, or were

19 there other candidates in the frame and you were the

20 lucky winner?

21 A. Erm ...

22 (Pause)

23 I imagine there would have been other candidates,

24 but I can't ... I don't recall the thinking or anything

25 at the time.

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1 Q. Right.

2 Now, we have heard so far that Bruce Sounes had been

3 assisted during the earlier stages of the Grenfell Tower

4 project by a number of other architects. Is it the case

5 that you were not actually given a team to work with for

6 the rest of the project once you had come into it in the

7 summer of 2014?

8 A. Yeah, I think that's correct, I wasn't given a team.

9 I think in the handover, what was made clear to me was

10 what still remained in terms of design work and that it

11 wasn't very much.

12 Q. Right.

13 Did you feel entirely comfortable taking the

14 Grenfell Tower project forward on your own without

15 a team underneath you to help you?

16 A. I mean, personally I never particularly like taking

17 projects over from other people, because I personally

18 just like to work from something from start to finish,

19 because you just always have -- you're more confident in

20 your ... that you've made the decisions and so on, but

21 I think this is logical.

22 What was the exact question?

23 Q. My question was really whether you felt entirely

24 comfortable taking the Grenfell Tower project forward on

25 your own without a team helping you.

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1 A. Well, I suppose I would make several observations. One
 2 was that Bruce was still involved, albeit becoming less
 3 so over time, and that at that time, it's a small office
 4 and he was sitting opposite, so there's always the
 5 opportunity to confer on things.
 6 I don't think I did sense that there was
 7 a requirement for a team, based on what I understood
 8 still had to be done.
 9 Q. Can I just ask you a question about KALC.
 10 You had been working on the KALC project, I think,
 11 from the start of the KALC project.
 12 A. Yes.
 13 Q. And that was obviously before you started work on the
 14 Grenfell Tower project.
 15 A. (Witness nods).
 16 Q. How did you see the KALC project in relation to the
 17 Grenfell Tower project?
 18 A. In what respect?
 19 Q. Did you see one as more prestigious than the other or
 20 more important?
 21 A. They're two different building -- two different types of
 22 building. I mean, I think we were obviously working
 23 with different architects on the leisure centre,
 24 for example, and so each component had the opportunity
 25 to complement each other.

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1 Q. Was there a time when you were working on both KALC and
 2 Grenfell Tower in parallel?
 3 A. Yes, I was -- I think when I started, I think the first
 4 contact date I had in relation to Grenfell Tower was
 5 middle of July, 14 July, something like that, speaking
 6 to building control, who were also working on KALC, and
 7 so I was -- KALC was essentially done, but there were
 8 little bits of work still being tied up.
 9 Q. I see.
 10 Slightly different topic. I just want to talk about
 11 the experience of Studio E.
 12 When you started work on the Grenfell Tower project,
 13 were you aware that Studio E as a practice did not have
 14 any experience in overcladding high-rise residential
 15 buildings?
 16 A. I was aware they had a little bit of overcladding
 17 experience, but not -- they didn't have high-rise
 18 experience, no.
 19 Q. Right.
 20 Were you aware that those at Studio E who had
 21 prepared the NBS specification did not have any
 22 experience in overcladding high-rise residential
 23 buildings?
 24 A. I couldn't say whether they did or didn't. I mean, the
 25 individual, as I understand it, who did that spec may

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1 have had experience in high-rise overcladding, because
 2 they had worked in other practices, as I understand it,
 3 but that question would be for them.
 4 Q. I see.
 5 Were you aware, when you took over the
 6 Grenfell Tower project from Mr Sounes, that Mr Sounes
 7 had had reservations when he had started and had said
 8 that Studio E was "a bit green on process and
 9 technicality"?
 10 A. No, I didn't go back and read all the emails from
 11 inception on this.
 12 Q. I see.
 13 Were you aware that Mr Sounes had recommended to
 14 Mr Kuszell that Studio E, and I think he in particular
 15 perhaps, should undertake some rapid CPD before
 16 commencing work on the Grenfell Tower project?
 17 A. I was not aware of that.
 18 Q. Did anybody ask you to take some CPD before starting
 19 work on the Grenfell Tower project in July 14?
 20 A. No.
 21 Q. No. Did it occur to you to do so?
 22 A. I mean, CPD is something that's ongoing, obviously, and
 23 there is different forms of it, and I had high-rise
 24 experience, I had residential experience. Did
 25 I specifically have high-rise overcladding experience?

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1 No.
 2 Q. Do you agree that Studio E was under an obligation to
 3 ensure that the firm had organised itself effectively so
 4 that it was prepared and resourced for what, in effect,
 5 was a new and challenging type of project?
 6 A. I understand what you're saying, and I understand why
 7 you've said it, but I think it's a little unrealistic.
 8 I mean, every architectural practice, every project, in
 9 a sense, is new, and while you maybe carve out a niche
 10 doing a certain type of architecture, you're always
 11 coming across new -- it doesn't matter how big you are,
 12 you're always coming across new typologies. I think
 13 when you do start or you do work on a new typology, then
 14 yeah, you do a bit of research as you got into it and
 15 through.
 16 Q. Did you do any project-specific research?
 17 A. Because of the stage I was coming on, the
 18 project-specific research was the project itself because
 19 it had effectively been designed.
 20 Q. Right.
 21 A. Well, to novation stage.
 22 Q. Would it be unfair to characterise what you're telling
 23 us as Studio E in essence learning on the job, so far as
 24 Grenfell Tower was concerned?
 25 A. Well, you're always learning on the job --

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1 Q. So is the answer --
 2 A. -- irrespective of which job, which practice. I mean,
 3 architecture is not -- you know, you're not pressing out
 4 the same car over and over again, you're -- every
 5 project is unique, has its own challenges, its own set
 6 of learning.
 7 Q. But more specifically, would it be fair to characterise
 8 what you're saying to us that in respect of a project
 9 involving overcladding of a high-rise residential
 10 tower block, Studio E was learning on the job?
 11 A. Well, in the context that they hadn't done one before,
 12 yes.
 13 Q. Yes.
 14 A. As a practice as opposed to individuals.
 15 Q. Did it occur to you at the time that, in light of the
 16 experience or lack of it that Studio E had in respect of
 17 overcladding a high-rise tower block, Studio E ought to
 18 have recognised that the current levels of knowledge and
 19 experience within the firm would need to be expanded,
 20 either by further research or some strategic hires from
 21 outside? Did that occur to you?
 22 A. Well, I suppose it occurred to me that the further
 23 research had been done in getting as far as the project
 24 had when I became involved, and I believe that research
 25 had been done.

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1 Q. I see. Did you ask anybody?
 2 A. I was aware of it, because, as I mentioned earlier,
 3 Bruce sits or sat in such close proximity to me. The
 4 office was small. We were always aware of other
 5 projects. There weren't so many projects that you
 6 didn't see things that were going on, and, you know,
 7 things were discussed quite openly at times, and you're
 8 always aware of the other projects and what your
 9 colleagues are working on and so on.
 10 Q. When it came to the handover session that you had with
 11 Mr Sounes in the summer of 2014, do you recall him
 12 saying to you something along the lines of, "This is
 13 an overcladding of an existing residential high-rise
 14 block, here are some things that I've discovered about
 15 that kind of project that you should know"? Did you
 16 ever have that kind of conversation?
 17 A. I think the conversation we had was along the lines of,
 18 "These are the issues that I see in terms of things that
 19 are still to be resolved, design issues, particularly at
 20 the lower levels, at the crown, with façades
 21 maintenance", and so there's a kind of list of things
 22 that he saw as outstanding. His view was that
 23 design-wise there was very little still to do.
 24 Q. Do we take it from that that, as far as you were
 25 concerned, any project-specific research or

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1 self-education on how to go about overcladding
 2 an existing high-rise residential tower block had
 3 already been done by others at Studio E?
 4 A. Yes.
 5 Q. I see. Who would that be, Mr Sounes?
 6 A. It would have been Mr Sounes, Bruce, Tomas Rek, Adrian,
 7 just the people who had worked on the project prior to
 8 myself.
 9 Q. Let's pursue this a little further. I want to ask you
 10 about where design had got to by the time you took over.
 11 Can we begin by looking at the NBS specification
 12 itself, which is {SEA00000169}. That's the first page
 13 of it.
 14 Just to be clear with you, Mr Crawford, there are
 15 actually three versions of this: one dated 21 November,
 16 one dated 29 November -- 2013 in both cases -- and this
 17 version, which is the last one, dated 30 January 2014.
 18 So this would be about six or seven months or so
 19 prior to your involvement in the Grenfell Tower project;
 20 yes?
 21 A. Yes.
 22 Q. Okay.
 23 Are you familiar with this document, either from at
 24 the time or from your work since?
 25 A. Reasonably.

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1 Q. It's a long and complex document and I don't want to
 2 take you to it if you're not familiar with it.
 3 The first question: when you did your handover
 4 session with Mr Sounes, did he show this document to
 5 you?
 6 A. I don't recall, but he did explain the -- where the
 7 project was at.
 8 Q. Okay. Did you look at this together with him?
 9 A. I don't recall, but I would have looked at the
 10 specification at some point early on, I'm pretty certain
 11 of that.
 12 Q. Did he tell you who had put it together?
 13 A. He might have done, I don't recall.
 14 Q. Okay.
 15 I'm going to ask you some detailed questions about
 16 this document specifically in relation to cladding and
 17 insulation for Grenfell later on. I just want to focus
 18 for the moment on this document and what you knew about
 19 it coming into the project.
 20 If we can look, please, at page 65 {SEA00000169/65}.
 21 You will see on that page a part or chapter or
 22 paragraph "Type(s) of rainscreen cladding". Do you see
 23 that?
 24 A. Yes, the H92 section.
 25 Q. Exactly. Paragraphs 120 and 123 -- 120 is on page 65,

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1 123 is on page 66, but let's just focus on page 65 if we
 2 can. It will be familiar to you as a project person,
 3 but perhaps not as familiar with others, so we will take
 4 it slowly.
 5 120:
 6 "Rainscreen cladding to columns & external envelope
 7 of main entrance canopy."
 8 Do you see that?
 9 A. Yes.
 10 Q. Then:
 11 • "Rainscreen cladding system:
 12 "- Manufacturer: Submit proposals.
 13 "- Type: Drained and back ventilated .
 14 • "Rainscreen panel:
 15 "- Manufacturer:
 16 "KME Architectural Solutions
 17 "C/O KME Yorkshire Limited
 18 "East Lancashire Road
 19 "Kirkby
 20 "...
 21 "Product reference: PROTEUS HR honeycomb rainscreen
 22 panel.
 23 "- Material: aluminium honeycomb core structurally
 24 bonded between two lightweight zinc skins .
 25 "Zinc sheets manufacturer."

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1 Do you see that?
 2 A. Yes.
 3 Q. At the bottom of the page, over on to the next page
 4 {SEA00000169/66}, still H92, paragraph 123:
 5 "Rainscreen cladding to spandrel panels."
 6 Then again, under "Rainscreen panel", you see again
 7 exactly the same: manufacturer: KME and product
 8 reference: Proteus HR honeycomb rainscreen panel.
 9 A. Yes.
 10 Q. "Material: aluminium honeycomb core structurally bonded
 11 between two lightweight zinc skins ."
 12 So that's that.
 13 Now, if you then go back to page 64 {SEA00000169/64}
 14 and look at H92, you will see under paragraph 11
 15 "information for provided with tender"; do you see that?
 16 A. Yes.
 17 Q. Under that, let's just look at that slowly together:
 18 "In addition to the cladding specified in the below
 19 clauses 120 & 123 [which we have just looked at,
 20 Mr Crawford] submit comparative supply and install costs
 21 per m2 of the whole cladding system for the following
 22 alternative materials."
 23 Then there are three of them:
 24 "Reynobond - Duragloss 5000:
 25 "Metallic [standard] and [non-standard] (Satin

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1 gloss)
 2 "Chameleon.
 3 "Anodised Look (Satin Gloss)
 4 "Alucobond:
 5 "Spectra, Sakura 917.
 6 "Zinc:
 7 "Quarts Zinc composite polymer panel by VM Zinc.
 8 "Note: Face fastened solutions permitted."
 9 I've shown you that in full because there are
 10 questions we're going to come to later on about the
 11 detail there.
 12 But can I ask you first, having shown you that, did
 13 Mr Soune identify during your handover that there was
 14 a primary product for the rainscreen which had been
 15 specified, namely the Proteus honeycomb core zinc, with
 16 a set of alternatives to be priced, including the
 17 Reynobond which we've seen? Did he go through that with
 18 you?
 19 A. I understood at the handover, or round about the
 20 handover, I understood that ... Harley had -- or Rydon
 21 had already proposed the Reynobond product to ... to the
 22 KCTMO, and it had been agreed, and they were going to
 23 proceed on that basis. I think Bruce was hoping that
 24 the zinc option would be maintained because I think he
 25 felt it looked -- or was more appropriate.

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1 Q. Did you have a discussion with Mr Soune about the
 2 make-up of the product comprising the rainscreen panel
 3 as it was or as it had been selected at the moment you
 4 came into the project?
 5 A. I can't recall at which point it was discussed.
 6 I suspect there would have been some discussion at the
 7 handover.
 8 Q. Right.
 9 So are you saying that when you came into the
 10 project, the selection of Reynobond 5000 Duragloss as
 11 the rainscreen panel product had already been made? Are
 12 you saying that?
 13 A. My understanding when I was getting to grips with the
 14 project was that that decision had been made, but
 15 possibly Bruce was holding out on the zinc. I mean, I'm
 16 not sure when exactly I knew or he knew, if you see what
 17 I mean, but I didn't ... yeah, my understanding was that
 18 he was pretty sure they were going with the Reynobond
 19 product.
 20 Q. Right. Pretty sure they were going with it, okay.
 21 Can you be clear in your own mind whether -- let me
 22 orientate you.
 23 The full plans application wasn't submitted,
 24 in fact, until August, and then again some further
 25 information in September.

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1 A. Yes.
 2 Q. So at the time you came into the project, how fixed was
 3 the decision to go with the Reynobond Duragloss 5000
 4 rainscreen panels?
 5 A. I believe that decision had been made at a planning --
 6 a client planning meeting back in April of 2014. That's
 7 my understanding of it.
 8 Q. Did you think to ask Mr Sounes, when you discovered that
 9 the rainscreen was going to be aluminium composite, what
 10 the core of the panel was to be made of?
 11 A. No. My understanding was that the ZCM or the ACM panels
 12 were effectively just aluminium rainscreen panels.
 13 Q. What about the core?
 14 A. It's a laminated panel of some description.
 15 Q. Yes. Were you aware generally that ACM panels commonly
 16 have a PE, polyethylene, core?
 17 A. I was aware of ACM before. I was only aware -- I've
 18 never used it, but I was aware of it. I had received
 19 a sample in my previous job, and I remember a partner
 20 making a comment about it, and -- but I had no specific
 21 knowledge of the product.
 22 Q. So you had come into the Grenfell Tower project where
 23 a decision had already been made, I think you say, to
 24 use a product which you had had no experience of?
 25 A. Not using, no.

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1 Q. Did you ask Mr Sounes some questions about this product,
 2 such as: what's it made of?
 3 A. I think he had samples that he showed me.
 4 Q. I see.
 5 A. Yeah.
 6 Q. Can I repeat the question I asked a moment ago: did you
 7 know generally that aluminium composite panels commonly
 8 have a polyethylene core, or had a polyethylene core?
 9 A. I know they had a core; I didn't know what it's made of.
 10 Q. Did you not think it your job to find out?
 11 A. Well, like I said, I understood ... I had seen the
 12 product before and I understood it is a commonly used
 13 rainscreen panel type.
 14 Q. Did you, at this early stage, have any discussion with
 15 Mr Sounes about whether the intention was for the panels
 16 to be face-fixed or face-fastened, as the NBS spec says
 17 it permitted, or a cassette system? Did you have that
 18 discussion?
 19 A. The first point at which I think I was aware that it was
 20 face-fixed was from the mock-up that was done, the
 21 sample panel that was done on site at the base of the
 22 tower, and I think I was in a KALC meeting at that point
 23 and Bruce arranged for me to -- or he phoned me,
 24 whatever, and said, "Come round and look at it, I'm
 25 looking at the panel".

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1 Q. I see, and that would have been in --
 2 A. Summer of --
 3 Q. -- July time?
 4 A. Yeah.
 5 Q. Can I look on in this document, please, at page 73
 6 {SEA00000169/73} with you and look at H92. So we're
 7 still in the rainscreen cladding, paragraph 776 at the
 8 top of the page, "Thermal insulation". Do you see that?
 9 A. Yes.
 10 Q. "Material: Zero ODP rigid polyisocyanurate insulation
 11 board ...
 12 "Manufacturer: Celotex ..."
 13 Do you see that?
 14 A. Yes.
 15 Q. There is a product reference a little bit below that:
 16 "FR5000 aluminium foil faced both sides".
 17 Then there is a conductivity formula, and:
 18 "Thickness: Not less than 150mm for spandrel panels
 19 and 80mm for columns.
 20 "Required performance: Refer to clause 430."
 21 My question is: did Mr Sounes identify to you that
 22 Celotex FR5000 had been specified as the thermal
 23 insulation to be used within the building envelope?
 24 (Pause)
 25 A. I can't recall. I mean, he might have done. I would

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1 have read the Max Fordham report and probably seen it in
 2 that.
 3 Q. Right.
 4 A. He probably -- he may have discussed it in discussing
 5 the project. I can't remember specifically.
 6 Q. You say you would have read the Max Fordham report. At
 7 what stage --
 8 A. I said I may have seen it.
 9 Q. Yes, fair enough. Do you remember at what stage you
 10 read the Max Fordham report?
 11 A. I think when I came on the project, I probably read --
 12 well, for sure I would have read the high-level
 13 fire strategy and I would have read the -- probably read
 14 the Max Fordham report.
 15 Q. Right. When you say the high-level fire strategy, you
 16 mean --
 17 A. Exova --
 18 Q. -- Exova's most recent outline fire --
 19 A. Yeah, whichever was -- which would have been the last
 20 one, yeah.
 21 Q. Very well. We're going to come to that in due course.
 22 Do we take it from that that you would also or did
 23 also read the NBS specification or not?
 24 A. Erm --
 25 Q. As one of the important documents.

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1 A. From cover to cover, I don't know. I suspect in the
 2 handover Bruce would have given me a general
 3 description.
 4 Q. Right.
 5 A. And -- yeah.
 6 Q. Okay.
 7 Can I ask you to go back to page 64 {SEA00000169/64}
 8 in the same document. We were on that before, but
 9 I just want to go back to it, to pick up a further
 10 point.
 11 At the top of the page under "H92 Rainscreen
 12 cladding", it says, second bullet point down -- and
 13 I should just say this is "To be read
 14 a preliminaries/general conditions":
 15 "The manufacturers noted within this specification
 16 are indicative and may be substituted with similar or
 17 equal alternatives."
 18 Did you have a discussion with Mr Sounes about what
 19 "similar or equal alternatives" meant or a discussion on
 20 that topic?
 21 A. That phraseology is used quite often in specifications,
 22 so I would understand generally what that phraseology
 23 meant, but I don't recall having a specific discussion
 24 about --
 25 Q. Right. Just help me, what would you understand that

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1 phraseology generally to mean?
 2 A. Just equal, similar product. I mean, it's very often
 3 used when you're trying to indicate something, but
 4 you're not tied to it.
 5 Q. Similar and equal in what respects?
 6 A. Appearance, behaviour.
 7 Q. Functionality?
 8 A. Yeah.
 9 Q. Performance?
 10 A. If you are stating it in the context of performance,
 11 yes. So, for example, if you have a performance spec or
 12 a performance element to the spec, and you put "similar
 13 approved" then it would be in that context.
 14 Q. If you were substituting a product with another product,
 15 would you want that substitute product to be similar or
 16 equal in terms of its performance, such as its fire
 17 performance?
 18 A. Yeah, I think you probably would, yeah.
 19 Q. As it pertains to the specification of the Celotex
 20 FR5000 that we've seen within this NBS specification,
 21 what latitude did you understand this provision gave
 22 tendering contractors in respect of selection of
 23 insulation materials for use within the building
 24 envelope?
 25 A. Well, it would give the tenderers the opportunity to

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1 propose something and then for it to be agreed by the --
 2 by the main contractor. And the client. I mean, the
 3 client -- if you're changing something, the contractor
 4 would have to go back -- if it was a change from the
 5 employer's requirements, the contractor would have to go
 6 back to the client.
 7 Q. Yes. I'm not sure that quite answers my question.
 8 My question is what latitude, what width, room for
 9 manoeuvre, if you like, the expression "may be
 10 substituted with similar or equal alternatives" gave to
 11 those selecting materials?
 12 A. I think you would have to test it in that context.
 13 Q. I see. Well, we'll come back to that, then.
 14 Did you have any conversations at the time or in
 15 those early days of your involvement in the project with
 16 Mr Sounes about the suitability of, for example, FR5000
 17 for use on the external façade of Grenfell?
 18 A. No, I understood -- I think I understood from -- I think
 19 Bruce was fairly adamant about its appropriateness
 20 and --
 21 Q. Was he? What did he say to you?
 22 A. I think he understood that it was compliant and agreed.
 23 I mean, I think he understood all these systems as
 24 compliant.
 25 Q. Do you actually have a recollection of Bruce Sounes

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1 actually saying to you, "I think the FR5000 Celotex
 2 product is compliant"?
 3 A. Well, I don't have a recollection of his categorically
 4 saying that to my face, but knowing Bruce, you know, he
 5 wouldn't have put forward a spec or a design that he
 6 thought wasn't compliant.
 7 Q. Would you have expected him to check for himself that
 8 the FR5000 was compliant?
 9 A. At this stage of the design, absolutely. I mean, you
 10 wouldn't be putting things that weren't compliant into
 11 a tender spec.
 12 Q. What about the ACM Reynobond panel?
 13 A. The same.
 14 Q. I see.
 15 Did you yourself form any view of your own about the
 16 suitability of Celotex FR5000 for use in Grenfell's
 17 external façade, given that it was a building above
 18 18 metres in height?
 19 A. Did I form any opinion? I mean, I think phenolic and
 20 PIR installations are commonly used in buildings over
 21 18 metres in height. You walk around London, you see
 22 buildings constantly constructed at that height with PIR
 23 and phenolic.
 24 Q. That was your common experience at the time, was it?
 25 A. I'm guessing it was, yeah.

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1 Q. You're guessing it was?
 2 A. Well, I didn't --
 3 Q. Do you have a recollection?
 4 A. -- physically sort of note what I remember in each
 5 period of time, but for years now, people have been --
 6 Q. I understand.
 7 Just so I'm absolutely clear, was it your experience
 8 as at the summer of 2014 that the use of PIR or phenolic
 9 insulation on buildings above 18 metres was common? Was
 10 that your experience?
 11 A. Yeah, it's widespread, I mean, I think -- yeah.
 12 Q. It's been pointed out to me that the [draft] transcript
 13 has picked up "inaudible" when I said "phenolic", so let
 14 me just ask the question again.
 15 Was it your experience, as at the summer of 2014,
 16 that the use of PIR and phenolic insulation materials on
 17 buildings of more than 18 metres in height was common?
 18 A. It's certainly not unusual, so --
 19 Q. It's certainly not unusual.
 20 Now, if we can look at {SEA00005841}, this should be
 21 and is the FR5000 data sheet dated 2 January 2012. We
 22 can see the date at the top right-hand corner of the
 23 document on page 1, Mr Crawford. Do you see that?
 24 A. Yes.
 25 Q. This is issue 2.

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1 Have you ever seen this document before?
 2 A. I think I probably have, yes.
 3 Q. Right. Do you remember when you first saw it?
 4 A. No.
 5 Q. Do you think that you looked at this at any point during
 6 your involvement on the Grenfell Tower project?
 7 A. It's quite possible.
 8 Q. Can you help us, without speculating about your own
 9 recollection, do you think you might be able to tell us
 10 when you first looked at it?
 11 (Pause)
 12 A. I think I would be speculating if I --
 13 Q. Right.
 14 Let me ask the question in a slightly different way:
 15 when you came to learn that Celotex FR5000 was to be
 16 used as insulation, do you recall taking steps to check
 17 the data sheet issued by the manufacturer for that
 18 product?
 19 A. Specifically, no.
 20 Q. Now, we can see on the first page at the fourth bullet
 21 point down that it says:
 22 "Has Class 0 fire performance throughout the entire
 23 product in accordance with BS 476."
 24 You see that?
 25 A. Yes.

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1 Q. Do you remember seeing a data sheet like this or this
 2 data sheet which said in terms that the product had
 3 class 0 fire performance throughout the entire product?
 4 A. I remember seeing it in the data sheet that Harley
 5 provided for the RS5000.
 6 Q. I see, we will come to that.
 7 While I'm on it, what did you understand by the
 8 expression, "Has class 0 fire performance throughout the
 9 entire product"?
 10 A. It's the highest national building class of --
 11 Q. Yes.
 12 Now, before I go back to the NBS specification,
 13 I just wanted to go back to something you said a minute
 14 ago about common use of PIR and phenolic insulation on
 15 buildings above 18 metres.
 16 Was your experience the same in respect of aluminium
 17 composite rainscreen panels, so far as you had any?
 18 A. I haven't had any personal experience of specifying it
 19 or using it. I was aware of it, and I'm aware of the
 20 fact that it's been around for quite some time. It's
 21 certainly not new to the industry.
 22 My -- in previous practice, I remember being sent
 23 a sample and the partner commenting on it, saying they
 24 didn't like it because of the black edges, the sides
 25 that go round the edge. Beyond this, I've got no

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1 recollection of specifying or using the product.
 2 Q. You don't happen to remember who the manufacturer of
 3 this slightly unpopular panel was?
 4 A. It was Alucobond.
 5 Q. Can I take you back to the NBS specification, please.
 6 We may need to come back in due course to the Celotex
 7 data sheet, but let's get that away and go back to the
 8 NBS spec, {SEA00000169/69}. You will see there, under
 9 clause 310, under "Design/performance requirements", it
 10 says:
 11 "CWCT 'Standard for systemised building envelopes.'
 12 Do you see that?
 13 A. Yes.
 14 Q. There is a reference there to, as you can see, the
 15 different parts of it. At part 6, can you see it says
 16 "Fire performance"?
 17 A. Yes.
 18 Q. Did you, when you came to look at this NBS
 19 specification, note that the CWCT standard for
 20 systemised building envelopes was stipulated in it?
 21 A. The CWCT clause is fairly standard in H92, I believe.
 22 Q. Yes. So do we take it from that that, given that you
 23 knew that the NBS spec had been used for Grenfell, it
 24 would logically follow that you knew that the CWCT
 25 standard was set out as part of the specification?

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1 A. I would say that I don't have any particularly informed
2 insight into the CWCT or what that standard is, except
3 that it is a recognised body and therefore the standards
4 that it's proposing would be recognised, let's say, by
5 a specialist subcontractor and they would understand
6 what those were and what complying with them meant.

7 Q. I see.

8 So let's just take this a little more slowly to be
9 clear.

10 Were you at all familiar with the provisions of the
11 CWCT design standard when you came into the project, or
12 at any time after coming into the project?

13 A. I think, as my previous answer, I was aware of CWCT as
14 an organisation and -- in a general sense, not aware of
15 the specific individual standards.

16 Q. Given that this was an overcladding of a residential
17 high-rise tower block, did you not seek to examine the
18 standard that had been specified in the NBS spec?

19 A. Well, as I mentioned earlier, it's a fairly -- I believe
20 it's a fairly standard clause that you can switch on and
21 off.

22 Q. It is. My question is: given that this was a new and
23 challenging kind of project, overcladding an existing
24 residential high-rise building in excess of 18 metres,
25 can you explain why you didn't go to the CWCT standard

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1 and examine it?

2 A. For the reasons I mentioned earlier. I mean, what was
3 in the spec had been taken to tender stage. I know
4 Bruce -- I wouldn't have expected anyone to take all
5 that information to tender stage without understanding
6 it was compliant.

7 I mean, you're asking me something very specific
8 about a specific clause, and NBS is full of specific
9 clauses. You wouldn't go and examine loads of
10 individual clauses in isolation like that.

11 Q. Perhaps I'm not being clear. Given that it is in the
12 spec -- it may be a standard, I'm not suggesting that it
13 isn't -- did you ever read it?

14 A. The spec, or the standard?

15 Q. Did you ever read the standard, the CWCT standard for
16 systemised building envelopes?

17 A. Oh, I see, sorry. As a straightforward question, no.

18 Q. Moving on then to page 145 [SEA00000169/145], L10,
19 clause 332, "Aluminium windows fixed unit - aluminium",
20 you can see, second bullet point down:

21 "Panel/facing type: Aluminium faced insulated panel
22 comprising core insulation ..."

23 Do you remember that being part of the spec?

24 (Pause)

25 A. I think I was aware of it.

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1 Q. Did you realise that the choice of window infill panel,
2 the choice of the material, hadn't actually been
3 specified at this stage?

4 A. I understood it's effectively performance.

5 Q. Did you realise that in fact an insulated core had been
6 specified by Studio E within the spec, but no specific
7 material had been specified?

8 A. Yeah, it was a performance spec in that respect.

9 Q. Well, you say that. In fact, I think it's right, isn't
10 it, that no criteria for fire performance, at least, had
11 been specified for at least that element?

12 A. Not reading -- not reading that, no.

13 Q. I see. Did Mr Sounes not draw your attention to that?

14 A. Well, I'm not sure why you would, but no, he didn't.

15 Q. Did you yourself ever consider what, if any, steps
16 needed to be taken to specify the material for the
17 insulating core, the insulating panel?

18 A. That would be to the specialist subcontractor.

19 MR MILLETT: Mr Chairman, I'm rather in the middle of,
20 I think, a relatively lengthy topic, but this may be
21 a convenient moment to have a break for the afternoon if
22 the witness would like one.

23 SIR MARTIN MOORE-BICK: I expect Mr Crawford would take the
24 bird in the hand if he is offered one now, wouldn't you,
25 Mr Crawford?

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1 THE WITNESS: Sorry, you wanted to keep going, is it?

2 SIR MARTIN MOORE-BICK: I think Mr Millett is signalling
3 that he could be a little while on this topic.

4 THE WITNESS: I see, yes.

5 SIR MARTIN MOORE-BICK: So we will take the break now for
6 ten minutes. Back at 3.15, please.

7 THE WITNESS: Yes.

8 SIR MARTIN MOORE-BICK: Thank you very much.

9 (Pause)

10 3.15, please.

11 (3.05 pm)

12 (A short break)

13 (3.15 pm)

14 SIR MARTIN MOORE-BICK: Right, ready to carry on,
15 Mr Crawford?

16 THE WITNESS: Yes.

17 MR MILLETT: Mr Crawford, thank you.

18 Can I ask you, please, to be shown page 243
19 [SEA00000169/243] of the NBS specification, which is the
20 document we should still have up on the screen. I ask
21 you, please, to look at clause 235 at the bottom of the
22 page there, where you see that Studio E has specified,
23 under the heading "Compressible insulation in gaps",
24 a manufacturer, Rockwool, and the material, if you just
25 look a little further down, mineral wool to BS EN 13162.

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1 Do you see that?

2 A. Yes.

3 Q. That's the compressible insulation in gaps.

4 Now, is it correct that Rockwell is the proprietary

5 name -- I think we can see this -- for a mineral wool

6 product?

7 A. Yes.

8 Q. And a mineral wool product is -- help me with this -- am

9 I right in thinking a non-combustible product or

10 a product of limited combustibility?

11 A. Yes, in the sense that everything is combustible, yes,

12 it's non-combustible.

13 Q. Yes. It's inorganic, so --

14 A. Yeah.

15 Q. Now, the specification, as we can see, is silent, isn't

16 it, as to where the gaps are to be found?

17 (Pause)

18 It doesn't say where the gaps are, does it?

19 A. Well, no, but then the final line says:

20 "Cut and fit tightly between/around cladding

21 supports."

22 Q. When you did come to read this document, what did you

23 understand gaps to mean or to denote?

24 (Pause)

25 A. Potentially you could apply that clause to any gap or

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1 any space where you felt it was applicable to be

2 applied.

3 Q. I see, when you felt it was applicable to be applied.

4 What gaps would you feel you should fill with this

5 insulation material and which gaps would you think you

6 wouldn't? Are you able to help us in general terms?

7 (Pause)

8 A. Well, I mean, I would expect that clause to be linked to

9 a drawing if it didn't give a specific location,

10 although it does say "Cut and fit tightly between/around

11 cladding supports".

12 Q. You are referring to the reference "Jointed: Butted, no

13 gaps"?

14 A. Yes.

15 Q. I see. That's joints.

16 Did Mr Sounes ever inform you then or thereafter as

17 to where this mineral wool product was intended for use?

18 A. Specifically, I don't recall, no.

19 Q. Did you take any steps to familiarise yourself with the

20 status of Studio E's designs when you came into the

21 project, and specifically in relation to the façade?

22 A. Sorry, say that again.

23 Q. Did you take any steps to familiarise yourself with

24 exactly the status of Studio E's designs at the point

25 you came into the project, and specifically in relation

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1 to the façade?

2 A. I understood we were in the tender phase, so the façades

3 were -- had been worked up to employer's requirements,

4 to stage E, and they were issued, and Harley were being

5 deployed to produce the specialist design.

6 Q. In that last answer, you say, "We were in the tender

7 phase". In fact, as at July 2014, Rydon had won the

8 tender back in March.

9 A. Sorry. Let's say -- yeah, yeah, that's correct, yeah.

10 Q. So when you came into the project -- can I just repeat

11 the question -- where had Studio E's designs got to?

12 A. They had got to the -- they were in the tender

13 information pack, which was the stage E design, which --

14 or stage E or what Bruce called stage E/F1, which was

15 the employer's requirements.

16 Q. Let's look then on at an example. {SEA00002499}.

17 That's the offline version, please, Mr Operator.

18 Now, this is a Studio E drawing which is entitled

19 "Proposed Section - Typical Bay"; do you see that --

20 A. Yes.

21 Q. -- on the right-hand side? It's section and elevation.

22 A. And plan, yeah.

23 Q. You can see that, yes, and plan, quite. You can see

24 that the code is 1279, which was the Grenfell code,

25 06110.

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1 Now, there are no prior versions of this drawing and

2 it forms part of the employer's requirements, take that

3 from me, and it's dated 24 September 2013, as you can

4 see from the bottom right-hand corner, just there

5 visible on the screen.

6 This drawing clearly pre-dated your involvement in

7 the refurbishment project, and therefore can we proceed

8 safely, Mr Crawford, on the assumption that you saw it

9 once you were involved in or after July 2014?

10 A. Yes, I think that's probably correct.

11 Q. Okay.

12 If we enlarge the very bottom of the drawing, we can

13 see that it refers -- and this may be a little

14 difficult. It's on the very far left-hand side, at

15 L10 -- do you see L10, 332, to the insulated panel

16 between the windows. I think, in fact, you have to move

17 across the plan to the centre. There it is, it has just

18 come into view now. At the bottom there, where there is

19 a funny looking black mark. Do you see to the right of

20 it, it says:

21 "Insulated panel glazed into window frame, PPC L10

22 aluminium face both sides 332."

23 Do you see that?

24 A. Yes.

25 Q. Is it right that that is the insulated panel between the

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1 windows that we were looking at just before the break
 2 when referred to in the NBS spec?
 3 A. Yes, it looks like it.
 4 Q. I'm sorry?
 5 A. Yes.
 6 Q. It is, okay.
 7 If you want the page reference for that, for the
 8 record, that's {SEA00000169/145}, so that's on the
 9 transcript.
 10 Let's just look at this together. Am I right in
 11 thinking that there is no reference here in this drawing
 12 to a product type to be used as the insulated panel;
 13 correct?
 14 A. That's correct, yes.
 15 Q. There is no reference to the type of insulation that
 16 should be used; correct?
 17 A. That's my understanding of that, yes.
 18 Q. Nor is there any reference to the criteria for
 19 performance in fire which that insulating product or
 20 panel must achieve?
 21 A. There wasn't in L10, so -- and there's not in the
 22 drawing, if that's what you're saying.
 23 Q. Yes.
 24 A. Yeah.
 25 Q. I don't think the specification either identifies the

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1 core material.
 2 A. I can't remember what was in the specification. It
 3 doesn't -- no, it didn't identify the core material.
 4 Q. No, it identifies the outer material.
 5 A. Yes, that's correct.
 6 Q. The skins, exactly.
 7 So with that in mind, do you agree that Studio E
 8 should at least have specified the type of insulation
 9 product that should be used in this application, even if
 10 the particular product wasn't specified?
 11 A. Not necessarily, because the U-value is given in the
 12 L10.
 13 Q. That's about thermal performance.
 14 A. Yes.
 15 Q. Can you explain why Studio E shouldn't have specified
 16 the type of insulation product?
 17 A. Because the specialist subcontractor could then choose
 18 the product as they deemed appropriate.
 19 Q. Did you note the absence of specification of the type of
 20 insulation product at the time when you first looked at
 21 these drawings?
 22 A. I don't recall, no.
 23 Q. Right.
 24 There is no reference, anywhere we've seen, to the
 25 fire performance which is required in respect of these

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1 insulated panels; are we right about that?
 2 A. I didn't see anything in the spec, although they were in
 3 the L10 spec, so technically that whole element is
 4 a window.
 5 Q. Should there have been a performance specification in
 6 respect of the insulation material?
 7 A. Well, I would argue there was.
 8 Q. For fire?
 9 A. Well, if it's a window, technically it's exempt from --
 10 Q. But it's an insulated panel glazed into the window
 11 frame, so it would form part of the external
 12 construction, wouldn't it?
 13 A. No, it was part of the window, window unit.
 14 Q. You are drawing that distinction?
 15 A. Well, it's in L10, it's windows, so it's been specified
 16 in windows.
 17 Q. All right.
 18 Let's then look at another document, an offline
 19 version this time of {SEA00002499}. This is "Proposed
 20 plan - Window Level". You see that?
 21 A. Yeah.
 22 Q. This time we can see the L10 picked up clearly as the
 23 section in the middle between the two columns which is
 24 indicated by the arrow or blob leading to L10 again,
 25 "Insulated panel glazed into window frame PPC aluminium

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1 face both sides"; do you see that?
 2 A. Yes.
 3 Q. Do you accept that an internal window lining would be
 4 needed to reduce the thermal bridging at the head, cill
 5 and jamb interfaces of the window?
 6 A. Sorry, I'm not quite clear. I don't quite follow. Can
 7 you explain that again?
 8 Q. Well, the internal window lining --
 9 A. Specifically where, sorry? The lining coming up to the
 10 edge of the window?
 11 Q. Yes.
 12 A. Around the whole window?
 13 Q. Around the whole window, yes. Would you expect that
 14 there would be internal window linings needed in order
 15 to reduce the thermal bridging at those parts of the
 16 window interfaces?
 17 A. Yes.
 18 Q. We've seen already that Studio E specified compressible
 19 Rockwool insulation as the packing material.
 20 A. Yes.
 21 Q. We saw that before.
 22 A. I believe that's on a section -- I believe that is
 23 picked up on the ... because the sideboards were
 24 originally beech faced ply, and these are spec
 25 referenced to ... 355, or whatever it was, the

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1 compressible Rockwool.
 2 Q. Yes. 355. If we need to, we can go back to that.
 3 Bearing that in mind, we can see that the NBS spec
 4 didn't actually specify the location of the gaps in
 5 the --
 6 A. But that doesn't matter if the actual -- which is, as
 7 I said, when we were talking about that earlier, if it's
 8 denoted in the spec reference, you look at the detail
 9 and you go back to the spec. That's the purpose of it.
 10 Q. But you can't see anywhere on this drawing where either
 11 mineral wool or Rockwool is specified, even though there
 12 would be gaps round the window here.
 13 A. Well, not on this drawing -- well, not on the bit you've
 14 got in front of me.
 15 Q. Do you agree that the specification and the detailing of
 16 this product would be important because the material
 17 would form a dual role: it would provide thermal
 18 bridging -- or thermal insulation, I should say, around
 19 the windows, and also make an important contribution to
 20 the passage of the spread of flame from within
 21 a compartment into the cladding?
 22 A. Equally, it could be fire sealed. I mean, within
 23 I think K10, or is it K11, the dry lining package, there
 24 is reference to sealing around all openings.
 25 Q. Yes, but we don't see anywhere on this drawing, do we,

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1 where --
 2 A. Not the bit you're showing in front of me.
 3 Q. My question is: do you accept that Studio E should have
 4 identified on this drawing where insulation packing
 5 materials were required at the window interfaces and at
 6 least the type of insulation product that should be
 7 used?
 8 A. There might be another drawing where it is shown.
 9 Q. Well, I'm asking you on this drawing. Just accept with
 10 me that this would be representative. You would expect,
 11 would you, that this drawing would identify, ordinarily,
 12 where insulating packing materials were required at
 13 window interfaces and also the type of insulation
 14 product that should be used?
 15 A. Not necessarily, if it's covered on another drawing.
 16 Q. All right. But if it wasn't?
 17 A. Well, you could cover it on this drawing.
 18 Q. Right. Surely you should cover it in this drawing --
 19 A. Not --
 20 Q. -- because it's an important element of the window
 21 design?
 22 A. Well, I can't speak for the person who drew this, but on
 23 the other hand, if it's covered elsewhere, then if it's
 24 covered, it's covered. You don't -- not everything gets
 25 put into one drawing.

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1 Q. Can I ask you next, please, to look at an offline
 2 version of {SEA00002499}, which by chance is the same
 3 drawing, so we're lucky.
 4 Looking at it, did you ever have any discussions
 5 with Mr Sounes about the design of a cavity barrier
 6 scheme?
 7 A. I did have a conversation about the cavity barrier
 8 scheme.
 9 Q. When was that conversation, please? Do you remember?
 10 (Pause)
 11 A. It would have been -- it would possibly have been at the
 12 handover. It was certainly at the point when the RFI
 13 was raised by Harley, which is I think 17 September,
 14 something like this.
 15 Q. Right. I see. Well, we'll come back to the run of
 16 email correspondence later on.
 17 Just looking at this drawing, this drawing shows
 18 cavity barriers in two places. First of all, along the
 19 line of the compartment floors, just at the head of the
 20 window.
 21 A. I've just got a zoomed-in bit of plan here. Can you
 22 zoom out of the drawing?
 23 Q. Perhaps we can zoom out. That's it. I hope it will not
 24 become invisible.
 25 A. If you go up to the top right.

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1 Q. Yes, go up to the top right, I think that's it, you can
 2 see the section "Proposed Section - Typical Bay".
 3 A. Can you scroll it down a bit?
 4 Q. Yes, thank you. Go down a little bit more, if you
 5 would.
 6 (Pause)
 7 If you go to P10 435 on the right-hand side, you can
 8 see "Cavity fire barrier in line with compartment floor
 9 structure"; can you see that?
 10 A. Yes.
 11 Q. So that's the first one that's there, and there should
 12 also be one in line with compartment walls on the
 13 columns. For that you will need to pan out again,
 14 Mr Operator, if you don't mind, and look at the --
 15 that's it. Then move in to ... right. Come back into
 16 the document, and focus on the bottom left-hand side.
 17 There it is. Right.
 18 If you see the words, "Proposed Plan - Cill Level"
 19 and --
 20 A. Yeah --
 21 Q. -- then look further --
 22 A. -- side of the column.
 23 Q. Look further to the right:
 24 "Cavity barrier in line with compartment wall on the
 25 column."

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1 Do you see that.

2 A. Yes.

3 Q. I think those are the two I wanted to show you.

4 Going back to the right-hand side -- I'm sorry to

5 jump around on this document -- you can see, if you go

6 to the top right-hand side, fourth item down, it says

7 next to -- there is a balloon that says P10 435:

8 "Ensure horizontal and vertical cavity barriers meet

9 tightly."

10 Do you see that?

11 A. Yes.

12 Q. You can see where the little blob or little dot goes to.

13 Then at the bottom, P10, second from last:

14 "Cavity fire barrier in line with compartment floor

15 structure."

16 A. Yes.

17 Q. I think we saw that before.

18 When you first saw the employer's requirements

19 drawings, did you note that at the time? Did you note

20 that that's where the cavity barriers were?

21 A. I may have done, I don't recall.

22 Q. Okay. Now, can we please go to another document,

23 {PHYR0000004/133}. I should tell you what this is.

24 This is an expanded extract from the drawing we have

25 just been looking at, and a hatched area at the jamb of

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1 the window. Do you see the little yellow hatched

2 area --

3 A. Yes.

4 Q. -- at the edge of the window?

5 Did you interpret that to be a cavity barrier at the

6 time, that little hatched area?

7 (Pause)

8 A. No, I don't think I would have interpreted that to be

9 a cavity barrier at the time, no.

10 Q. We don't, I think, see any cavity barrier at cill level

11 round the windows at all, do we?

12 A. Well, you can't see the cill on this drawing.

13 Q. No, you can't, you're quite right. Go back to the last

14 one, then, {SEA00002499}. If you go to the top

15 right-hand, which is, "Proposed Section - Typical Bay",

16 and look at that, it's really looking for something that

17 isn't there, but just confirm with me that there is

18 nothing there on that drawing --

19 A. Yeah, that's correct, showing --

20 Q. No cavity barrier at cill level.

21 A. Yeah.

22 Q. When you saw this drawing, did you notice that omission

23 at the time?

24 A. I may have done.

25 Q. Did you discuss that with Bruce Sounes?

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1 A. I discussed the cavity barrier strategy with

2 Bruce Sounes, as I mentioned earlier, definitely when

3 Harley's RFI was issued, possibly before.

4 Q. Did Mr Sounes tell you that in the cavity barrier scheme

5 there was not to be a cavity barrier around the windows?

6 A. My understanding from the discussion with him was that

7 there wasn't a requirement for a cavity barrier around

8 the windows.

9 Q. Did he say to you that the design of the cavity barrier

10 scheme had not yet been finalised?

11 A. I don't recall having that conversation.

12 Q. Right.

13 Where did you yourself think the cavity barrier

14 design scheme had got to when you did have the

15 discussion with Bruce Sounes about it in September 2014?

16 A. When I had it in September 2017[sic], at that point it

17 was prompted by Harley's RFI. Harley's RFI proposed

18 a cavity barrier scheme for their rainscreen proposal,

19 and, as I recall, within that RFI, they wanted myself to

20 check with the fire officer -- by that I understood

21 building control -- that their proposal would be --

22 well, I think their wording was that some fire officers

23 can be funny about these things, and they wanted to

24 check what our understanding of the requirement was, and

25 they -- within the RFI, their proposal showed -- their

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1 proposal was, rather, that the window units were -- are

2 projecting into the rainscreen.

3 So, if you like, the window -- this is the window

4 (indicated) and they're proposing cavity barriers at

5 mid-level between all the windows. And the reason --

6 I think, without having the RFI in front of me, the

7 reason was their belief was that that system was

8 adequate on the basis that it addressed the chimney

9 effect, and therefore they were breaking up the chimney

10 effect. The window where it projected would break up

11 that effect on a sort of per floor basis.

12 I think I didn't agree with that, although if --

13 when you look at Exova's subsequent emails, you see that

14 that's their primary concern, I'm addressing the chimney

15 effect, which I think is correct. I would also argue

16 that if you opened up most buildings or a lot of

17 buildings now, you probably would find that

18 configuration, or something akin to that configuration.

19 My personal belief is that that wasn't adequate, and

20 that it should at least be on a compartment basis, which

21 is what Bruce understood in the employer's requirements

22 level.

23 Q. Mr Crawford, thank you for that. We will come back to

24 the detailed discussions about that of September 2014

25 I think on the next occasion.

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1 Can I just move on, then, to a slightly different
 2 topic in terms of drawings, and I would like you,
 3 please, to go to the offline version of {SEA00002551}.
 4 I want to ask you about the crown detailing. Just a few
 5 questions about that, if I may.
 6 On the right-hand side of the drawing -- we will
 7 have to blow it up just a bit more -- this is a drawing
 8 of the façade where it meets the crown of the tower. If
 9 we pull up that part of the drawing. Is that right?
 10 A. Yes.
 11 Q. Yes. We can see on the top right-hand side that it
 12 says:
 13 "Design of the crown ... TBC by architect."
 14 That's at the very top.
 15 A. Yes.
 16 Q. Then there is a ring, a sort of dotted line ring
 17 around --
 18 A. Dotted square.
 19 Q. -- the crown; yes?
 20 A. Yes.
 21 Q. Is it correct that no detailed design work had been
 22 carried out on the crown by the time that Studio E got
 23 to stage E?
 24 A. It depends what you mean by detailed design. I mean,
 25 there is the design there. I think what that's saying

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1 is ...
 2 Q. You wouldn't call that a detailed design, would you?
 3 A. No.
 4 Q. No. So would you confirm with me that, by the time one
 5 got to stage E, there had as yet been no detailed design
 6 work on the crown?
 7 A. There is an implied design but there is no detailed
 8 design.
 9 Q. So at the time you came in, is it fair to say that not
 10 a great deal of thought had gone into the design of the
 11 crown beyond what we see on this drawing?
 12 A. I think it's unfair to say not a great deal of thought,
 13 because when you look through the sequence of the
 14 planning and various planning conversations, it was
 15 clearly an item that had generated a lot of discussion,
 16 and so there's development in terms of what that crown
 17 should be, what the scale of it should be and so on.
 18 One of the things that Bruce mentioned to me when
 19 the project was handed over was that there was an issue
 20 to resolve the façade maintenance in relation to that
 21 crown design, and so, yes, that's something that was
 22 being carried through to the next stage of works.
 23 Q. Yes.
 24 Now, looking at the left-hand side of the drawing,
 25 there is a hatched area. Not the whole drawing, I'm so

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1 sorry, the left-hand side. Yes. Do you see within the
 2 crown --
 3 A. Yes.
 4 Q. -- ring, if you like, there is a hatched area?
 5 A. Yes.
 6 Q. I'm so sorry, I have confused you. There are two
 7 hatched areas. There is a hatched area in the ring, and
 8 then below the ring there is a more tightly defined
 9 hatched area.
 10 A. Yes.
 11 Q. I just want to ask you what that is.
 12 Is that a cavity barrier at the top of the
 13 compartment head of the window where the façade cladding
 14 meets the crown?
 15 A. Yes, that's what it looks to be, yes.
 16 Q. Right. Do you agree that a scheme design should have
 17 been established by the tender stage?
 18 A. A scheme design for ...?
 19 Q. Well, let me just ask you a prior question.
 20 Does this drawing, while we're on it, show you where
 21 that cavity barrier would connect with any vertical
 22 cavity barrier?
 23 A. Yeah, there is this sort of implied dotted line going
 24 backwards, the vertical on the column.
 25 Q. So that is -- just to be clear, which one is that?

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1 A. Where you see the dense -- the dense hatch.
 2 Q. Yes?
 3 A. And this is only by implication, because you can see on
 4 the section adjacent where it's actually more clearly
 5 marked, where you see a dotted line coming out into the
 6 column zone and then it continues down.
 7 Q. I see, and that's the vertical cavity barrier, is it?
 8 A. That's to me what it implies.
 9 Q. You say to you; at the time, did you look at this and
 10 think: that's a vertical cavity barrier where it meets
 11 the horizontal cavity barrier --
 12 A. I may have done.
 13 Q. -- at the head of the window?
 14 A. I may have done.
 15 Q. Right, okay.
 16 Do you agree -- just coming to the question -- that
 17 a scheme design should have been established by the
 18 tender stage?
 19 A. For the cavity barriers?
 20 Q. Including for the cavity barriers, yes.
 21 A. Well, I think there was a -- there was a cavity barrier
 22 strategy at the tender stage.
 23 Q. Right.
 24 Did Mr Sounes tell you, when you came into the
 25 project, that the design of the crown had not yet been

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1 finalised and that there was further work to do on it?
 2 A. He was -- as I mentioned earlier, he was aware of façade
 3 access issues that may have implications on it.
 4 Q. Yes.
 5 Now, we've seen quite a bit of the drawings that
 6 have been done. Do you agree that by the time the
 7 project -- and you weren't involved at the time the
 8 project went out to tender, but would you agree that
 9 when you came into the project, at the time it went out
 10 to tender, Studio E's drawings and specification in
 11 relation to the cladding should have been far more
 12 advanced in the respects we've just examined, in
 13 particular in relation to cavity barriers?
 14 A. No, not necessarily.
 15 Q. You don't?
 16 Do you agree that, in those respects -- things like
 17 cavity barriers, identification of materials for
 18 insulation in the infill panels -- too much design
 19 development was required at the construction stage?
 20 Would you agree with that?
 21 A. I don't -- no, I don't necessarily agree with that.
 22 Q. Did Mr Sounes tell you, when you came into the project,
 23 that a compliance review -- in other words, a review of
 24 the applicable building regulations and approved
 25 guidance -- had already been undertaken in respect of

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1 the refurbishment and the external façade in particular?
 2 A. I don't recall that, no.
 3 Q. No.
 4 Did he tell you anything about the building
 5 regulations and associated guidance?
 6 (Pause)
 7 Let me put a more specific question to you: did he
 8 tell you that a compliance evaluation needed to be
 9 undertaken?
 10 A. No.
 11 Q. Do we take it that you yourself did not do a compliance
 12 evaluation prior to commencing substantive construction
 13 work?
 14 A. Well, as I stated, I assumed and would assume the
 15 employer's requirements and tender stage package to be
 16 compliant.
 17 Q. I see. That may answer my next few questions.
 18 Does it follow from that that you didn't take any
 19 steps yourself to assess the tender drawings for
 20 statutory or regulatory compliance?
 21 A. No, I didn't undertake any.
 22 Q. Did the handover by Mr Sounes with you -- did that
 23 session include any -- or did he cover with you any
 24 dealings that he had had so far with building control?
 25 A. Not specific, no.

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1 Q. Did you take any steps yourself to ascertain the level
 2 of building control involvement up to date?
 3 A. Well, the point at which I became involved in the
 4 project initially was because I was using RBKC building
 5 control on the KALC project, so the idea was that
 6 I would speak to the individuals involved there to get
 7 them to quote for the post-novation phase on Grenfell,
 8 their service post-novation on Grenfell.
 9 To answer your question, which I think is
 10 specifically relating to building control involvement
 11 prior to novation, I was aware that consultations had
 12 gone on, yes.
 13 Q. Did you take steps yourself to ascertain what level of
 14 building control involvement remained to be done?
 15 A. The building control service post-novation?
 16 Q. Yes.
 17 A. That's what required to be done.
 18 Q. Right. I see. But, in particular, did you have
 19 a discussion with Mr Sounes about what it was that you
 20 wanted building control to look at and when?
 21 A. But those are two distinct time periods. So he used
 22 pre-contract or pre-novation period where he deployed
 23 building control to assist in his design, and then there
 24 is a separate appointment with building control to Rydon
 25 post-novation, and then there is a separate service.

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1 Q. Yes. I'm asking you, at the moment when you came into
 2 the project, did you take any steps to work out what
 3 building control involvement was left to be done?
 4 A. I think I understood building -- well, I understood the
 5 building control involvement to be that associated with
 6 post-novation.
 7 Q. Yes.
 8 A. Yes.
 9 Q. Okay.
 10 Were you told that, as of August 2014, building
 11 control had not been provided with details of the
 12 cladding system? Were you told that?
 13 A. Categorically, no.
 14 Q. Would you be surprised to learn that they hadn't?
 15 (Pause)
 16 A. I -- well, I understood that building control would have
 17 had conversations about the scheme generally, whether
 18 that was specifically about the cladding. I mean, the
 19 general conversations you would have with building
 20 control during the development of the scheme would be
 21 related to the high-level fire strategy, and to assist
 22 you with that or to assist you with any specific queries
 23 in relation to ... or specifically on 1 and then 5,
 24 usually, but it obviously can spill into other areas.
 25 Sorry, B1 and B5.

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1 MR MILLETT: Yes, thank you.
 2 I'm going to change now to a new topic.
 3 Mr Chairman, we have had one break this afternoon. I'm
 4 happy to continue if the witness is happy to continue
 5 until 4.30.
 6 SIR MARTIN MOORE-BICK: Yes. How do you feel about that,
 7 Mr Crawford?
 8 THE WITNESS: Can I take a short break?
 9 SIR MARTIN MOORE-BICK: You can.
 10 THE WITNESS: Come back at 4.00?
 11 SIR MARTIN MOORE-BICK: Yes, all right, of course. You
 12 leave us now, and we will have a short break.
 13 MR MILLETT: Right.
 14 (Pause)
 15 SIR MARTIN MOORE-BICK: So back at 4.00, then, please.
 16 Thank you.
 17 (3.54 pm)
 18 (A short break)
 19 (4.00 pm)
 20 SIR MARTIN MOORE-BICK: All right, Mr Crawford?
 21 THE WITNESS: Yes.
 22 SIR MARTIN MOORE-BICK: Good, thank you.
 23 Mr Millett.
 24 MR MILLETT: Mr Crawford, I'm going to ask you some
 25 questions now about the Building Regulations and

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1 Approved Document B. We will come back in due course
 2 later in your evidence -- not today, I am afraid -- to
 3 points of detail when we look at the different elements
 4 of the overcladding scheme, but I just want to be sure
 5 that you know where I'm going.
 6 A. Yes.
 7 Q. Can we first, please, have up Approved Document B
 8 {CLG00000224/95}. Here we have section 12,
 9 "Construction of external walls".
 10 Under 12.5 on page 95, you can see that 12.5 has
 11 a heading "External wall construction". Do you see
 12 that?
 13 A. Yes.
 14 Q. Just read with me. It says:
 15 "The external envelope of a building should not
 16 provide a medium for fire spread if it is likely to be
 17 a risk to health or safety. The use of combustible
 18 materials in the cladding system and extensive cavities
 19 may present such a risk in tall buildings."
 20 You see that?
 21 A. Yes.
 22 Q. Then it goes on:
 23 "External walls should either meet the guidance
 24 given in paragraphs 12.6 to 12.9 or meet the performance
 25 criteria given in the BRE Report Fire performance of

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1 external thermal insulation for walls of multi storey
 2 buildings (BR 135) for cladding systems using full scale
 3 test data from BS 8414-1:2002 or BS 8414-2:2005."
 4 Do you see that?
 5 A. Yes.
 6 Q. I don't think we need the rest of it. I have read that
 7 out in full to you because it's obviously important.
 8 My first question is this: were you familiar with
 9 this paragraph of Approved Document B at the time of
 10 your involvement in the Grenfell Tower project?
 11 A. I think I probably would have been, yes.
 12 Q. You probably would have been?
 13 A. Yeah.
 14 Q. Do you recall actually looking at it at any time during
 15 your involvement in the Grenfell project?
 16 A. Well, I would have consulted the ADB2 document, so
 17 I would have looked at this. I'm more likely to have
 18 looked at diagram 40.
 19 Q. We will come to diagram 40. Did you consult this
 20 paragraph in particular, do you think?
 21 A. I think I would have understood that paragraph, yes.
 22 Q. Right. So did you understand from this at the time that
 23 ADB, Approved Document B, and 12.5 of it, contains two
 24 potential routes to compliance with the functional
 25 requirement of the Building Regulations: either

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1 compliance with paragraphs 12.6 to 12.9, or a test,
 2 a full-scale test, to meet the performance criteria in
 3 the BRE report, BR 135, using full-scale test data from
 4 BS 8414? Did you understand that?
 5 A. Well, there are more routes to compliance than just
 6 what's there, but yes.
 7 Q. There are, and can you tell us what they are?
 8 A. You have a fire engineered solution, for example.
 9 Q. Yes.
 10 A. A desktop study could have been done.
 11 Q. Yes. So there are -- is this right? -- basically four
 12 routes, therefore, to compliance at the time of the
 13 Grenfell project: compliance with 12.6 to 12.9, or
 14 a full-scale test, or a fire engineered solution, or
 15 a desktop study; is that what you're --
 16 A. That's my understanding of it, although I wouldn't have
 17 necessarily known what BR 135 was.
 18 Q. We will come to that in due course.
 19 Which of the four routes that you have identified
 20 with me did you understand was to be followed on the
 21 Grenfell Tower project in respect of the cladding?
 22 (Pause)
 23 A. I think when I spoke with Exova, it must have been 17 or
 24 18 September, to confirm what ... confirm the compliance
 25 of the Celotex insulation and the proposed cavity

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1 barrier strategy, my understanding from the conversation
 2 with Exova is the ... that what was being proposed was
 3 compliant. I'm not sure if I entirely understood on
 4 which method they were using or which basis they assumed
 5 it to be compliant. I think I probably assumed a linear
 6 route. But I think, having said that, Exova have
 7 a massive -- they've a massive wealth of knowledge in
 8 terms of similar projects and they may have ... may have
 9 had the confidence to say what they said based on
 10 desktop studies, previous projects, similar projects,
 11 similar build-ups.
 12 Q. Well, in that rather long answer, I just want to try and
 13 tease out what the answer to my question is,
 14 Mr Crawford. Forgive me.
 15 You I think say that you assumed or probably assumed
 16 a linear route. Can I just be clear about what that
 17 means?
 18 A. The linear route is following ADB2.
 19 Q. Following ADB2. Do you mean paragraphs 12.6 to 12.9?
 20 A. They would be part of that.
 21 Q. Just back up a little bit. We have been through the
 22 four routes to compliance: either 12.6 to 12.9, or
 23 meeting the performance criteria in 135, or a fire
 24 engineered solution, or a desktop study. Let's just
 25 take those in reverse order.

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1 Did you think that a desktop study was being used in
 2 order to allow the rainscreen cladding system on
 3 Grenfell to be compliant with Approved Document B?
 4 A. I wasn't aware of one.
 5 Q. No. Were you aware of a fire engineered solution to
 6 ensure that the cladding system on Grenfell was
 7 compliant with Approved Document B?
 8 A. It depends on your definition of that, but I couldn't
 9 say I was explicitly aware of one.
 10 Q. Did anyone ever tell you -- and you weren't aware of
 11 one, were you?
 12 A. No.
 13 Q. So that then leaves the only two candidates, namely 12.6
 14 to 12.9 or a full-scale test to meet the BR 135
 15 criteria.
 16 Which of those two routes to compliance with ADB did
 17 you think was being pursued?
 18 A. The linear or potentially in the background desktop.
 19 Q. And by linear you mean which?
 20 A. ADB2.
 21 Q. When you say ADB2, what do you mean?
 22 A. What's set out in Approved Document B.
 23 Q. Do you mean 12.6 to 12.9 or do you mean meeting the
 24 performance criteria in BR 135?
 25 A. Oh, sorry, I understand what you mean. Meeting 12.6 to

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1 12.9.
 2 Q. Right, I see. That's what you understood was the route
 3 to compliance with ADB at the time of your involvement;
 4 is that right?
 5 A. My understanding of the route to compliance was from the
 6 conversations I had with the fire specialist, Exova,
 7 round about 18 September.
 8 Q. We will come to that later.
 9 Do you know when the choice of route of compliance,
 10 namely compliance with 12.6 to 12.9, was made?
 11 A. When the choice of route of compliance, did you say?
 12 Q. Yes.
 13 A. My understanding is that would have been done at the
 14 employer's requirements and tender stage.
 15 Q. Done at the employer's requirements --
 16 A. Done for -- within the stage --
 17 Q. Do you know -- I'm sorry.
 18 A. At the stage E report.
 19 Q. Do you know who was involved in making that decision?
 20 A. Well, again, this comes back to what I said earlier.
 21 The systems that were proposed up to that point, ie the
 22 tender information, ie the employer's requirements,
 23 I would have understood to have been compliant.
 24 Therefore, the people working on that and putting
 25 together that information, the spec, the drawings and so

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1 on, I would understand that what they were proposing
 2 would be understood to be compliant.
 3 Q. Did you ever yourself ask anybody when you looked at the
 4 tender documentation, including the employer's
 5 requirements and the drawings, "Which route to
 6 compliance with Approved Document B are we adopting?"
 7 A. I don't recall, no.
 8 Q. Did you ever discuss with Bruce Soules as part of your
 9 handover, or even later than that, which route to
 10 compliance you were adopting?
 11 A. Not specific route, no.
 12 Q. Right.
 13 Let's look on, now that we've got the linear route,
 14 to 12.6. If we can just look at the bottom of the page
 15 and over to the next page [CLG00000224/96]. 12.6 says:
 16 "The external surfaces of walls should meet the
 17 provisions in Diagram 40. Where a mixed use building
 18 includes Assembly and Recreation Purpose Group(s)
 19 accommodation, the external surfaces of walls should
 20 meet the provisions in Diagram 40c."
 21 Now, can I just ask you about that.
 22 If you look at diagram 40, first of all, that's at
 23 page 97 [CLG00000224/97], you can see that it's entitled
 24 "Provisions for external surfaces or walls"; yes?
 25 A. Yes.

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1 Q. If you look at item d -- you can see that there are:
 2 "a. Any building.
 3 "b. Any building other than c.
 4 "c. Assembly or recreation building of more than
 5 one storey ...
 6 "d. Any building."
 7 It's building height, 18 metres or more. Then e,
 8 any building up to 18 metres above ground and any
 9 dimension over 18 metres.
 10 Both of those, d and e, are shaded in with a dark
 11 shade; do you see?
 12 A. Yes.
 13 Q. D is completely shaded in dark and e is shaded in dark
 14 above 18 metres. Above 18 metres, you can see that that
 15 has class 0, national class, or class B-s3, d2 or better
 16 European class. Yes?
 17 A. Yeah.
 18 Q. E, just to be clear, is the requirement for any building
 19 which is more than 1 metre, I think it is, from
 20 a relevant boundary. It's a 1,000 millimetres, which is
 21 a metre.
 22 A. Yeah.
 23 Q. So it's clear from that that, above 18 metres, the
 24 external wall surface classification should be national
 25 class 0 or Euro class B-s3, d2 or better; correct?

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1 Was that something you understood at the time of
 2 your involvement?
 3 A. Yes.
 4 Q. Did you have a view at the time about what external
 5 surfaces of walls meant?
 6 A. Yeah, the external surfaces of walls.
 7 Q. It sounds simple, but when you refer to external
 8 surfaces of walls, what are you actually talking about?
 9 A. You're talking about the main body of cladding.
 10 Q. So you say the main body of cladding, so would that
 11 include the insulation and the entirety of the
 12 rainscreen or just the outside surface of the
 13 rainscreen?
 14 A. I think it includes the internal and external surface of
 15 the rainscreen.
 16 Q. The internal and external surface of the rainscreen?
 17 A. Yes.
 18 Q. Right. Anything else? I see. So would that be the
 19 outward and the inward facing elements of the panel?
 20 A. Yeah, I think that's my understanding of it.
 21 Q. You think that's your understanding of it?
 22 A. Yes.
 23 Q. Doing the best you can with your recollection, was that
 24 your understanding at the time, do you think?
 25 A. Yes, I think that was my understanding.

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1 Q. Okay.
 2 Going back to page 96 {CLG00000224/96}, if you can,
 3 please, looking at 12.7, that says, "Insulation
 4 Materials/Products", and it says:
 5 "In a building with a storey 18m or more above
 6 ground level any insulation product, filler material
 7 (not including gaskets, sealants and similar) etc. used
 8 in the external wall construction should be of limited
 9 combustibility (see Appendix A). This restriction does
 10 not apply to masonry cavity wall construction which
 11 complies with Diagram 34 in Section 9."
 12 Were you familiar with that provision at the time of
 13 your involvement in the Grenfell Tower project?
 14 A. I probably would have been, yes.
 15 Q. Yes. What did you understand by the phrase "limited
 16 combustibility" in that paragraph?
 17 A. Well, everything is combustible, so limited
 18 combustibility is basically a product that has its
 19 combustibility retarded in some fashion. For example,
 20 in phenolic or PIRs, it's usually with an additive to
 21 the product.
 22 Q. You're -- so sorry, continue your answer.
 23 A. It doesn't readily ignite or spread flame.
 24 Q. Right.
 25 Did you understand that limited combustibility or

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1 a material of limited combustibility had an actual
 2 definition set out in ADB at appendix A?
 3 A. I mean, there is a reference to appendix A there, I can
 4 see that. I don't recall.
 5 Q. You don't recall.
 6 Do you recall knowing that there was a specific test
 7 for limited combustibility?
 8 A. I don't recall.
 9 Q. Did you understand that, when a building has a storey
 10 with a floor level over 18 metres in height,
 11 paragraph 12.7 of Approved Document B applies to the
 12 whole of the external wall of the building and not only
 13 to those parts above 18 metres?
 14 (Pause)
 15 A. Sorry, can you repeat that?
 16 Q. Yes. Did you understand that when a building has
 17 storeys above 18 metres in height --
 18 A. Yeah.
 19 Q. -- then the requirements of paragraph 12.7 for limited
 20 combustibility apply to the entirety of the external
 21 wall and not only those parts of the external wall above
 22 18 metres?
 23 A. It's slightly contradictory to the diagram 40, although
 24 I can see that that relates to the external cladding and
 25 the national classification, the B-s3, d2 rating.

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1 Q. You say it's slightly contradictory. At the time of the
 2 Grenfell project, did you think in your head that there
 3 was that requirement, that the entirety of the external
 4 wall construction had to contain insulation of limited
 5 combustibility?
 6 A. But I'm not seeing where it actually says that in
 7 that --
 8 Q. I'm asking for your understanding at the time. Did you
 9 have an understanding at the time about where on the
 10 building insulation --
 11 A. Yeah, and I suppose that's referred back more to my
 12 earlier point in terms of conversation with Exova and
 13 the rainscreen insulation.
 14 Q. So to ask the question in a slightly different way,
 15 where on the building did you think you needed to put
 16 insulation which was of limited combustibility?
 17 A. Within the main cladding.
 18 Q. Indeed, but --
 19 A. The rainscreen.
 20 Q. The whole of the building or only on the part of the
 21 building above 18 metres?
 22 A. I'm not sure, but it doesn't actually -- there's nothing
 23 there to me that says it should be the whole as opposed
 24 to above 18.
 25 Q. What I'm really asking is whether you had any

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1 understanding about that at all, or maybe you didn't,
 2 maybe you didn't think about it.
 3 A. It's possible.
 4 Q. Did you have a view at the time about what the word
 5 "filler" meant in paragraph 12.7?
 6 A. No.
 7 Q. Right.
 8 Finally, in 12.8, you can see under the heading
 9 "Cavity barriers", it says:
 10 "Cavity barriers should be provided in accordance
 11 with section 9."
 12 We're going to go through section 9 in detail later
 13 on in your evidence, Mr Crawford. But at this stage,
 14 can I just ask you what you understood at the time of
 15 your work on Grenfell Tower about cavity barriers.
 16 Did you understand that the purpose of cavity
 17 barriers was to limit fire spread within the cavity?
 18 A. Yes.
 19 Q. Did you also understand that it was to limit fire spread
 20 from a compartment into a cavity?
 21 (Pause)
 22 A. Well, let's just say I understood the requirement for
 23 cavity barriers as per defined in section 9.
 24 Q. I see.
 25 Moving back to page 95 {CLG00000224/95} and the

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1 alternative route to compliance that's set out in
 2 paragraph 12.5 that we looked at a few moments ago, you
 3 can see the reference there to the performance criteria
 4 in BR 135 and the full-scale test data from BS 8414, and
 5 I think we have agreed that you didn't think that was
 6 the route being pursued for Grenfell Tower.
 7 We will look at BR 135 in a moment, but at the time
 8 of your involvement, did you investigate whether there
 9 were any BR 135 classification reports for the cladding
 10 system that had actually been specified for
 11 Grenfell Tower?
 12 A. I don't recall that I did, no.
 13 Q. Did you ever do so once the specifications had become
 14 fixed for RS5000, as it became, for the insulation and
 15 Reynobond PE 55 for the rainscreen?
 16 A. I think I deferred the compliance in that respect to
 17 Exova, because I thought it beyond my expertise.
 18 Q. Right, we will come to your interactions with Exova
 19 later in your evidence.
 20 Can I move on to the next heading, which is BCA
 21 guidance. I want to ask you a bit about that.
 22 Are you familiar with the Building Control Alliance?
 23 Or were you, at the time of your involvement in
 24 Grenfell, familiar with something called the Building
 25 Control Alliance?

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1 A. No.
 2 Q. You weren't.
 3 Can we take it from that that you weren't familiar
 4 with the Building Control Alliance's guidance documents
 5 for the construction industry?
 6 A. No.
 7 Q. It would follow, therefore, that you weren't familiar
 8 with the Building Control Alliance's guidance in
 9 June 2014, "Use of combustible cladding materials on
 10 residential buildings"?
 11 A. No.
 12 Q. We have covered the CWCT guidance, or standard, and
 13 I think you said you weren't familiar with that. Were
 14 you familiar with a 2011 CWCT technical note about
 15 combustible materials in cladding systems?
 16 A. No.
 17 Q. No.
 18 A. I mean, coming back to the CWCT, I was aware of it in
 19 the capacity of -- that it's ... imposes a requirement
 20 within the specification, ie a requirement to meet the
 21 requirements of it, therefore a competent specialist
 22 subcontractor would meet those standards. It didn't
 23 mean I knew specifically what those standards were.
 24 Q. I see.
 25 A. It's like -- if you see what I mean.

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1 Q. So can we take it that your understanding of Studio E's
2 role at the time was that even though the CWCT standard
3 had been specified in the NBS spec, you left it to
4 Harley to be familiar with the standard --
5 A. Well, they were CWCT --
6 Q. -- and apply its principles?
7 A. Yeah, they were CWCT accredited, so they would know.
8 Q. You didn't think it was any part of your role just to
9 spot check by reference to that standard the work they
10 had done?
11 A. Well, it was, by the fact it's in the specification, the
12 employer's requirements, and they're required to meet
13 that standard.
14 Q. How would you go about checking whether they had done
15 that if you hadn't read the CWCT --
16 A. But I didn't have a role to check it; they had a role to
17 comply to it. It's different.
18 Q. Right. So to your way of thinking, who was going to
19 check and supervise whether Harley had understood and
20 applied the contents of the CWCT standard when doing
21 their work?
22 A. Well, if someone was going to check, it would be the
23 principal applicant and/or building control ultimately
24 check.
25 Q. Ultimately building control, you say. Anybody else?

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1 A. Well, no, it's a specialist item. I mean, that's the
2 whole point of having the specialist.
3 Q. I want to ask a one or two questions about BR 135, if
4 I can. It's at {BRE00005554}. If we can go to the
5 second page, please {BRE00005554/2}, we can see the
6 front page of the publication. Then page 3
7 {BRE00005554/3} I think we get the year of publication.
8 This is a document fully entitled:
9 "Fire performance of external thermal insulation for
10 walls of multistorey buildings."
11 This is what we saw referred to specifically in the
12 Building Regulations themselves, authored by
13 Sarah Colwell and Brian Martin, and it comes from the
14 Office of the Deputy Prime Minister. It's dated 2003.
15 You can see that at the top right-hand corner of the
16 page.
17 Were you aware of this document or the existence of
18 this document during your work on the Grenfell Tower
19 project?
20 A. I hadn't seen this particular document, no.
21 Q. I'm so sorry, would you repeat that answer, please?
22 A. I haven't seen that document.
23 Q. You haven't?
24 A. No.
25 Q. Have you ever seen it before I've shown it to you today?

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1 A. I have seen BR 135 since.
2 Q. Since the fire?
3 A. Yes, but not -- I don't think this version.
4 Q. No, you're right, there was a later version in 2013, but
5 did you see the 2013 version at the time of your work on
6 the Grenfell project?
7 A. No.
8 Q. And I take it not this version either?
9 Let me just see if I can pick up one or two of the
10 principles in here to see if you're familiar with them.
11 Could you turn, please, to page 9 {BRE00005554/9},
12 "Mechanisms of fire spread". You can see there that the
13 authors have set out in figure 2, "Mechanisms for
14 external fire spread by way of the external cladding
15 system". If you just take a moment to look at that, you
16 get rapid fire spread on the left-hand side, and
17 restricted fire spread on the right-hand side. It
18 essentially shows you on the left-hand side flames
19 breaking out of the compartment and attacking adjacent
20 windows and then causing secondary fires up the
21 building, and there is an orange arrow and it says:
22 "If the external cladding contributes to the
23 flame spread there is a risk of secondary fire spread to
24 all levels."
25 We can see that.

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1 Were you familiar with at least the principle that
2 where you have an external cladding system, the risk of
3 fire spread illustrated by that diagram exists or
4 existed?
5 A. But I told you I haven't seen this document.
6 Q. No, but did you understand that the risk that is being
7 explained by this diagram was one that you, as a project
8 architect, as called, had to be aware of?
9 A. I think that's something that you would assume, that if
10 a fire broke out, a developed fire, there is a risk of
11 it moving up a building, if that's what you're asking.
12 Q. I'm really just asking whether you were familiar with
13 the principles which lie behind this diagram.
14 A. Yeah, if an external ... I think it's self-evident to
15 some extent.
16 Q. Right. Can you go, please, to page 10 {BRE00005554/10},
17 paragraph 3, "Interaction with external envelope", and
18 under "Cavities", it says:
19 "If flames become confined or restricted by entering
20 cavities within the external cladding system, they will
21 become elongated as they seek oxygen and fuel to support
22 the combustion process. This process can lead to flame
23 extension of five to ten times that of the original
24 flame lengths [then in bold] regardless of the materials
25 used to line the cavities. This may enable fire to

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1 spread rapidly, unseen, through the external cladding
 2 system, if appropriate fire barriers have not been
 3 provided ..."

4 My question is: were you aware of this guidance or
 5 the risks described there at the time of your
 6 involvement in the Grenfell project?

7 A. I've told you in terms of my awareness of this guidance,
 8 but the principle, yes, I was aware of.

9 Q. Right.

10 Then under paragraph 5, just below that, under the
 11 heading "Fire service intervention" it says:
 12 "Where the external cladding system is not
 13 significantly contributing to the spread of fire from
 14 one storey to the [next], then intervention by emergency
 15 services should prevent continued fire propagation by
 16 way of the building envelope."

17 Then this:
 18 "However, where the external cladding system is
 19 contributing to the fire propagation rate, the potential
 20 exists for the fire to affect multiple storeys
 21 simultaneously, thus making firefighting more
 22 difficult."

23 Again, I know you weren't aware of this guidance,
 24 but were you aware of the risks described there?
 25 (Pause)

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1 A. I would argue that's to some extent self-evident.
 2 Q. I see.

3 Page 17 {BRE00005554/17}, then, please. Third
 4 paragraph down on page 17, under the heading
 5 "System-specific details", you can see it says -- this
 6 is just above halfway down the page:
 7 "Once the fire is within the cavity, it may
 8 propagate unseen through the system if adequate fire
 9 barriers are not employed. This may result in
 10 significant risk of system collapse or fire break out at
 11 significant distances from the fire origin."

12 Again, I know you weren't aware of the document, but
 13 were you aware of the risks that this document is
 14 describing?

15 A. I think I understood cavity barrier and cavity barrier
 16 requirements, although they've used the term "fire
 17 barrier", in the context of section 9 of ADB2.

18 Q. Then staying on that page, if you look under the heading
 19 "Performance of materials in fire", under "External
 20 panel" at the very bottom of the page, do you see it
 21 says:
 22 "Materials used for external panels used can vary
 23 from non-combustible through to combustible."
 24 Then there is a first dot and it says:
 25 "Non-combustible materials ..."

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1 Then it goes over the page to page 18
 2 {BRE00005554/19}, and if you go over to page 18, it
 3 says, five lines down from the top:
 4 "Metal panels such as aluminium may fall from the
 5 system if the strength of the fixings is affected by the
 6 local fire source. They may also melt, generating
 7 molten metal debris if exposed directly to the sustained
 8 flame envelope."

9 Did you know the risks described there when you
 10 became involved in the Grenfell project?

11 A. Again, I would say that's largely self-evident.

12 Q. I see.

13 If you go back a page {BRE00005554/17} to
 14 "Performance of materials in fire, Insulation", it says:
 15 "The performance of insulating material when
 16 subjected to this type of fire scenario has been
 17 outlined in the previous section. Typically,
 18 non-combustible materials are used in these systems as
 19 it is difficult to prevent fire entering the cavity and
 20 spreading through the insulating material."

21 Again, same question: were you familiar with that
 22 principle, which is described there, at the time of your
 23 involvement in Grenfell?

24 A. I don't think the evidence of what's built you could
 25 necessarily argue typical -- typically non-combustible,

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1 let's say typically limited.
 2 MR MILLETT: Right. Okay, we may have to think about that
 3 another time.

4 Mr Chairman, is that a convenient moment?

5 SIR MARTIN MOORE-BICK: Yes, I think it is.

6 MR MILLETT: Subject to my notes, I think we are actually at
 7 the end of a topic.

8 SIR MARTIN MOORE-BICK: Good. That's obviously a convenient
 9 moment to end for the day.

10 Now, Mr Crawford, we don't sit on Fridays. I expect
 11 you have been told that anyway.

12 THE WITNESS: Yes.

13 SIR MARTIN MOORE-BICK: So I will have to ask you to come
 14 back and resume your evidence on Monday, please, at
 15 10 o'clock.

16 THE WITNESS: Yes.

17 SIR MARTIN MOORE-BICK: Once again, please don't talk to
 18 anyone about your evidence or anything related to it
 19 over the weekend. All right?

20 THE WITNESS: Okay.

21 SIR MARTIN MOORE-BICK: Thank you very much. If you would
 22 like to go with the usher, she will look after you.
 23 (Pause)

24 Good, thank you all very much. Monday morning at
 25 10 o'clock, please.

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1 MR MILLETT: Thank you very much, Mr Chairman. 199
 2 (4.36 pm)
 3 (The hearing adjourned until 10 am on Monday, 9 March 2020)

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