

OPUS 2

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Grenfell Tower Inquiry

Day 38

September 17, 2020

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1 Thursday, 17 September 2020
 2 (10.00 am)
 3 SIR MARTIN MOORE-BICK: Good morning, everyone. Welcome to
 4 today's hearing. Today we're going to hear further
 5 evidence from Mr Kevin Lamb. So would you ask Mr Lamb
 6 to come into the room, please.
 7 MR KEVIN LAMB (continued)
 8 SIR MARTIN MOORE-BICK: Good morning, Mr Lamb.
 9 THE WITNESS: Good morning.
 10 SIR MARTIN MOORE-BICK: Are you ready to carry on?
 11 THE WITNESS: I certainly am, yes.
 12 SIR MARTIN MOORE-BICK: Good. Thank you very much.
 13 Yes, Ms Grange.
 14 Questions from COUNSEL TO THE INQUIRY (continued)
 15 MS GRANGE: Thank you.
 16 Good morning, Mr Lamb.
 17 A. Hi there.
 18 Q. So when we broke yesterday, I had been asking you some
 19 questions about a run of documents to do with a window
 20 approval process, window detailing.
 21 A. Yes.
 22 Q. If you recall, it was a process where ultimately
 23 Simon Lawrence kept getting looped back in and asked for
 24 his approval.
 25 A. That's right.

1

1 Q. You were right in the middle of explaining to us that
 2 that was not necessarily a representative example of the
 3 way it normally worked; that was an exceptional case.
 4 A. Exactly, yes.
 5 Q. Because it was a late addition and might have caused
 6 cost consequences for Rydon; is that correct?
 7 A. That's correct, yes.
 8 Q. Is there anything more you want to say on that, because
 9 what I was going to do next is try and take you to
 10 perhaps something that looks more like a normal example
 11 of what happened on the project?
 12 A. No, I don't need to add to that, I don't think.
 13 Q. Okay.
 14 Well, let's look at another example. Let's turn up
 15 {SEA00013221}. If we look at the one at the bottom of
 16 the first page, 29 May 2015, and you address it to
 17 Simon Lawrence but address your email to Neil Crawford.
 18 You've copied in others as well, including
 19 Daniel Anketell-Jones, and you say:
 20 "Neil,
 21 "Please find attached drawings for the Crown element
 22 for approval."
 23 Yes?
 24 A. Yes, that's right.
 25 Q. And then we can see in the top that on 12 June,

2

1 Neil Crawford comes back to you, copying in the same
 2 individuals :
 3 "Hi Kevin
 4 "Please find attached comments on the Crown
 5 drawings."
 6 So he has now commented.
 7 If we can turn to the attachment to that email, this
 8 is {RYD00043547/4}. So I think what we're looking at
 9 here -- correct me if I'm wrong -- is some detailing at
 10 the very top of the building; is that right?
 11 A. That's right, just under the crown, yes.
 12 Q. Just under the crown. And we can see that it had had
 13 the "Issued for approval" stamp on there, that's the
 14 other stamp that we mentioned yesterday.
 15 A. That's correct, yes.
 16 Q. I can now take you to this example of it.
 17 A. That's normal, yes.
 18 Q. So that would normally come first from you --
 19 A. Yes.
 20 Q. -- when it was going over to the architects?
 21 A. Yes.
 22 Q. And then later you would get the "Approved for
 23 construction" stamp, that was your practice?
 24 A. That's it, following a response from the architect where
 25 it's either B or an A and there's clear comments.

3

1 Q. Now, I think this drawing is a rev 0; is that correct?
 2 A. That's correct, yes.
 3 Q. Can you help us as to what that means, or what that
 4 meant?
 5 A. That means that's the very first issue of that drawing.
 6 Q. Yes. So you haven't had any previous version of it
 7 yourself or through Studio E?
 8 A. No, no.
 9 Q. And that was entirely your drawing, was it?
 10 A. It's based on Neil Crawford's designs, yes.
 11 Q. Yes. I see. And we can see that Neil Crawford has
 12 stamped the drawing with a B.
 13 A. Yes.
 14 Q. "Conforms to design intent subject to incorporation of
 15 comments. Revise and resubmit for category A status."
 16 A. Correct.
 17 Q. We can see his comments in red and the bubbles.
 18 A. Yes.
 19 Q. "Existing roof parapet requires to be surveyed and metal
 20 copings/flashing to fit over."
 21 Is that correct?
 22 A. Yes.
 23 Q. Now, just taking this drawing through its story, if we
 24 now turn to {SEA00013262}, we can see from the bottom
 25 email that on 1 July you send to Simon Lawrence

4

1 an email, copying in Neil. I think we'll see in
 2 a moment, we see up the page, that you copy in the wrong
 3 Neil to start with.
 4 A. Yes.
 5 Q. And then you copy in the right Neil, but I think you're
 6 addressing this to Neil Crawford; is that right?
 7 A. That's correct, yes.
 8 Q. You say:
 9 "Neil,
 10 "Please find attached revised coping detail to the
 11 Crown element.
 12 "If you could have a quick look and pass your
 13 comments, we shall then reissue the whole of this
 14 element for construction, based upon your previous
 15 approvals.
 16 "Having a shorter coping will allow it to run
 17 between columns being far more tidy ..."
 18 Et cetera.
 19 So that was your email to him, and then it is
 20 eventually copied, if we scroll up the screen, it goes
 21 to the right Neil Crawford.
 22 A. Yes.
 23 Q. And then we see that Mr Crawford responds at 19.03 on
 24 the same day, later that same day, and he attaches
 25 another drawing. If we can turn to that, this is

5

1 {SEA00013263}. Here we've got the window head/coping;
 2 is that right?
 3 A. That's correct. That's the same drawing again. It's
 4 been revised. Yes.
 5 Q. And we've now got status A, "Conforms to design intent",
 6 and we've still got the "Issued for approval" stamp at
 7 this stage.
 8 A. Yes.
 9 Q. Now, if we carry on with the story of this drawing, if
 10 we now turn to {HAR00004443}, on 26 August 2015, 17.33,
 11 you send an email:
 12 "Neil,
 13 "Main entrance adjusted as per your further comments
 14 this morning."
 15 Don't worry about that because that's about the main
 16 entrance, but then you say:
 17 "Cladding [drawing] just with additional set out
 18 info for the installers."
 19 Do you see that there?
 20 A. Yes, I do.
 21 Q. We think it's that comment that is relevant to this
 22 drawing.
 23 A. Okay.
 24 Q. So then we get Neil Crawford on 28 August responding
 25 saying:

6

1 "Hi Kevin
 2 "No further comments as attached."
 3 If we can look at the attachment, this is
 4 {SEA00003310/3}, and we can now see that this has got to
 5 revision B of this drawing.
 6 A. Yes.
 7 Q. Is that correct?
 8 A. That's correct, yes.
 9 Q. We see that from the little box at the bottom on the
 10 left.
 11 A. Yes.
 12 Q. And we've got "Conforms to design intent" on that
 13 revision B of the drawing.
 14 A. Yes.
 15 Q. So he's happy with it.
 16 A. Yes, yes.
 17 Q. And it's marked status A. It would appear to us that it
 18 was that drawing that was then issued for construction.
 19 A. Right. That's right.
 20 Q. So is that example more representative of the approval
 21 process that you were going through on the project to
 22 get from the drawings that Studio E had sent or the
 23 Harley discussions you'd had at the beginning through
 24 the design process, through to something being issued
 25 for construction?

7

1 A. Totally, yes.
 2 Q. Thank you, that's helpful.
 3 Who, in your view, had ultimate responsibility for
 4 checking and approving the drawings you were producing?
 5 Who did the buck stop with?
 6 A. The architect.
 7 Q. Right. And that would be consistent with what we've
 8 just looked at and your understanding of the process?
 9 A. That's correct, yes.
 10 Q. Can we now turn to look at another example. This is
 11 {HAR00004590}. This is an email from you to
 12 Simon Lawrence on 20 October 2015, and you've copied in
 13 a number of other individuals there, including
 14 Daniel Anketell-Jones, Mark Stapley, Ben Bailey. You
 15 write:
 16 "Neil,
 17 "Please find attached GF Curtain wall elements for
 18 comment/approval."
 19 Can you help us with what the "GF" means?
 20 A. Ground floor.
 21 Q. Now, one of those drawings, it's in the second line of
 22 the attachments in the middle, is C1059 GA Model 50 223.
 23 Do you see that there?
 24 A. Yes.
 25 Q. If we turn to that drawing -- this is at

8

1 {SEA00003316} -- we can see that this does not have any
 2 red Studio E stamp, as Mr Crawford appears not yet to
 3 have reviewed it; however, in the bottom right-hand
 4 corner we can see "Approved for construction".
 5 A. That's correct, yes.
 6 Q. Do you know, can you help us as to why this drawing was
 7 marked "Approved for construction" before Studio E or
 8 Rydon had looked at it?
 9 A. That was simply a clerical error.
 10 Q. A clerical error?
 11 A. Yes. What we tend to do is, when we're producing
 12 drawings, we'll copy a drawing boarder to a clean space
 13 on the drawing model, put the drawing in the drawing
 14 boarder, and in this particular instance I must have
 15 copied the incorrect stamp.
 16 Q. Yes.
 17 A. I don't think it would have caused any confusion with
 18 anyone.
 19 Q. So should the stamp that should have been on here have
 20 been the "Issued for approval" with the dotted line on
 21 it?
 22 A. Definitely.
 23 Q. Mr Crawford then replies, to keep following this story
 24 through, to the email you sent. If we turn to
 25 {HAR00004669}, we see him coming back to you on

9

1 22 October:
 2 "Hi Kevin
 3 "Please see attached comments on ground floor."
 4 He's attached some drawings and one of them is the
 5 one we were looking at, drawing 223. If we go to
 6 {HAR00004670/3}, is that the same drawing?
 7 A. It is, yes.
 8 Q. And we can see here that Mr Crawford has made a number
 9 of comments and suggestions on the drawing, and he's
 10 marked it status B; yes?
 11 A. Yes.
 12 Q. You then respond to Mr Crawford's email, this is
 13 {HAR00004743}. You respond on 26 November 2015 and you
 14 say to him:
 15 "Neil,
 16 "Please find attached GF [ground floor] curtain wall
 17 drawings, revised in accordance with your comments."
 18 And you've given a number of notes.
 19 A. Yes.
 20 Q. Including relating to 223, which would have been covered
 21 in the "222 to 228"; is that correct?
 22 A. Yes.
 23 Q. In the attachments we can also find that drawing, and
 24 it's now 223A. It's the second line from the bottom on
 25 the right-hand side --

10

1 A. Yes.
 2 Q. -- we see the 223A.
 3 A. Yes.
 4 Q. So that's revision A of drawing 223.
 5 A. That's correct, yes.
 6 Q. But if we turn to {HAR00001999}, this appears to be
 7 an email of the same date as the one we just looked at,
 8 26 November, from Ben Bailey to someone called Mike and
 9 Lucy at AGF, Aluminium and Glass Façades Limited; is
 10 that right?
 11 A. Yes, yes, I'm aware of them.
 12 Q. I think they're a fabricator; is that correct?
 13 A. They are.
 14 Q. Ben Bailey is writing on the same day, and it's the same
 15 set of drawings:
 16 "Please see our construction issue drawings attached
 17 for Grenfell Tower."
 18 A. Yes.
 19 Q. You see that?
 20 A. Yes.
 21 Q. And the second email down in this chain is the email
 22 from you returning the revised drawings to Mr Crawford
 23 with his comments on.
 24 A. Yes.
 25 Q. But we've seen no receipt from Mr Crawford of an email

11

1 confirming the revisions are acceptable and stamping the
 2 drawing status A, had we?
 3 A. No, but he had stamped them status B.
 4 Q. Yes.
 5 Does this go to the point we were discussing
 6 yesterday that, in practice, it was common to take
 7 status B as: well, provided you incorporate those
 8 comments, this is approved?
 9 A. That's correct, and by the virtue of the email that
 10 returned those drawings, we were quite clear in which of
 11 his comments we couldn't fulfil.
 12 Q. Right.
 13 A. There was a list of areas --
 14 Q. So when you went back with your comments --
 15 A. Yes.
 16 Q. I see. But that dialogue hasn't necessarily ended, has
 17 it?
 18 A. I don't recall, but ...
 19 Q. Would you agree that it would be best practice to wait
 20 for Mr Crawford to return having marked the drawings as
 21 status A?
 22 A. I think Ben was being proactive. I think at this stage
 23 he was getting prices from AGF.
 24 Q. Yes.
 25 A. So I'm sure he would have checked that we're all fully

12

1 up to construction before placing the order.
 2 Q. So just to be clear on your evidence, is it your
 3 evidence that it was most common on this project to
 4 proceed to make the changes indicated by stamp B and not
 5 to send a document back for status A?
 6 A. It was always sent back, but we would actually start
 7 working on the status B.
 8 Q. Once you got the status B?
 9 A. Yes.
 10 Q. Thank you.
 11 Now, just on a topic of revisions after approval on
 12 drawings, again I think you touched on this yesterday --
 13 A. Yes.
 14 Q. -- and you said that, on occasion -- I think you said it
 15 happened on the Grenfell project --
 16 A. That's correct, yes.
 17 Q. -- that there would be further comments from the
 18 architect after you'd got what you felt was approval
 19 from them.
 20 A. That's correct, yes.
 21 Q. And if we look at paragraph 30 of your witness
 22 statement, {HAR00010419/7}, I think you've explained
 23 that to us. This is where, about five lines down,
 24 you've also explained the point about:
 25 "If a drawing was marked as status B that meant that

13

1 fabrication could proceed, taking into account the
 2 revision."
 3 A. That's correct, yes.
 4 Q. So you explain that to us in your witness statement.
 5 A. Yes.
 6 Q. I want to pick it up towards the end of that paragraph,
 7 two lines up from the bottom there. You say:
 8 "Once drawings were approved for construction,
 9 I would then produce fabrication drawings for the
 10 specific components. There were, however, times when
 11 a drawing had been approved for construction and the
 12 architects or Rydon changed their mind about an aspect
 13 of the external façade (such as the window configuration
 14 [and you give an example] ...) and there would be
 15 further revisions to the drawings."
 16 A. Yes.
 17 Q. How common was that on the Grenfell project?
 18 A. I think it was very rare.
 19 Q. Rare. So it wasn't something that was a problem?
 20 A. No. Often it incurred cost and programme implications,
 21 so the teams would ensure that this sort of thing
 22 wouldn't be -- it would only be an essential change.
 23 Q. Were there any other occasions when the process of
 24 checking and revision that you've outlined for us was
 25 not strictly followed?

14

1 A. Not that I can think of off the top of my head.
 2 Q. Yes.
 3 Now, in paragraph 31 {HAR00010419/8}, in the next
 4 paragraph, if we just read the first four lines, you
 5 say:
 6 "As can be seen from the drawings themselves,
 7 revisions to drawings were marked up with a letter,
 8 dated and described as they were made. These revisions
 9 generally reflected comments from the architects.
 10 However, there were revisions made later on in the
 11 process that were not submitted to the architects or
 12 Rydon for their comment."
 13 You go on to give an example of that and you talk
 14 about revision D of drawing C1059-302. You say a little
 15 bit further it was in the context of drawing up the
 16 fabrication drawings for the cladding panels, and it
 17 looked to you like the drawing could be improved
 18 aesthetically. You discussed this with Ray Bailey and
 19 it was decided to remove the return on the cladding
 20 facing the window and include an aluminium angle
 21 instead.
 22 Is that the aluminium angle that Mr Bailey explained
 23 to us in his evidence?
 24 A. No.
 25 Q. No, it's different, is it?

15

1 A. No, it was an aesthetic trim, from memory.
 2 Q. Can you just help us as to what the ...
 3 A. I think ... Right, I think it was to do with tolerancing
 4 of the panels. The cladding panels returned to the
 5 window, and you need a nice clean edge. Now, if there's
 6 a slight out of tolerance of the building which throws
 7 the windows slightly out of alignment, then you could
 8 get gaps.
 9 Q. Yes.
 10 A. And I believe these were sort of closure angles that
 11 were screwed to the window first so that any minor
 12 discrepancy would be totally hidden.
 13 Q. I see.
 14 A. Purely an aesthetic issue.
 15 Q. Yes. So is that a representative example, would you
 16 say, of the type of change that was made which wasn't
 17 run past the architect?
 18 A. That wasn't normal, and I think at this stage, because
 19 we're actually manufacturing panels, to stop
 20 manufacture, to run it past the architect, I think Ray
 21 certainly felt it was worth the risk that the architect
 22 wouldn't be happy. But I don't see how he could be
 23 unhappy with it because it was only improving the
 24 aesthetic quality of that joint.
 25 Q. Can you help us as to whether any other category of

16

1 drawings were not submitted to the architect for
 2 approval?
 3 A. Fabrication drawings weren't issued to him, only the GA
 4 drawings.
 5 Q. Yes, and is that in common with normal industry
 6 practice?
 7 A. That's correct, yes.
 8 Q. Did you ever have any concerns about drawings not being
 9 issued to the architects for approval on this project?
 10 A. No. None at all.
 11 Q. I now want to turn to a different topic, which is about
 12 the ACM Reynobond cladding.
 13 A. Okay.
 14 Q. We've touched on that a little bit when we talked about
 15 the guidance in this area and ADB, but I want to just
 16 return to this.
 17 If we pick this up in your witness statement at
 18 paragraph 20, this is {HAR00010419/5}, and we look in
 19 the fifth line down, it begins on the right-hand side,
 20 you say:
 21 "It had been decided, prior to my involvement in the
 22 project, that the cladding was going to be cassette and
 23 that ACM was the material to be used."
 24 A. That's correct, yes.
 25 Q. You see that there?

17

1 A. Yes.
 2 Q. Now, when you sit down to develop a design, do you agree
 3 you must first understand the design to date and the
 4 materials which are going to be used?
 5 A. Just bear in mind that my client was Harley, so I'm
 6 working under their instructions.
 7 Q. Yes.
 8 A. So where there's departures from the architect's
 9 concept, they're the ones telling me, "Right, we're not
 10 doing" -- in this instance I think the architect's
 11 drawings originally showed face-fixed cladding panels.
 12 Q. Yes.
 13 A. And Harley said to me, "No, I want you to draw cassette
 14 panels because it's been agreed over the previous period
 15 whilst working up the quotations".
 16 Q. Yes.
 17 Were you familiar with the Reynobond ACM product?
 18 A. I was reasonably familiar with the product in general,
 19 not necessarily Reynobond. I'd used Alucobond before,
 20 but it's a very generic product.
 21 Q. Were you aware at the time that the product was formed
 22 of two thin sheets of aluminium with a low density
 23 polyethylene, PE, core?
 24 A. No, I understood that it had a core and it was faced
 25 with aluminium skins, but I wasn't aware of the actual

18

1 properties of the core.
 2 Q. And you never asked anybody on the project, you know,
 3 "Just so I know, what is in the core?" You didn't ask
 4 that?
 5 A. No, all I knew was that it was to provide a lightweight
 6 composite panel. I had no reason to question it.
 7 Q. Did you have any idea what type of material might be in
 8 the core, for example that it was a thermoplastic?
 9 Would you have known that much?
 10 A. No. I mean, I assumed it was a plastic, but ...
 11 Q. You did make that assumption?
 12 A. Yes, yes, plastic or a resin-type material, but I didn't
 13 think any further than that.
 14 Q. Okay.
 15 Was it any part of your role to consider whether the
 16 ACM was appropriate, bearing in mind the Building
 17 Regulations and the associated guidance in ADB?
 18 A. No, not at all. But if I was concerned, I would have
 19 raised an issue.
 20 Q. Now, if we turn up the Harley specification, this is
 21 {RYD00046822}, these are the Harley specification notes.
 22 A. Yes.
 23 Q. We see at the bottom that revision A came on
 24 3 March 2015 and it was revised a number of times.
 25 We'll look at this again and again in your evidence

19

1 because we'll come to look at some of the other products
 2 that are on here. But just panning out again, looking
 3 at the whole document, was this document prepared by
 4 you?
 5 A. Yes, yes.
 6 Q. And can you just help us as to how you went about
 7 preparing these specification notes?
 8 A. Well, these are all the materials that I was instructed
 9 to use from the Harley team.
 10 Q. So was there any sense in which you yourself looked at
 11 the NBS specification and then transposed that into this
 12 or --
 13 A. No.
 14 Q. -- is this solely the product of discussions you'd had
 15 with Harley?
 16 A. No, if there was doubt from Harley, they might say,
 17 "Well, check the NBS". I don't recall them doing that
 18 in this case. I was told which materials would be used.
 19 Q. And would you be told verbally or would you be given
 20 a written instruction?
 21 A. No, verbally across the table at our design meetings.
 22 Our very first design meeting covered most of this.
 23 Q. So you would take notes of what you were being told --
 24 A. Yes.
 25 Q. -- and then you would put it into this; yes?

20

1 A. That's right, yes.
 2 Q. And who at Harley would you expect to check this?
 3 A. Dan and/or Ray, maybe Mark Stapley.
 4 Q. And what would you expect they would be checking for?
 5 A. That I've put their instructions down on the drawing
 6 correctly.
 7 Q. And checking that those materials were appropriate to
 8 use given the requirements of, for example, the Building
 9 Regulations?
 10 A. I'd been given the materials so I presume that was
 11 a process that they'd done prior to that point.
 12 Q. Yes.
 13 A. So at the point where they're checking my drawings,
 14 they're checking it against their instructions that
 15 they've given to me. They're not re-going over the
 16 conformance.
 17 Q. But just to be clear, it was your assumption, was it, at
 18 the time, that there would have been a process for
 19 selecting these materials within Harley and checking
 20 that they were compliant with relevant requirements?
 21 A. I don't know that that would necessarily have come from
 22 Harley, because there had been -- I don't know,
 23 certainly at least a year before I came on the scene
 24 they'd had many discussions with the client, the
 25 architect and whoever else. I mean, I don't know

21

1 exactly. So I can only assume that, in those
 2 discussions, someone has considered the conformance.
 3 Q. Right.
 4 Suppose the NBS specification was silent about the
 5 particular material to be used in a particular location,
 6 or perhaps only specified a performance specification
 7 and left the precise selection of that product to
 8 Harley, would you expect in those circumstances that
 9 somebody within Harley would have checked before telling
 10 you what the product was that it was compliant with
 11 relevant requirements?
 12 A. Yes, I guess so, yes.
 13 Q. Now, we can see also that this set of specification
 14 notes was issued to Studio E Architects, and Mr Crawford
 15 has marked it, "Conforms to design intent" there.
 16 A. Yes.
 17 Q. Status A.
 18 A. Yes.
 19 Q. Just to be absolutely clear, would you understand that
 20 that meant that Mr Crawford was satisfied that these
 21 products were appropriate to use on the building given
 22 the statutory requirements, including the Building
 23 Regulations?
 24 A. Yes, definitely. Definitely.
 25 Q. Okay. We're going to come back and look at this in

22

1 relation to some of the other specific materials, but
 2 for now, on the ACM panels, we can note right at the
 3 very top left that we see "System":
 4 "Metal Technology ... Hi thermally broken aluminium
 5 windows."
 6 And then:
 7 "Reynobond composite rainscreen cassettes."
 8 A. Correct, yes.
 9 Q. You see that there? So this specification does record
 10 the type of ACM that's to be used.
 11 A. That's correct, yes.
 12 Q. When you put this specification together and you put the
 13 Reynobond in there, did you look at the BBA certificate
 14 for the Reynobond panels? Was that any part of your
 15 role?
 16 A. No, not at all, no.
 17 Q. Were you aware that there was a BBA certificate for the
 18 Reynobond panels?
 19 A. It never crossed my mind, but a product of this
 20 prominence, you would imagine there would be one.
 21 Q. Yes.
 22 Had you ever seen a BBA certificate for those panels
 23 before on other jobs?
 24 A. No.
 25 Q. Can we just pull it up. This is at {BBA00000047}. So

23

1 it's from 2008, it's number 08/4510, and then if we can
 2 just pan out, we actually see the date on the bottom of
 3 this page, "Date of First issue: 14 January 2008". Can
 4 you see that there in the pale blue box?
 5 A. Yes, I get that.
 6 Q. So this certificate pre-dated the Grenfell project by
 7 some years.
 8 A. Yes.
 9 Q. Were you familiar with BBA certificates generally? Had
 10 you ever come across them in your design work before?
 11 A. I knew they existed.
 12 Q. Yes.
 13 A. But as a subcontractor draughtsman, it was never really
 14 my role to consider the contents to any degree.
 15 Q. So just to be clear, it was not part of your role to
 16 look at that certificate, check anything in it about the
 17 product before you put it on the specification notes?
 18 A. No, not at all.
 19 Q. Would you have expected somebody within Harley to have
 20 done that? So before they told you across the table,
 21 "The cassette panels are going to be Reynobond",
 22 would you have expected somebody within Harley to have
 23 looked at this BBA certificate and have understood the
 24 information it was conveying?
 25 A. I would expect a member of the team or members of the

24

1 team would have considered this when they were working
 2 up the materials. Now, I -- certainly at the time,
 3 I was not aware of who decided what materials were to be
 4 used. Harleys were telling me what they wanted to be
 5 used. Maybe they'd been told by the architect, maybe
 6 they'd been told by the builder. I don't know that.
 7 Q. Yes.
 8 If we look on within section 6 of this certificate
 9 {BBA00000047/5}, which is about fire performance. So
 10 there's a whole section on "Behaviour in relation to
 11 fire".
 12 I appreciate your evidence that you say it wasn't
 13 part of your role to look at this.
 14 A. Yes.
 15 Q. But what becomes apparent when you do read this is that
 16 there was something called a standard sample of the
 17 product, which we now know was the PE sample of the
 18 product, and in 6.2 it then talks about a fire retardant
 19 sample of the product.
 20 A. Yes.
 21 Q. Do you see that there?
 22 A. Yes.
 23 Q. Were you aware in general terms, when you were working
 24 on this project and putting together that spec, that
 25 there was a fire retardant version of these panels?

25

1 A. Not at all.
 2 Q. So that was not something you were ever told or not
 3 something discussed at the Harley meetings?
 4 A. No. I have used Alucobond products in the past and,
 5 again, I never knew that they had different grades.
 6 Q. You just didn't know that?
 7 A. No.
 8 Q. Let's just look at the initial order of the ACM. If we
 9 can turn to {CEP000000512}, this is an email. You're
 10 not a recipient or copied in to this email, but what we
 11 see here is it's Mark Stapley on 25 February 2015 to
 12 Geof Blades of CEP, copying in Ben Bailey, and it's
 13 about Grenfell Tower ACM panel requirements. He says:
 14 "Hi Geof,
 15 "Please find attached our cladding panels
 16 requirements for Grenfell Tower. Please can you provide
 17 us with your most competitive price and also confirm
 18 lead times."
 19 A. Yes, I see that.
 20 Q. You've seen that.
 21 We know that the ACM panels had been formally signed
 22 off by planning in September 2014. Can you help us as
 23 to why Harley didn't begin obtaining quotes for the
 24 fabrication of the panels until late February 2015,
 25 almost five months later?

26

1 A. I would guess at this stage they needed more finite
 2 dimensions of panels to get an accurate price.
 3 Q. I see. And so, what, they had to wait for your work to
 4 reflect that?
 5 A. That's correct, yes. Whether it was preliminary or --
 6 I wouldn't have thought it was finalised at this stage,
 7 but we must have had a --
 8 SIR MARTIN MOORE-BICK: Is that something you know about or
 9 is that just your own sort of speculation?
 10 A. Yes, to be fair, it's speculation, but it is normal.
 11 MS GRANGE: Yes, okay.
 12 Can we turn to the attachments that Mr Stapley
 13 included with that email. This is "ACM Panel
 14 Requirements", {CEP000000513}. So here we have the
 15 requirements that are being sent to CEP, and I think if
 16 we look in the bottom right-hand corner, we can see this
 17 is a drawing dated 16 February 2015, and we've got your
 18 little lamb symbol and KVL.
 19 A. Yes.
 20 Q. Does that mean you drew this?
 21 A. I certainly did.
 22 Q. You put this drawing together?
 23 A. Yes.
 24 Q. So this is your work.
 25 Then slightly to the left of that, we can see that

27

1 the specification -- sorry, if we can just pan out
 2 again, we see there in the middle at the bottom it says,
 3 "Material: Reynobond", and then, "Finish: smoke silver
 4 metallic Duragloss 5000 satin".
 5 A. Correct.
 6 Q. So that's the material you were told to put on there and
 7 you wanted to use --
 8 A. That's correct.
 9 Q. -- or Harley wanted to use.
 10 And turning to page 4 {CEP000000513/4}, there's
 11 a list of notional material requirements.
 12 A. Yes.
 13 Q. Again, is that something you would put together?
 14 A. In this case I did, yes.
 15 Q. Yes. So you put this list together?
 16 A. Yes. I can't remember whether it was Mark Stapley, but
 17 I was asked to produce an approximate list of
 18 requirements so materials could be pre-ordered, or maybe
 19 it was for costing purposes. I don't recall exactly.
 20 Q. Yes.
 21 What we note is that in neither case, neither in the
 22 drawing nor here, does it mention what the core of the
 23 ACM would be; it just says Reynobond and then we get the
 24 finish.
 25 A. That's correct. As I understand it, Harley were in

28

1 discussions with CEP, and they all knew the material
 2 that was going to be used.
 3 Q. Would it be normal in your experience for these kind of
 4 details, fabrication details, not to specify the core to
 5 be used in an ACM panel on these kind of drawings or
 6 specifications?
 7 A. No, I mean, not necessarily. I mean, certainly from my
 8 point of view, I wasn't aware that there were different
 9 cores, no one raised that with me, and I would expect
 10 CEP, if there was any confusion, they would say, "Well,
 11 what core do you want on this?"
 12 Q. Yes.
 13 A. And they would be keen to provide this with the most
 14 expensive core, obviously.
 15 Q. You began that answer with, "No, not necessarily". My
 16 question was: would it be normal in your experience for
 17 these kind of details, including fabrication details,
 18 not to specify the core to be used in an ACM panel?
 19 Can I ask it this way: have you been involved in
 20 other projects where the core has been specified?
 21 A. No.
 22 Q. No?
 23 A. No. I've done very little ACM, certainly as far as
 24 fabrication drawings are concerned, to this degree.
 25 But, no, I've never specified the core.

29

1 Q. Pulling it back from ACM, would you expect these kind of
 2 details to be very specific about the composition of,
 3 say, a composite product and exactly what was being
 4 requested?
 5 A. Quite often there are elements missing on drawings which
 6 are discussed at the point of purchasing. Certainly
 7 with Harley they were very close with CEP, and I was
 8 well aware that there had been many discussions between
 9 the two parties way before I was employed, so I'd be
 10 very surprised if there was any confusion on that point,
 11 but ...
 12 Q. Okay.
 13 Sticking with the ACM, can we now turn to another
 14 email. This is {HAR00006585}. This is an email that
 15 Mr Anketell-Jones sends to Ray Bailey. It's just the
 16 two of them on this email chain, so you're not
 17 a recipient and you're not copied in, just to be clear.
 18 It's on 27 March 2015, and they've been discussing the
 19 requirement for fire barriers or cavity barriers at the
 20 tower, and what the rating was and whether it was
 21 a requirement for firestopping or for cavity barriers.
 22 A. Yes.
 23 Q. You're nodding; does that mean you're familiar with this
 24 line of emails?
 25 A. No, no, no. I'm agreeing with what you're saying.

30

1 Q. I see, yes.
 2 What I want to ask about is the second line in this.
 3 Daniel Anketell-Jones said:
 4 "There is no point in 'fire stopping', as we all
 5 know; the ACM will be gone rather quickly in a fire!"
 6 Do you see that there?
 7 A. I can see that, yes.
 8 Q. Now, did Mr Anketell-Jones ever say anything similar to
 9 you about ACM, whether on the Grenfell project or on
 10 other projects?
 11 A. No, not at all.
 12 Q. Had it been said to you, would you have agreed with what
 13 was said there, "the ACM will be gone rather quickly in
 14 a fire"?
 15 A. Not if you read it as it's said literally, no,
 16 I wouldn't agree with that.
 17 Q. So how would you read it?
 18 A. This is -- should I be interpreting this?
 19 SIR MARTIN MOORE-BICK: That's a very good question.
 20 MS GRANGE: I take your point.
 21 SIR MARTIN MOORE-BICK: I don't think Mr Lamb is an expert
 22 on these --
 23 MS GRANGE: I understand that, I just wanted to know if he'd
 24 ever had a conversation with anyone about the ACM and
 25 how it would perform in a fire during the project.

31

1 A. No.
 2 Q. And the answer I think is no, so I'll move on.
 3 I just want to ask now about informal meetings that
 4 you might have had with Studio E and RBKC
 5 Building Control.
 6 A. Yes.
 7 Q. So Mr Crawford, when he gave evidence to the Inquiry,
 8 stated that there were a number of informal workshops
 9 with RBKC Building Control where drawings were
 10 discussed.
 11 Now, did you ever meet any of the RBKC
 12 Building Control officers on the project?
 13 A. No, not at all.
 14 Q. So those can't have involved you?
 15 A. No.
 16 Q. Fine.
 17 It would follow, therefore, that you couldn't have
 18 met Mr John Hoban on the project or discussed with
 19 him --
 20 A. No, definitely not.
 21 Q. -- the materials for the project?
 22 So I now want to ask you about the insulation
 23 product that was used behind the spandrel and column
 24 rainscreen panels at Grenfell.
 25 Now, we've already discussed the NBS specification.

32

1 We know that the NBS specification featured a product
 2 called Celotex FR5000 as the insulation product.
 3 A. Yes.
 4 Q. Were you aware of that at the time of working on the
 5 Grenfell project, that the product in the NBS was
 6 FR5000?
 7 A. I don't know whether I even saw that. I mean, I was
 8 told at a point later on in the project that we were
 9 using the RS, but I don't think it ever struck me that
 10 that was contrary to the FR.
 11 Q. Let's just look at that briefly in the
 12 NBS specification. If we go to {SEA00000169/73}, and
 13 it's item 776. So, again, this was part of the H92
 14 section, the rainscreen cladding section of the
 15 NBS spec.
 16 A. Okay.
 17 Q. We can see in the second bullet point down the
 18 manufacturer was Celotex Limited, and a little bit
 19 further down is an indented dash and it says:
 20 "Product reference: FR5000 aluminium foil faced both
 21 sides."
 22 A. Yes.
 23 Q. Does that help as to whether or not you saw that at the
 24 time?
 25 A. No, no, I don't recall seeing it. But it was

33

1 unimportant because I was given the material that was
 2 going to be used.
 3 Q. Just to be clear, you have no memory of ever being aware
 4 that the original product specified was an FR5000
 5 product?
 6 A. I don't believe so. I mean, I might have seen it on
 7 some of his drawings. I don't know if he called it
 8 FR5000 on his drawings -- this is Neil.
 9 Q. I don't think we see it on the Studio E drawing. We
 10 don't think that it was marked as FR5000.
 11 A. But, no.
 12 SIR MARTIN MOORE-BICK: Presumably from a drawing point of
 13 view it doesn't really matter, does it?
 14 A. Not at all, no.
 15 MS GRANGE: Now, we know that the product was later changed
 16 to RS5000 and that was the insulation product used on
 17 the tower.
 18 When you joined the project in August 2014, we know
 19 your first meeting with Ray Bailey and
 20 Daniel Anketell-Jones was on 12 August 2014.
 21 A. Yes.
 22 Q. Were you told at that point that the product was going
 23 to be a Celotex product?
 24 A. I don't recall if they actually said it was going to be
 25 Celotex. I was told that it was going to be a rigid

34

1 insulation.
 2 Q. Yes.
 3 A. So I would assume a Celotex or a Kingspan-type product.
 4 But thermal calculations had to be done to determine the
 5 actual product.
 6 Q. Who was doing those thermal calculations?
 7 A. As I understood, Dan.
 8 Q. Dan Anketell-Jones?
 9 A. Yes.
 10 Q. Did you ever discuss with Dan Anketell-Jones that there
 11 was a new product that had come on to the market? Did
 12 he ever discuss that with you?
 13 A. No.
 14 Q. That was called RS5000?
 15 A. No.
 16 Q. Or that there was a change that they were making from
 17 one Celotex product to another?
 18 A. No, not at all.
 19 Q. Now, looking at paragraph 49 of your witness
 20 statement -- this is {HAR00010419/13} -- in the middle
 21 of that paragraph -- sorry, just to pick it up, you've
 22 been asked the question at 4d:
 23 "Was the exterior of the building (including the
 24 cladding, insulation ...) compliant with relevant
 25 building regulations, fire regulations ..."

35

1 And in the middle there, three lines down, you say:
 2 "In particular, the cladding was Class 0, the
 3 insulation was suitable for use on buildings over 18m
 4 (according to the Celotex Rainscreen Cladding Compliance
 5 Guide) ..."
 6 Do you see that there?
 7 A. Yes.
 8 Q. If we also look at paragraph 54 of your witness
 9 statement on page 14 {HAR00010419/14}, if we can look at
 10 54 and blow that up, you say:
 11 "My involvement came after the choices had already
 12 been made about the cladding and insulation materials
 13 and I cannot comment on advice, information or
 14 assessments about these. Although, as stated above,
 15 I do recall reading the Celotex Rainscreen Cladding
 16 Compliance Guide."
 17 A. Yes.
 18 Q. Do you see that there?
 19 A. Yes.
 20 Q. So can you help us, why would you have been reading the
 21 Celotex Rainscreen Cladding Compliance Guide?
 22 A. I had to consider how it was going to be fixed to the
 23 building.
 24 Q. Yes.
 25 A. So I wasn't reading it to the Nth degree; I was looking

36

1 for tables showing how many fixings and the types of
 2 fixings .
 3 Q. Yes.
 4 A. So it was from a structural point of view, to make sure
 5 it was fixed to the building properly.
 6 Q. Let's pull up that guide. This is {CEL00002047}.
 7 Now, that's what we think is the Rainscreen Cladding
 8 Compliance Guide. Is that the guide that you read, as
 9 far as you were aware?
 10 A. Possibly, yes.
 11 Q. Yes.
 12 A. I remember a pink guide with "Using Celotex over
 13 18 metres" written on the front of it .
 14 Q. Yes. If we go on to page 2 {CEL00002047/2}, at the top
 15 of the page, you see:
 16 "This document provides guidance on complying with
 17 Approved Document B ... for external wall ... It
 18 provides a step by step guide to an alternative route to
 19 compliance for AD B2 through meeting the performance
 20 criteria set out in BR 135 through testing to
 21 BS 8414 ..."
 22 Do you see that there?
 23 A. Yes.
 24 Q. Is your evidence that you simply wouldn't have been
 25 reading it or --

37

1 A. I wasn't checking for compliance.
 2 Q. -- for that kind of information?
 3 A. Not at all , no.
 4 Q. Did you ever have any discussions with anybody within
 5 Harley about anything that was said in this compliance
 6 guide in terms of compliance?
 7 A. Not at all , no.
 8 Q. Kingspan K15, if we look at paragraph 42 of your witness
 9 statement, {HAR00010419/11}, paragraph 42 you say:
 10 "The insulation was Celotex RS5000 rigid slabs , and
 11 was cut to suit on site . However, I am aware that some
 12 Kingspan was used because of an interruption in supply
 13 of the Celotex ."
 14 You see that there?
 15 A. I do, yes.
 16 Q. When you say you were aware, were you aware at the time
 17 that you were working on the project that some Kingspan
 18 was used because of an interruption in the supply?
 19 A. Yes.
 20 Q. Can you help us as to when you became aware of that?
 21 A. I think there was a point where I happened to be in the
 22 office at Harley, and Ben was quite unhappy because his
 23 supplier had just told him at that point that they
 24 couldn't provide him the Celotex because of some kind of
 25 interruption with supply.

38

1 Q. Yes. Can you help us as to when that might have been on
 2 the project? I know it's difficult because it was
 3 a long time ago, but any idea --
 4 A. Well, you would have to check through the purchase
 5 orders, and it would be days before he ordered the
 6 Kingspan, I would imagine.
 7 Q. Yes.
 8 A. It wasn't -- I don't think it was a long time in
 9 advance.
 10 Q. Yes.
 11 A. He obviously got -- he found that out because he was
 12 trying to order the Celotex to go to site , so ...
 13 Q. We've checked and I believe I'm right in saying there
 14 was a purchase order in May 2015, and then some
 15 indication in one of the Rydon statements that some K15
 16 was authorised later that year as well in October 2015.
 17 A. Right. Sounds right.
 18 Q. So we're still a little bit unclear about the history of
 19 this .
 20 Was it your understanding that K15 had to be ordered
 21 on more than one occasion because of an interruption
 22 with the Celotex supply chain?
 23 A. I could tell you no more than I've just told you.
 24 Q. Okay.
 25 When Ben was saying he was really unhappy and that

39

1 he wasn't going to get the Celotex, was anybody else in
 2 the office at the same time, do you recall?
 3 A. It was a relatively open office .
 4 Q. Yes.
 5 A. I couldn't honestly say who was there, but it wasn't
 6 just me and Ben.
 7 Q. Can you help us as to whether any assessments or
 8 investigations happened at that point about the
 9 compliance of the K15 for use on the Grenfell project?
 10 A. I wouldn't know about that.
 11 Q. You can't help us with that?
 12 A. Not at all .
 13 Q. We know and we saw earlier that Rockwool Duo Slab
 14 mineral wool insulation product had been used on
 15 previous Harley projects, including Ferrier Point.
 16 A. Yes.
 17 Q. Were you ever involved in any discussions about Rockwool
 18 and why a different insulation product was being used
 19 from mineral wool on the Grenfell project?
 20 A. I think at the time when Dan was doing the thermal
 21 calculations , it may have been mentioned that Rockwool
 22 wouldn't be used because of the maximum zone we had to
 23 fill , which was why we were going with the rigid
 24 insulation .
 25 Q. I see. But that was the only time that came up, as far

40

1 as you were aware?

2 A. Yes, and it's only a comment in passing.

3 Q. Yes.

4 Can we go back now to the Harley specification for
5 the project, {RYD00046822}, which we looked at not that
6 long ago. We can see that this document -- we saw it
7 earlier -- was revised a number of times, and when we
8 get to the window infill panels we'll look at some of
9 the revisions.

10 Can you help us as to why the insulation behind the
11 rainscreen cassettes is never outlined in these
12 specification notes?

13 A. Right, well, that's clearly an oversight, but I think
14 the reason it didn't go on there in the first place is
15 because thermal calculations were still being done, so
16 the final thickness and composition had not been agreed.
17 And then I obviously produced this and it slipped under
18 the net, it never ended up on the drawing.

19 Q. I see. So you think it was an oversight rather than
20 a deliberate decision not to include it in the
21 specification?

22 A. Oh, definitely. Yeah, definitely an oversight, and
23 I don't think anyone was unclear as to the material that
24 was being used.

25 Q. Whose responsibility would it have been to have picked

41

1 up that the insulation wasn't in the specification
2 notes, do you think?

3 A. It was my responsibility to put it on there, and then
4 you would expect the team to pick it up and maybe even
5 the architect to pick it up. But, as I said, as it was
6 an oversight and everyone knew the material that was
7 being used, I don't think there was any concerns there.

8 Q. Yes. You see, when this document is used
9 subsequently -- and I appreciate you weren't involved in
10 this -- for example sent to Building Control, it
11 wouldn't have told them what the insulation product was.

12 A. No, but I would guess datasheets would have been issued,
13 would they not?

14 Q. Well, I think you're guessing at that.

15 A. Yeah.

16 Q. I think we'll stop there.

17 Can you also help us, if you go within this same
18 document to some of the drawings that are attached to
19 it, if we look, for example, at page 4 {RYD00046822/4},
20 where you've drawn the insulation, you've used that
21 wiggly line.

22 A. Yes.

23 Q. Do you agree that that is known in some quarters as
24 a symbol for mineral wool insulation?

25 A. No, it's a generic hatch pattern for insulation.

42

1 Q. So you don't agree or you don't accept that that's

2 telling you a bit more than that, that it's telling you
3 it's a mineral wool insulation?

4 A. No. No, I don't think anyone read that assuming that
5 was mineral wool.

6 Q. If we look at a drawing from Ferrier Point. If we go to
7 {SEA00002678}, this is a drawing from Ferrier Point.
8 Sorry, it's on its side. That's great, yes. This is
9 a previous Harley project. We know you were sent some
10 details of this project right at the very beginning.

11 A. Yes.

12 Q. The point I want to discuss with you is here, on this
13 drawing -- which is a pretty detailed drawing, I think
14 it's a 1:2 drawing; yes?

15 A. Yes.

16 Q. We do get the type of insulation labelled on the
17 drawing, "2 layers of 100mm Rockwool Duo Slab rigid
18 insulation".

19 A. That's correct, yes.

20 Q. Can you help us as to why, for example, we see that on
21 the Ferrier Point drawings, but we can't see in any of
22 the Harley drawings for Grenfell any label identifying
23 the insulation by name?

24 A. The materials would all be listed on the drawing 100.

25 Q. On the drawing 100?

43

1 A. Yes, the specification drawing we were looking at just
2 before this.

3 Q. But I think you accepted that the insulation wasn't
4 there, was it?

5 A. Yes, that's an oversight.

6 Q. That's an oversight, I see. But not only do we not see
7 it listed in the specification notes, we can't ever see
8 any labels in any of the Grenfell drawings -- correct me
9 if I'm wrong -- where you have indicated in a label what
10 the nature of the insulation was.

11 A. Yes, no, quite often on -- well, on virtually every job,
12 actually, we tend to label as little as possible,
13 because if there are changes, then you have to change
14 every single drawing rather than change one drawing. So
15 if the architect says, "Okay, we're not using Celotex,
16 we're using Kingspan", I would have to change every
17 single drawing as opposed to just one drawing.

18 Q. Yes, I see. So what you're saying is it's that key,
19 it's that specification list that tells you, for
20 example, that it's Reynobond panels, and it should have
21 told us that it was RS5000 Celotex insulation, and
22 that's your guide to the rest of the drawings?

23 A. That's correct, yes.

24 Q. And you can't help us as to why someone has done
25 something different here at Ferrier Point by actually

44

1 labelling the insulation?
 2 A. Different draughtsmen, different ways they work.
 3 Q. Yes.
 4 Cavity barriers, if we can move to that subject now.
 5 At the time of the Grenfell project, were you aware
 6 of Building Regulation functional requirement B3.(4),
 7 that the building shall be designed and constructed so
 8 that the unseen spread of fire and smoke within
 9 concealed spaces in its structure and fabric is
 10 inhibited? Were you aware of that?
 11 A. That's correct, yes.
 12 Q. What was your understanding of the distinction between
 13 a cavity barrier and a firestop?
 14 A. A firestop goes on the inside of the building; a cavity
 15 barrier goes in the external cavity.
 16 Q. Right.
 17 If we can look at Approved Document B, this is
 18 {CLG00000224/82}. So this is section 9. We looked
 19 before at section 12 of ADB, but we see cavity barriers
 20 are dealt with in detail in section 9, is that
 21 correct --
 22 A. Yes.
 23 Q. -- of ADB? Were you aware of that at the time of the
 24 Grenfell project?
 25 A. Yes.

45

1 Q. We see in 9.1 that there's a general warning about
 2 concealed spaces and cavities, and in the final sentence
 3 it says:
 4 "As any spread is concealed, it presents a greater
 5 danger than would a more obvious weakness in the fabric
 6 of the building."
 7 A. Yes.
 8 Q. Then it says:
 9 "Provisions for cavity barriers are given below for
 10 specified locations."
 11 And we get diagram 33 of ADB. Can we just have
 12 a look at that there.
 13 Do you agree with me that diagram 33 is clear that
 14 window openings should be closed with cavity barriers?
 15 A. In this instance it is, yes.
 16 Q. When you say, "In this instance it is", what does that
 17 mean?
 18 A. Well, this is a multi-purpose diagram.
 19 Q. Yes.
 20 A. I think when you first read this, as it's in section B3,
 21 that applies to internal spread of flame. So I would
 22 look at that and see that as being a cavity wall
 23 construction, cavity barriers required between the skins
 24 of brickwork.
 25 Q. Right.

46

1 A. Okay, when you get to B4, it does refer back to this
 2 diagram.
 3 Q. Yes, 12.10.
 4 A. And I think the diagram could be far clearer if it's
 5 really to apply to external spread.
 6 Q. I see.
 7 I appreciate this seems to be a standard
 8 masonry wall-type construction in this diagram, but why
 9 can't we extrapolate out from this into a rainscreen
 10 construction? Just looking at the window detailing,
 11 isn't it quite easy to transpose those little grey
 12 cavity barrier lines below and above the window into the
 13 cavity we have in a rainscreen?
 14 A. Yes, yes.
 15 Q. Yes.
 16 A. Yes.
 17 Q. Did you consider at the time of your work on the
 18 Grenfell project that diagram 33 would have some
 19 application to the work you were doing?
 20 A. Yes, to a degree, yes.
 21 Q. Yes. And if we can look at paragraph 9.3 of ADB, which
 22 I think is on the next page, {CLG00000224/83}, at the
 23 top of that page, under "Junctions and cavity closures",
 24 it says at 9.3:
 25 "Cavity barriers should be provided to close the

47

1 edges of cavities, including around openings."
 2 Do you see that there?
 3 A. Yes.
 4 Q. Again, I put this to Mr Anketell-Jones and I want to put
 5 it to you: it couldn't be clearer, could it, certainly
 6 in this part, that cavity barriers needed to be provided
 7 around openings?
 8 A. That's correct, yes.
 9 Q. Prior to starting on the Grenfell project, was that your
 10 understanding --
 11 A. I understood --
 12 Q. -- of the basic position, that cavity barriers should be
 13 provided around window openings?
 14 A. Yes, as one route to compliance, yes.
 15 Q. When you say "as one route to compliance", what does
 16 that mean?
 17 A. There are many routes to compliance.
 18 Q. Does that mean that you could get a fire-engineered
 19 solution by a fire engineer which designs your external
 20 wall in a way that's different to ADB but still meets
 21 the functional requirements of the Building Regulations?
 22 A. Definitely, yes.
 23 Q. On the Grenfell project, did you think that you were
 24 following Approved Document B and the main guidance that
 25 you had, or did you think there had been a holistic

48

1 fire-engineered approach to that external wall?
 2 A. I didn't give it a vast amount of thought, but I did
 3 know that the architect was backed up with a fire
 4 engineer.
 5 Q. I see. So are you saying that you --
 6 A. We followed the architect's advice.
 7 Q. Yes, I appreciate that, but are you saying that you did
 8 think that there might well be a fire-engineered
 9 approach for Grenfell?
 10 A. Yes.
 11 Q. We'll look at it in a minute. We know that when you
 12 talk about, in paragraph 50 of your statement
 13 {HAR00010419/13}, the research you did on cavity
 14 barriers when you were looking for assistance about
 15 their rating --
 16 A. Yes.
 17 Q. -- you did consult ADB.
 18 A. Yes.
 19 Q. I'd suggest to you that that might indicate that you did
 20 think ADB was applicable and that there wasn't a special
 21 fire-engineered solution.
 22 A. I was getting very little feedback from the rest of the
 23 team and that is my only real point of call, to research
 24 from the ADB.
 25 Q. Yes.

49

1 Were you ever told in terms, "By the way, we're not
 2 following ADB, we've got our own design here, it's
 3 different, don't worry about it"? Were you ever told
 4 that?
 5 A. No, no, I was always told to follow the architect's
 6 drawings.
 7 Q. I see.
 8 Did you think that there might be any difficulties
 9 complying with diagram 33 and section 9 on cavity
 10 barriers on the Grenfell project?
 11 A. Any difficulties? In what way?
 12 Q. Well, take windows.
 13 A. Yes.
 14 Q. Did you ever consider that what you were doing at
 15 Grenfell made it difficult for you to comply with the
 16 requirement for cavity barriers around windows?
 17 A. Yes, because of the shape of the cladding, there wasn't
 18 a simple way of sealing the perimeter adequately.
 19 Q. Was it your objective to seal the perimeter of the
 20 windows? Is that what you set out to do?
 21 A. No, not at all, because the architect's drawings didn't
 22 show that.
 23 Q. Right.
 24 A. But it's quite clear, because of the design of the
 25 building, it wasn't a simple solution, so one would

50

1 imagine that the architect had taken steps to consider
 2 another solution. This may well have been
 3 a fire-engineered solution.
 4 Q. Right.
 5 Did you ever query expressly with the architect and
 6 say, "Can you just help us, are we putting cavity
 7 barriers around the windows and, if so, where?" Did you
 8 ever have that conversation with them?
 9 A. Not specifically, no, but it was raised internally and
 10 we did start various email trails on that.
 11 Q. Now, let's look at what Studio E's drawings showed in
 12 terms of cavity barriers.
 13 Just before we do that, I just want to look at
 14 paragraph 19 of your witness statement, {HAR00010419/4}.
 15 In paragraph 19 you say:
 16 "In terms of the Studio E drawings I was sent,
 17 I believe I would have paid most attention to the
 18 following drawings ..."
 19 And you list out a number of drawings.
 20 A. Yes.
 21 Q. And at (h) we see "Detail Section Sheet 1 (1279 (06) 120
 22 00)".
 23 A. Yes.
 24 Q. And at (m) over the page we get:
 25 "Proposed Typical Bay Plans, Section & Elevation

51

1 [it's a drawing we'll go to and we've looked at a number
 2 of times] (1279 (06) 110 00)."
 3 A. Yes.
 4 Q. You go on to say in paragraph 20 that:
 5 "The key aspects of the external façade design came
 6 from Studio E drawing 1279 (06) 110 Revision 00 ..."
 7 So the one you've got in item (m).
 8 A. Yes.
 9 Q. So that was a pretty important drawing, wasn't it, in
 10 terms of showing Studio E's --
 11 A. That's right. 110 and 120, I remember them.
 12 Q. Yes. And you paid particular attention to those
 13 drawings when you were doing your work?
 14 A. Yes, yes.
 15 Q. Can we then turn to the drawing 110. This is at
 16 {SEA00002499} and we will need the offline version.
 17 Yes, that's it.
 18 I want to look at the proposed section in the
 19 right-hand top corner first, the "Proposed Section -
 20 Typical Bay", if we can zoom in on that.
 21 Can you read that okay?
 22 A. Yes.
 23 Q. If we look four labels down on the right, we see:
 24 "Ensure horizontal and vertical cavity barriers meet
 25 tightly."

52

1 And it's referring back P10/435. That will be
 2 a reference back to the NBS specification, won't it?
 3 A. Yes.
 4 Q. We can see a little hatched rectangle, and it's
 5 immediately at the head of the window, isn't it?
 6 A. That's correct, yes.
 7 Q. And we can also see that replicated at the bottom of
 8 that section as well, one label up.
 9 A. Yes, at the head of the next window down.
 10 Q. At the head of the next window, exactly.
 11 If we now pan out, and I want to go to the "Proposed
 12 Plan - Window Level" at the bottom left. Yes, it
 13 actually doesn't matter which sketch you take because
 14 I think the cill level and window level, we get the same
 15 detail, but what we see here on the very left is
 16 detailing for the column, and the very bottom label:
 17 "Cavity fire barrier in line with compartment wall
 18 structure. Leave no gap to cladding."
 19 A. Correct.
 20 Q. And we've got a hatched rectangle kind of in the middle
 21 of that part of the column. So you were clear that you
 22 needed a cavity barrier there; yes?
 23 A. That's right, yes.
 24 Q. But then right at the jamb of the window, where the
 25 column meets the window jamb, do you see that there is

53

1 another little hatched area?
 2 A. Yes.
 3 Q. It's not a rectangle; it's a more irregular shape.
 4 A. Yes.
 5 Q. Now, my question is: when you looked at these drawings,
 6 did you interpret that to be a cavity barrier down the
 7 window jambs?
 8 A. Not at all.
 9 Q. Why not?
 10 A. It's shown on the detail above and that's not beside
 11 the window. If you look at detail 1 above, scroll the
 12 page down a little bit --
 13 Q. Yes. You mean to go to the cill level?
 14 A. That's right.
 15 Q. Yes, let's go up to that. Do we not see an area of
 16 hatching at that point as well?
 17 A. Yes, but if it was a cavity barrier to go round the
 18 perimeter of the window, there is no window in that
 19 detail, is there?
 20 Q. Yes.
 21 When our expert looked at this drawing, he was not
 22 clear whether a cavity barrier was marked there.
 23 Did you ever think to go back to the architect and check
 24 and query and ask whether, at that window jamb position,
 25 there ought to be a cavity barrier?

54

1 A. No. We did discuss it at Harley in one of our round
 2 table meetings, but if it was to go round the window,
 3 then he would have shown another one at the base of the
 4 window as well.
 5 SIR MARTIN MOORE-BICK: So what did you think it showed?
 6 A. I think it's just him showing that there's another type
 7 of insulation pushed right into the groove where the
 8 concrete spandrel panel comes across.
 9 MS GRANGE: Couldn't that have been compressible insulation
 10 in gaps, potentially mineral wool, which was intended to
 11 act as a cavity barrier in that location?
 12 A. He seems to have labelled everything else. I don't --
 13 if it was something different from everything else,
 14 I would have expected to have that labelled.
 15 Q. Do you agree there does seem to be different sized
 16 hatching in that area? So something seems to be
 17 a little bit different in that area from what's shown in
 18 the spandrels and on the column more generally.
 19 A. Yes, yes.
 20 Q. Now, you said you did discuss that in Harley, but you
 21 concluded that if the architect had wanted cavity
 22 barriers around the window, they would have shown it at
 23 cill level; yes?
 24 A. That's right, yes.
 25 Q. Who did you have that discussion with?

55

1 A. Certainly with Ray, maybe Ben. I don't know if Dan was
 2 in that one.
 3 Q. And can you help us as to when? How far into the
 4 project was it that you had that discussion?
 5 A. It was at the point that we were laying out the cavity
 6 barriers, so that was a little bit later.
 7 Q. March 2015, we see some discussion about cavity
 8 barriers?
 9 A. Yes, maybe a little -- yeah, probably a little bit
 10 before then, but yes.
 11 Q. I see.
 12 A. We had many conversations before we started these email
 13 trails.
 14 Q. And did nobody say during that discussion, "Well, why
 15 don't we check with the architects, why don't we raise
 16 this expressly with them and get them to confirm?"
 17 A. Harley were my client and I was taking instructions from
 18 Harley.
 19 Q. Yes, that wasn't my question.
 20 Did nobody say during that discussion, "Why don't we
 21 check with the architects?", was that not raised as
 22 a possible way of resolving this?
 23 A. I don't recall what was said, but it wouldn't have been
 24 my place to actually do that anyway.
 25 Q. Did you get the impression --

56

1 SIR MARTIN MOORE-BICK: I'm sorry, can I just interrupt.
 2 You say that, but you were translating the
 3 architect's drawings into fabrication drawings, if I can
 4 put it in those terms.
 5 A. Correct.
 6 SIR MARTIN MOORE-BICK: So you needed to understand yourself
 7 what was shown on the architect's drawings, didn't you?
 8 A. Correct, correct, but obviously everything that Harley
 9 told me to do would supersede that. I mean, by the same
 10 argument you could say these drawings actually show
 11 face-fitted panels, which we didn't do. There was
 12 obviously a certain level of agreement between Harley,
 13 Rydon, architect.
 14 SIR MARTIN MOORE-BICK: Sorry to press you on this, but it
 15 sounds from what you've told us already that there was
 16 some debate within Harley, to which you were a party, as
 17 to what these drawings did actually show.
 18 A. Yes.
 19 SIR MARTIN MOORE-BICK: And you didn't think it appropriate
 20 to say, "Well, I really need to hear from the architect
 21 so I can do the right sort of drawing"?
 22 A. No, no, I didn't. I was happy with advice from Harley.
 23 SIR MARTIN MOORE-BICK: Even though they hadn't done the
 24 drawings?
 25 A. Yes. Yes, they were the cladding specialists. They

57

1 obviously felt that it wasn't necessary, or they'd had
 2 discussions, I don't know.
 3 SIR MARTIN MOORE-BICK: All right, thank you.
 4 Yes, Ms Grange.
 5 MS GRANGE: You knew though, didn't you -- I think you've
 6 confirmed that in general terms you knew there was
 7 a requirement for cavity barriers around windows? You
 8 knew that before the project.
 9 A. That's correct, yes.
 10 Q. You've also confirmed, and I took you to lots of the
 11 guidance, that you knew how important cavity barriers
 12 were in terms of preventing unseen fire spread.
 13 A. Correct, yes.
 14 Q. They're not an insignificant detail, are they?
 15 A. No.
 16 Q. They're not an aesthetic point; they are potentially
 17 relevant to life safety.
 18 A. Correct, yes.
 19 Q. Did you get the impression at the meeting during the
 20 discussion that it was more convenient for Harley not to
 21 install cavity barriers around the windows because
 22 actually it was quite a fiddly, difficult thing to get
 23 right, and that they were looking for a way of deciding
 24 that they didn't have to provide them round the windows?
 25 A. No, that's not -- definitely not the way they would

58

1 operate.
 2 Q. So give us a sense of the nature of the discussion. How
 3 did it go? Can you help us any more?
 4 A. It's an awful long time ago.
 5 Q. Was anybody within Harley advocating for cavity barriers
 6 around the window? Was there an actual debate and
 7 a difference of view, or was everybody agreed that,
 8 simply because they weren't shown at cill level, you
 9 could conclude that they weren't required around the
 10 windows?
 11 A. No, I think they're not -- if they were required round
 12 the windows, we would have two cavity barriers or we'd
 13 have three cavity barriers in each of those voids, and
 14 the architect only shows one. Sorry, on the vertical
 15 section. These are the plan sections.
 16 Q. Sorry, just explain that again. If they were required
 17 around the windows --
 18 A. Yes, if you move to the right-hand of the drawing, and
 19 if we can go up -- that's it -- so the top detail,
 20 section 3, shows only one cavity barrier in each of the
 21 cladding zones.
 22 Q. Yes, but that's a section. It's not clear that that's
 23 a section which interfaces with a column, is it? That
 24 could be a section anywhere across the window. What
 25 that's telling you is, in that location, you need one at

59

1 the head, but why does that tell you anything about --
 2 I appreciate that tells you something about the cill.
 3 A. Yes.
 4 Q. But why does that tell you anything about the jamb?
 5 A. Because it's all interrelated, isn't it? The window is
 6 the full width between columns, so that cavity barrier
 7 hits the column.
 8 Q. But you've got a label, "Ensure horizontal and vertical
 9 cavity barriers meet tightly". So you know there's
 10 a vertical cavity barrier needed to meet tightly with
 11 that one.
 12 A. Yes, and it shows it on the other two details going up
 13 on the slant up the side of the column.
 14 Q. But how did you know that the other little irregular
 15 hatched area might not be a vertical cavity barrier
 16 which was meant to meet tightly with the one at the head
 17 of the window?
 18 A. Well, it goes against -- if the architect was
 19 considering cavity barriers to go round the windows and
 20 cavity barriers in the voids, as shown on diagram 33, we
 21 should be looking at three cavity barriers on this
 22 drawing, but we're not.
 23 Q. I see.
 24 A. I wouldn't expect the architect to expect you to have
 25 cavity barriers up the sides and not across the bottom

60

1 and middle of the zone.
 2 Q. But just going back to the discussion you had within
 3 Harley, was nobody saying, "Yes, but we know from ADB
 4 and we know from other guidance, there's lots of
 5 guidance out there, it's all very clear that cavity
 6 barriers are required around windows, so let's go back
 7 to the architect and check that because we know these
 8 are really important?"
 9 A. Well, I mean, by virtue of following his drawings, we've
 10 produced our drawings and he's approved them. You can
 11 expect that he's happy that there is conformance.
 12 Q. But for a detail that's that important -- it's important
 13 in terms of life safety, external fire spread, internal
 14 fire spread, breaking out into the cavities -- why
 15 wouldn't you want that expressly flagged and considered
 16 carefully by all the design team?
 17 A. My superior, my client, gave me confidence to do exactly
 18 what I did, which was to follow the architect's
 19 drawings.
 20 Q. Did Harley tell you in terms that you did not need to
 21 provide cavity barriers around the windows?
 22 A. No.
 23 Q. They didn't?
 24 A. No, no, they said follow the architect's drawings.
 25 Q. So was it in fact your interpretation of the Studio E

61

1 drawings that we ended up with, or was it an instruction
 2 you were provided via the Harley meeting?
 3 A. It's a combination of the two. As I keep saying, this
 4 still shows items that weren't translated to the
 5 building, such as face-fixed zinc rainscreen panels.
 6 MS GRANGE: I see.
 7 Mr Chairman, this is a long topic and I think this
 8 is as good as any moment for a break.
 9 SIR MARTIN MOORE-BICK: This is a good point?
 10 MS GRANGE: Yes.
 11 SIR MARTIN MOORE-BICK: Are you doing quite well?
 12 MS GRANGE: Yes, I am. I am doing well.
 13 SIR MARTIN MOORE-BICK: Shall we say 11.40 then?
 14 MS GRANGE: Yes, thank you.
 15 SIR MARTIN MOORE-BICK: We're going to have a break, then,
 16 Mr Lamb. We'll come back at 11.40.
 17 Usual rules apply, please: no talking to anyone
 18 about your evidence while you're out of the room.
 19 THE WITNESS: No problem.
 20 SIR MARTIN MOORE-BICK: Thank you very much.
 21 (Pause)
 22 Good, thank you, 11.40, please.
 23 (11.22 am)
 24 (A short break)
 25 (11.42 am)

62

1 SIR MARTIN MOORE-BICK: Right, Mr Lamb, ready to continue?
 2 THE WITNESS: Yes.
 3 SIR MARTIN MOORE-BICK: Yes, Ms Grange.
 4 MS GRANGE: Yes. Can we have back on the screen that
 5 Studio E drawing or set of drawings that we were looking
 6 at, {SEA0002499} in the native version. I want to put
 7 to you a number of points about this.
 8 Would you agree that when you look at this and the
 9 level of detail we have here that it was obvious that
 10 these are very early drawings done by an architect
 11 giving an indication of the external wall, they're not
 12 detailed drawings, and that it would have been obvious
 13 to you and to Harley that your job was to be developing
 14 this design, to take it to the next stage, and that that
 15 might well include developing the design of the cavity
 16 barriers?
 17 A. I don't think I agree with that. I think they are quite
 18 detailed as far as an architect's drawing is concerned.
 19 They may not be at a suitable scale, but with being able
 20 to zoom in electronically, I think it tells you most
 21 things that are required.
 22 Q. So we know that the NBS specification identified, say,
 23 the CWCT standard that had to be complied with.
 24 A. Yes.
 25 Q. We know that there's reference to firebreaks in

63

1 accordance with the Building Regulations. Can you help
 2 us as to why you and Harley didn't understand that, in
 3 terms of the cavity barrier strategy, your job was to
 4 take this but to take it to the next level, develop the
 5 design and develop it in a way that was compliant with
 6 Approved Document B and other industry guidance at the
 7 time, all of which was clear that cavity barriers were
 8 required around the windows?
 9 A. It wasn't my understanding that that was what we were
 10 doing.
 11 Q. How did you obtain that understanding that that wasn't
 12 what you were doing?
 13 A. Because I was told to follow these drawings and follow
 14 the advice from Harley.
 15 Q. The hatched area on these drawings down the side, if we
 16 can zoom into that again at the "Proposed Plan - Cill
 17 Level" or indeed the "Proposed Plan - Window Level",
 18 would you agree that the kind of hatching that you have
 19 there, the type of hatching, is indicative of a solid
 20 material in that location? Is that telling you it's
 21 a solid?
 22 A. It's the same hatching as the insulation that goes
 23 around the front of the column.
 24 Q. But it's not, is it? It's tighter, it's smaller and
 25 it's in a different orientation.

64

1 A. Yes, yes, yes.
 2 Q. And the point I'm putting to you is that that would have
 3 indicated to you that potentially down that interface
 4 between the column and the spandrel, down the sides of
 5 the windows, there should have been a solid down that
 6 side.
 7 A. Well, I don't understand what the architect is showing
 8 there. I don't think it's obvious that it's a cavity
 9 barrier to go round the windows because the other
 10 details don't back that story up. So maybe it needed
 11 more clarity.
 12 SIR MARTIN MOORE-BICK: Can I just ask you this, because it
 13 goes to the question of how detailed the drawings are.
 14 A. Yes.
 15 SIR MARTIN MOORE-BICK: If you look at what we've currently
 16 got on the screen, the bottom left-hand drawing --
 17 A. Yes.
 18 SIR MARTIN MOORE-BICK: -- you see what I think is a cavity
 19 barrier on the right-hand side of the column.
 20 A. That's right, yes.
 21 SIR MARTIN MOORE-BICK: Now, did you understand that
 22 a cavity barrier was also to be introduced on the
 23 left-hand side --
 24 A. No.
 25 SIR MARTIN MOORE-BICK: -- so they matched?

65

1 A. No.
 2 SIR MARTIN MOORE-BICK: Right.
 3 Let's go over to the next column.
 4 A. Yes.
 5 SIR MARTIN MOORE-BICK: There are no cavity barriers in
 6 a comparable position on that column.
 7 A. No.
 8 SIR MARTIN MOORE-BICK: Is it your understanding that there
 9 weren't to be any cavity barriers around that column?
 10 A. As long as the distance between cavity barriers didn't
 11 exceed -- I can't recall -- the 10- or 20-metre minimum
 12 requirement.
 13 SIR MARTIN MOORE-BICK: So you might expect there to be one
 14 on the third column that's not in the picture then?
 15 A. Possibly. If you look at the column on the left, this
 16 is clearly a party wall column.
 17 SIR MARTIN MOORE-BICK: Yes.
 18 A. But the column on the right looks to me like an internal
 19 wall column.
 20 MS GRANGE: Exactly. I think that might be the explanation,
 21 to be fair to Mr Lamb. I think that what we see on the
 22 left is a cavity barrier where there's a compartment
 23 wall --
 24 A. Yes.
 25 Q. -- and it's shown vertically there, and there's not one

66

1 on the right. From memory, thinking back to Dr Lane's
 2 report from Phase 1 --
 3 SIR MARTIN MOORE-BICK: That may be the explanation then.
 4 MS GRANGE: -- that wasn't something she was criticising,
 5 the lack of vertical cavity barriers down that column.
 6 But what we are seeing on both columns, Mr Lamb,
 7 either side of the window, is a more intense area of
 8 smaller hatching, and we'll keep coming back to this,
 9 but my point to you is that shouldn't that at least have
 10 prompted a line of enquiry back to the architects as to
 11 what they intended?
 12 A. I discussed the element of cavity barriers with the
 13 technical team at Harley.
 14 Q. And you were told?
 15 A. To draw it as we've just discussed, with one vertical
 16 cavity barrier and a horizontal cavity barrier as shown
 17 in the other detail.
 18 Q. And is it your evidence that at the time you had those
 19 discussions, you were aware that this was a departure
 20 from the guidance given in Approved Document B, which
 21 requires cavity barriers around window openings?
 22 A. Loosely, but I was also aware that there are other
 23 routes to compliance, a fire-engineered solution.
 24 Q. If you were even loosely aware that this was a departure
 25 from Approved Document B, wasn't the common-sense

67

1 approach to ask for a clear instruction, either from
 2 Harley or from Studio E or both, making clear whether or
 3 not cavity barriers were required around the windows?
 4 A. I asked Harley what to do and I did exactly what they
 5 told me to do.
 6 Q. Okay.
 7 Let's keep going. I now want to turn to the other
 8 drawing that you said in your witness statement was
 9 a key drawing that you were interpreting and turning
 10 into your more detailed drawings. This is drawing 120
 11 and if we go to {HAR00010424}, if we look on the
 12 right-hand side we can see this is between floors 19 and
 13 20.
 14 A. Yes.
 15 Q. Do you see that there? And this also shows a hatched
 16 cavity barrier immediately above the head of the window.
 17 A. Correct.
 18 Q. Do you see that there? And I believe, if we pan out, on
 19 the left-hand side we believe we've found some hatching,
 20 so right at the top of the page.
 21 A. Yes.
 22 Q. "Horizontal cavity fire barrier to seal both rainscreen
 23 cavity and cavity between CEM board and existing
 24 concrete structure."
 25 Do you see that there?

68

1 A. Yes.
 2 Q. What location is that in there? Can you help us? Can
 3 we just see the entire top of the drawing.
 4 A. I mean, that's at the walkway level, which would be --
 5 is that 2nd floor? 1st or 2nd floor.
 6 Q. And we can see a hatching immediately above the head of
 7 the window; yes?
 8 A. On that one, yes.
 9 Q. Yes.
 10 Now, if you were merely transposing across what was
 11 shown in these drawings over to your drawings --
 12 A. Yes.
 13 Q. -- do you accept that you would have maintained the
 14 positioning of these cavity barriers as shown in these
 15 drawings?
 16 A. As close as possible, yes.
 17 Q. I see. Okay, well, we'll look at that in a moment when
 18 we come to your drawings.
 19 Let's look at your witness statement at this point,
 20 if we go to {HAR00010419/12}, paragraph 44.
 21 You tell us that there:
 22 "The cavity barriers were Siderise Lamatherm. The
 23 vertical cavity barriers were Siderise Lamatherm RVG,
 24 supplied in stock slabs and cut to suit on site. The
 25 horizontal cavity barriers were Siderise Lamatherm RH25G

69

1 ventilated intumescent cavity barriers and were pre-cut
 2 (oversize) by Siderise and trimmed to suit on site."
 3 Do you see that there?
 4 A. Yes.
 5 Q. Who was it that specified the Siderise Lamatherm product
 6 as appropriate cavity barriers for this project? Can
 7 you help us on that?
 8 A. Yes, I was told by Harley that that was the product we'd
 9 be using.
 10 Q. Did you or, to your knowledge, anybody else within
 11 Harley ever make any investigations with Siderise as to
 12 whether these cavity barriers had been tested in
 13 a rainscreen system?
 14 A. No, or not -- certainly from my point of view, I didn't.
 15 I don't know if anyone else had.
 16 Q. That was not something that occurred to you to check?
 17 A. No.
 18 Q. And the horizontal cavity barriers had an intumescent
 19 strip; is that correct?
 20 A. That's correct.
 21 Q. What was your understanding of the purpose of the
 22 intumescent strip?
 23 A. The intumescent strip would expand when heat was in the
 24 cavity to close the compartment off so flame and air
 25 could not travel.

70

1 Q. And your understanding was that that would work with an
 2 aluminium composite material panel on the outside of the
 3 barrier?
 4 A. I wasn't considering the material on the outside, but
 5 certainly I was aware this was how cavity barriers
 6 worked, yes.
 7 Q. Now, I want to look at what was being said during the
 8 project about cavity barriers. Let's turn to
 9 {SEA00011703}. This is where Daniel Anketell-Jones, on
 10 17 September 2014, raises an RFI. Did you understand
 11 that to mean a request for information?
 12 A. Yes.
 13 Q. Yes. With Simon Lawrence, Simon O'Connor,
 14 Neil Crawford, Bruce Soules, so with Rydon and Studio E,
 15 ccing you in. You're cc-ed at this point.
 16 A. Yes.
 17 Q. He says:
 18 "Please find attached RFI001 which relates to the
 19 requirements of firebreaks. This may be something that
 20 has already been decided, or may need confirmation from
 21 the local fire officer, as the opinion tends to vary."
 22 Do you see that there?
 23 A. Yes.
 24 Q. Can you recall what prompted Daniel at this point to
 25 raise this question at this point?

71

1 A. At many points through the project we discussed cavity
 2 barriers and it may have been one of those discussions
 3 that prompted him to seek clarification.
 4 Q. So just to be clear, you had many discussions with
 5 Mr Anketell-Jones about cavity barriers?
 6 A. General members of the team.
 7 Q. Including Mr Anketell-Jones?
 8 A. Including Dan, yes.
 9 Q. Let's look at the RFI itself, {EX000001291}. So here we
 10 can see the RFI dated 17 September 2014:
 11 "Query:
 12 "Please may you confirm the required extent of the
 13 horizontal firebreaks within the cladding areas?
 14 "...
 15 "We believe that they will be required at every
 16 floor level on the vertical columns, but not in the area
 17 of cladding between windows. This is because there is
 18 no 'chimney' effect here, and therefore the cladding
 19 will not add to the spread of fire."
 20 Do you see that there?
 21 A. Yes.
 22 Q. Just to be absolutely clear, am I right that this
 23 request was a specific request about the extent of
 24 horizontal firebreaks --
 25 A. Yes.

72

1 Q. -- on the columns; yes?

2 A. Not specifically at the columns.

3 "We believe that they will be required at every

4 floor level on the vertical columns, but not in the

5 area ..."

6 Q. Is what's being said, "We think on the columns we need

7 to put horizontal firebreaks at floor level, but we

8 don't need to put horizontal firebreaks across the

9 columns in the areas between windows because there's no

10 chimney effect there?"

11 A. It's how it reads, yes.

12 Q. Can you help us with what your understanding was at the

13 time of the query that was being raised?

14 A. I wouldn't have read the -- I would have paid little

15 store to the suggested solution. I would be waiting for

16 a confirmation from the architect, or in this case

17 Rydons, it looks like.

18 Q. Would you agree with me that the question isn't: do we

19 have to put cavity barriers around windows at the head,

20 cill and jamb of the windows?

21 A. Correct, yes.

22 Q. Do you remember whether there had been any consideration

23 by you or within Harley of the relevant guidance?

24 You've referred, we know, at paragraph 50 of your

25 witness statement {HAR00010419/13}, to a number of

73

1 pieces of guidance, including ADB and CWCT guidance,

2 that you consulted at the time of wanting help on the

3 rating of the cavity barriers.

4 A. Yes.

5 Q. Do you recall whether at this stage -- this is earlier,

6 17 September 2014 -- there had been any consideration of

7 the guidance at this point?

8 A. Certainly not from myself, no.

9 Q. Yes, and you weren't aware that anyone else within

10 Harley had had a look at the relevant guidance?

11 A. I wouldn't know. I wouldn't know.

12 Q. When he talks about the risk of a chimney effect in the

13 columns, "no 'chimney' effect here" --

14 A. He's not talking about the chimney effect in the

15 columns, I think he's talking about it in the windows,

16 isn't he?

17 Q. Is that how you interpret this?

18 SIR MARTIN MOORE-BICK: Ms Grange, I did wonder whether the

19 question in the box headed "Query" isn't directed to

20 cladding areas in general, so that he's saying that,

21 "We've got to put them in at every floor level of the

22 vertical columns, but not in the area of the spandrels".

23 MS GRANGE: That is possible.

24 Can you help us with that, Mr Lamb?

25 A. Well, I agree exactly with what you say, yes.

74

1 Q. Right. So you're saying there's no chimney effect there

2 because it's not on the column --

3 A. I'm not.

4 Q. Sorry, he's saying that.

5 A. Yes.

6 Q. So are you saying that this wasn't a discussion you had

7 with Mr Anketell-Jones which then led to this RFI?

8 A. No.

9 Q. So it didn't come from you?

10 A. No.

11 Q. Okay.

12 Now, can we turn now to {HAR00008902}. This is

13 a column front nose detail, do you agree?

14 A. Yes, yes.

15 Q. We can see it went through a number of revisions, and we

16 can see that on 25 March 2015 -- sorry, I apologise. We

17 actually see at revision A on 22 August 2014 at the

18 bottom of there that the firebreak was added; is that

19 right?

20 A. No, fin bracket.

21 Q. Oh, no, bracket added.

22 We've then got firebreak increased at revision D, if

23 you can pan out.

24 A. That's right.

25 Q. If we can just pan out and see the whole section.

75

1 So does that mean you've changed the dimension of

2 the cavity barrier in revision D?

3 A. That's correct. Different ratings of cavity barrier

4 will have different thicknesses.

5 Q. Yes.

6 A. So at this point I must have been informed that we were

7 using whatever rating and I've noted it on the drawing

8 accordingly.

9 Q. We can see you've got that cavity barrier down the

10 right-hand side of the column.

11 A. Correct.

12 Q. Nothing on the left-hand side.

13 A. Yes.

14 Q. Did anyone ever give any consideration to whether

15 a cavity barrier might be necessary on that very front

16 nose joint? Was that ever discussed?

17 A. Not at all, no.

18 Q. And that wasn't something that occurred to you in terms

19 of a potential chimney effect up that column nose?

20 A. No, you wouldn't normally put cavity barriers behind the

21 joints, or else we'd have them on every single joint on

22 the cladding.

23 Q. Well, I think we're talking about that specific gap that

24 we see at the front between the two returns of the

25 panels at the bottom, whether there should have been

76

1 a cavity barrier in there, or at least thought given to
 2 a cavity barrier in there, given the potential for fire
 3 to propagate up that gap.
 4 A. Not in my experience, you wouldn't normally.
 5 Q. Okay.
 6 Just to be clear, the guidance that you say you
 7 specifically considered on cavity barriers, did that
 8 come later in 2015, when there was a separate discussion
 9 about rating of cavity barriers or --
 10 A. Yes, I would have said so.
 11 Q. And fire stopping versus cavity barriers.
 12 A. Yes.
 13 Q. Are you clear that you weren't consulting the guidance
 14 at this point, in September 2014?
 15 A. Don't forget, I was only consulting the guidance for
 16 a little bit of help which wasn't forthcoming.
 17 Q. Right, yes.
 18 Can we now turn to {HAR00003638}. This is an email
 19 chain between Neil Crawford of Studio E and Terry Ashton
 20 at Exova into which you and a number of other
 21 professionals were copied arising out of that RFI.
 22 A. Mm-hm.
 23 Q. I want to look on page 4 {HAR00003638/4}, on
 24 18 September 2014, at 11.08, there the RFI is sent to
 25 Terry Ashton by Neil Crawford. We can see that.

77

1 A. Mm-hm.
 2 Q. Then if we go up to page 3 {HAR00003638/3}, at the foot
 3 of page 3, Terry Ashton responds at 11.33 and requests
 4 further details. Do you see he says:
 5 "Neil
 6 "I've never seen details of what you're doing to the
 7 external walls. Do you have any cross
 8 sections/elevations?"
 9 A. Yes.
 10 Q. Then we can see these are sent to him by Neil Crawford
 11 at 12.18 in the middle of page 3:
 12 "Please see attached our sections and the initial
 13 drawings set we have had from Harleys. The initial
 14 drawings from Harleys are fairly limited but they
 15 attempt to establish the basic approach."
 16 Now, is it right that at this time -- so this
 17 is September 2014 -- the thinking behind cavity barriers
 18 was relatively undeveloped within Harley?
 19 A. I'd have to consult those particular drawings, but ...
 20 Q. Okay, well, we might come back to that.
 21 In your witness statement, if we can look at this
 22 paragraph 33 -- this is {HAR00010419/9} -- you say this
 23 at the top of that paragraph:
 24 "In relation to the cavity barriers, they were not
 25 items that needed to be dealt with immediately, as they

78

1 did not have lengthy lead in times as the shelf angles,
 2 cill and head details and cladding panels did."
 3 A. Yes.
 4 Q. Do you see that there?
 5 A. Yes.
 6 Q. I think you alluded to this yesterday.
 7 Is it fair to say that the cavity barriers were not
 8 the design priority because, in terms of the supply
 9 chain, they were going to take less time to obtain?
 10 A. Correct, yes.
 11 Q. Were cavity barriers added as an afterthought on this
 12 project?
 13 A. No, not at all.
 14 Q. How early in the design process do you think you were
 15 considering cavity barriers with Harley?
 16 A. Early in 2015.
 17 Q. Early in 2015?
 18 A. Yes. February, guess.
 19 Q. Because you've just said that you don't think that RFI
 20 was something you were directly involved in.
 21 A. No, no.
 22 Q. So from your point of view it was in early 2015 that you
 23 began to discuss the cavity barriers with them?
 24 A. At a guess, yes.
 25 Q. Now, returning to that email chain we were looking at,

79

1 and if we go to the very bottom of page 2 and on to
 2 page 3 {HAR00003638/3}, we get a reply from Mr Ashton,
 3 we can see the start of that at the very bottom of the
 4 page --
 5 A. Yes.
 6 Q. -- after he's been provided with details, and he says
 7 this at the top of the next page:
 8 "Neil
 9 "If the insulation in the cavities behind the
 10 rainscreen cladding is combustible you will need to
 11 provide cavity barrier as shown on your drawing (number
 12 1279 (06) 120) in order to prevent fire from spreading
 13 from one flat to the one above even if there isn't
 14 a continuous cavity from the top to the bottom of the
 15 building."
 16 A. Okay.
 17 Q. Do you see that there?
 18 A. Yes.
 19 Q. Then one email up, this advice gets forwarded to you
 20 from Mr Crawford at 15.50 {HAR00003638/2}.
 21 A. Yes.
 22 Q. His main email is there to Daniel Anketell-Jones but you
 23 are copied in.
 24 A. Yes.
 25 Q. "Please see correspondence relating to [this] ..."

80

1 We can see Mr Anketell-Jones' response above that,
 2 and he says:
 3 "Neil,
 4 "Thank you for your response.
 5 "The insulation is class 0. Therefore after reading
 6 the correspondence below; I believe that the fire
 7 barrier in these locations, will not be necessary.
 8 "Can you confirm that this is acceptable?
 9 "Kind regards
 10 "Daniel ..."
 11 Do you see that there?
 12 A. Yes.
 13 Q. He also attached at this time the Celotex RS5000
 14 datasheet.
 15 A. Okay.
 16 Q. Did you read that comment by Mr Anketell-Jones as
 17 meaning that because the insulation was class 0, it was
 18 non-combustible?
 19 A. I didn't have any thoughts on his discussion regards
 20 insulation. However, I didn't believe that there was no
 21 requirement for fire barriers. I always believed that
 22 there should be a fire barrier in that zone.
 23 Q. What zone are you talking about there?
 24 A. He's talking about -- what does he say?
 25 ... I believe that the fire barrier in these

81

1 locations, will not be necessary."
 2 I don't believe that statement.
 3 Q. Yes, that it was necessary in the spandrel zones, is
 4 that what you're saying?
 5 A. That's right, yes.
 6 Q. Did you ever think about that advice that was being
 7 given, "The insulation is class 0" --
 8 A. No, not at all.
 9 Q. -- at the time? That wasn't something that struck you
 10 as odd or something that ought to be checked?
 11 A. No, no.
 12 Q. You didn't ever query whether Mr Anketell-Jones'
 13 understanding was correct?
 14 A. No, no, it wasn't my place to do that, not unless I was
 15 concerned.
 16 Q. Did you think at the time that class 0 was relevant to
 17 the choice of insulation product?
 18 A. Again, no. I mean, I wouldn't expect flammable
 19 materials, but I wasn't considering the class of
 20 insulation there.
 21 Q. No, but my question was: at the time, did you think that
 22 class 0 was relevant to the choice of an insulation
 23 product?
 24 A. Well, it should certainly be class 0 or better. When
 25 you read diagram 40 in ADB4, it's quite clear we should

82

1 be using class 0 products.
 2 Q. As we looked at yesterday, there is a difference between
 3 national class 0 and the concept of limited
 4 combustibility.
 5 A. That's correct.
 6 Q. Were you aware at the time that there was a difference
 7 between class 0 and limited combustibility?
 8 A. I wasn't considering that in this case.
 9 Q. But were you aware at the time that there was
 10 a difference between national class 0 and limited
 11 combustibility?
 12 A. Yes, yes.
 13 Q. You were?
 14 A. Yes.
 15 Q. What did you think that difference was?
 16 A. I didn't consider the difference, to be honest. As far
 17 as I was concerned, class 0 is a suitable material.
 18 Q. But I think you said yesterday, am I right, that your
 19 understanding of limited combustibility was that it was
 20 a description of a limited type of combustibility?
 21 A. Yes.
 22 Q. You weren't aware that it had a very specific technical
 23 definition --
 24 A. No.
 25 Q. -- by reference to specific tests?

83

1 A. No, because normally that would be prefixed by a class
 2 or a rating. That's a bit of a vague term.
 3 Q. If we turn back -- we're carrying on, actually, with
 4 this email string, and we go to a different email --
 5 sorry, it is the same email. If we look at the bottom
 6 of page 1 {HAR00003638/1} of this string, we get
 7 a response by Mr Ashton where he says:
 8 "A material which has a Class 0 rating is not
 9 necessarily non-combustible although the reverse is
 10 invariably true. Some Class 0 products will burn when
 11 exposed to a fully developed fire."
 12 Do you see that there?
 13 A. Yes, yes.
 14 Q. Do you remember seeing that at the time of the Grenfell
 15 project?
 16 A. I don't know. This wasn't directed at me, but I'm sure
 17 it was in a historic trail.
 18 Q. I don't think this was sent to you. But does it follow
 19 from your evidence that you weren't made aware that this
 20 was the advice Mr Ashton was giving?
 21 A. I think he's arguing with Dan about the requirement for
 22 cavity barriers.
 23 Q. Yes, but were you --
 24 A. I think they've sort of slipped off on an irrelevant
 25 point. We all know we should be putting cavity barriers

84

1 at every level .
 2 Q. I see.
 3 A. I think he's trying to say to Dan, "Of course we need
 4 cavity barriers".
 5 Q. Right. But were you made aware of the advice that
 6 Mr Ashton was giving on this issue at the time?
 7 A. Not specific, when you relate it to the "Class 0 is not
 8 necessarily combustible".
 9 Q. Did you ever raise any concerns about this line of
 10 thinking at the time?
 11 A. Not at the time, no. But we certainly -- by the time we
 12 got to February/March, it was getting to a point where
 13 we had to get this product on the wall, and it was
 14 a case of, "Guys, what on earth are we doing?" This
 15 sort of a document is vague. We need proper clarity.
 16 Q. Mr Ashton at the end of that paragraph is saying:
 17 "What isn't clear from the information to hand is
 18 whether or not there is a continuous cavity from top to
 19 bottom in any part of the cladding (apart from around
 20 the column casings) irrespective of the type of
 21 insulation?"
 22 Do you see that there?
 23 A. Yes.
 24 Q. Do you remember whether you were ever asked to help
 25 respond to that request for information about whether

85

1 there might be a column in other parts of the cladding?
 2 A. No, not at all. Dan was clearly dealing with that,
 3 wasn't he?
 4 Q. So you didn't get involved in that?
 5 A. No.
 6 Q. Can we just look up to the top of this chain. We see
 7 there Mr Crawford goes back to Mr Ashton and you are
 8 copied in there.
 9 A. Yes.
 10 Q. "Hi Terry
 11 "Thank you."
 12 Then a question is asked of Daniel:
 13 "Can you confirm your position in relation to
 14 Terry's comment below regarding combustibility and
 15 continuous cavity paths. Having just finished several
 16 weeks of fire stopping checks on the Kensington Aldridge
 17 Academy where John Hoban crawled into almost every
 18 conceivable cavity possible with a torch (including
 19 nearly falling through a suspended ceiling!) We need to
 20 be clear on our position before going to
 21 building control."
 22 Do you see that there?
 23 A. Yes, I do.
 24 Q. Now, we can't find any response by Daniel confirming his
 25 position about the combustibility and continuous cavity

86

1 paths. Do you remember discussing that with
 2 Mr Anketell-Jones?
 3 A. Not at all, no, definitely not.
 4 Q. So is your evidence that you simply didn't get involved
 5 in this discussion?
 6 A. No, I didn't, no.
 7 Q. Or have an opinion on the points they were discussing?
 8 A. No.
 9 Q. If we go then to {SEA00011759}, this is an email from
 10 you a few days later, after this discussion has
 11 occurred, from you to Simon Lawrence, copying in
 12 Daniel Anketell-Jones, Neil Crawford, Bruce Sounes. So
 13 it's on 22 September 2014.
 14 A. Yes.
 15 Q. And you attach a set of drawings:
 16 "Simon,
 17 "Please find attached drawings as raised in issue
 18 for final approval, based upon the Architects comments
 19 and discussions at our last meeting.
 20 "We shall shortly issue further details, for
 21 consideration."
 22 Do you see that there?
 23 A. Yes.
 24 Q. If we turn to the attached drawings themselves, this is
 25 {RYD00000431}, there's a number of drawings in this pack

87

1 and we can just scan through them.
 2 Here's an elevation drawing.
 3 A. Yes.
 4 Q. Do you agree with me there's no cavity barriers shown
 5 anywhere on this elevation?
 6 A. Correct. They tend to be shown in details.
 7 Q. And if we go down this pack, I think if we just scan
 8 down, there's no cavity barrier there at cill level?
 9 A. No.
 10 Q. If we can keep going, it's the head of the window, no
 11 cavity barrier there?
 12 A. No.
 13 Q. That's the join with the column, no cavity barrier
 14 there?
 15 A. That's correct.
 16 Q. And there's no cavity barrier either -- sorry, if we go
 17 back to that drawing -- at the interface between the
 18 window frame and the column?
 19 A. No.
 20 Q. Or indeed in the location which you were pointing out
 21 shown on the Studio E drawings further along the column?
 22 A. That's right, yes.
 23 Q. So can you just help us as to why these drawings at this
 24 stage weren't showing, even though we have got some
 25 detailed drawings, any cavity barriers?

88

1 A. This is only, what, a week or two after the project
 2 started, and we were trying to get approvals for the
 3 cladding arrangement and the windows.
 4 Q. So it was envisaged at this stage, was it, that cavity
 5 barrier detailing would be provided later?
 6 A. Correct, yes. Maybe we should have said that on the
 7 email but we didn't.
 8 Q. So you agree what we're seeing here is design
 9 development? You're taking the Studio E drawings, which
 10 we know -- and we know we never got any even 1:5
 11 drawings from Studio E --
 12 A. Yes.
 13 Q. -- and you're turning them into something much more
 14 detailed here.
 15 A. Correct, yes.
 16 Q. This is a 1:2 drawing; yes?
 17 A. Mm.
 18 Q. If we can now move forward in time, if we go to
 19 {RYD00027692}, you sent an email on 14 January to
 20 Simon Lawrence and other members of the design team,
 21 Daniel Anketell-Jones, Neil at Studio E, Neil Crawford.
 22 I think you say in the email:
 23 "Please find attached a full set of drawings related
 24 to the upper 20 floors of windows, all now construction
 25 issue and to be manufactured accordingly."

89

1 A. Yes.
 2 Q. And you say:
 3 "Clearly the design has varied much, but now all as
 4 we agreed prior to Xmas."
 5 There's a large number of drawings there.
 6 Now, had anybody from Harley, such as Ray Bailey or
 7 Daniel Anketell-Jones, checked those drawings before you
 8 issued them?
 9 A. No, that wasn't normal. Normally we would have a round
 10 table to discuss concept. These drawings were all
 11 revisions, so they would have been sent out to all
 12 parties to comment upon or consider at the same time.
 13 Q. Yes.
 14 I think what we can see is that none of these
 15 drawings contain cavity barriers. Let's just look at an
 16 example. If we go to {RYD00027697}. So that's very
 17 similar to what we were just looking at, isn't it?
 18 A. Yes.
 19 Q. From a drawing back in September. So we're now
 20 in January, 13 January 2015, and it's marked
 21 "Construction" in the little table on the bottom left.
 22 A. Yes.
 23 Q. And it's stamped "Approved for construction".
 24 A. Yes.
 25 Q. Can you help us as to why there are no cavity barriers

90

1 shown in these drawings, including in this drawing here?
 2 A. Is the cavity barrier not off the screen on the next
 3 drawing?
 4 Q. Let's have a look. Would it be the next one in the run?
 5 Is there another page to this? No, there isn't. Okay,
 6 we'll check that.
 7 A. Okay. I mean, we were obviously looking at it earlier,
 8 weren't we?
 9 Q. Yes.
 10 We can see from the Harley drawing register -- for
 11 the transcript, the reference is {RYD00065622} -- that
 12 this drawing was never revised after 14 January 2015.
 13 It's right, isn't it, that cavity barriers were
 14 never included in that location in the middle of that
 15 page where the side of the window meets the column;
 16 that's correct, isn't it?
 17 A. Yes, not in that location, no.
 18 Q. Now, despite these drawings saying "Approved for
 19 construction", two days later on 16 January
 20 Neil Crawford emailed his comments. That email is at
 21 {SEA00012531}. So here Neil Crawford is going back to
 22 you on 16 January 2015 with others copied in:
 23 "Hi Kevin
 24 "In line with our discussion over the phone comments
 25 on drawings."

91

1 If we can turn to the comments, this is at
 2 {SEA00003040}, this is an elevation drawing where we've
 3 got lots of comments in red by Mr Crawford.
 4 A. Yes.
 5 Q. Would you agree with me that there's no mention of
 6 cavity barriers in his annotations?
 7 A. Correct, yes.
 8 Q. And he's circled it B, "Conforms to design intent
 9 subject to incorporation of comments", we can see that
 10 from the stamp on the right-hand side.
 11 A. Yes.
 12 Q. Did you ever have any discussions directly with
 13 Mr Crawford about the location of cavity barriers in the
 14 design scheme?
 15 A. I don't know, to be honest.
 16 Q. Was it something you were doing on the project,
 17 sometimes having discussions with Mr Crawford?
 18 A. Yes, sometimes, yes. Yes. Certainly at the design team
 19 meetings.
 20 Q. Yes. But you can't help us as to whether you ever had
 21 a discussion with Mr Crawford about where cavity
 22 barriers ought to be located?
 23 A. Oh, there definitely was, but to what degree, I don't
 24 recall.
 25 Q. Do you recall anything about those discussions, what the

92

1 topic of those discussions was when you were discussing
 2 cavity barriers with Mr Crawford?
 3 A. No, not in depth at all. I had so many discussions
 4 about cavity barriers.
 5 Q. Can you recall whether you ever had a discussion with
 6 him about what the requirements were of
 7 Approved Document B and diagram 33, and whether that
 8 could be applied to Grenfell?
 9 A. No, we would never have that sort of a conversation.
 10 Q. If we now turn on to an email from Siderise, so this is
 11 {HAR00004013}, dated 3 March 2015. If we look at the
 12 top of the page, this is an email from Barnaby J Carrick
 13 at Siderise to you, copying in Mark Stapley and
 14 Sue Sheppard.
 15 Who is Sue Sheppard?
 16 A. I think she might have been at Siderise as well.
 17 Q. Yes, okay.
 18 He says:
 19 "Hi Kevin,
 20 "We have reviewed the details you have kindly
 21 supplied and can confirm they follow our
 22 recommendations. As the void is less than 325mm and
 23 a 25mm air gap is present, the cavity barrier size falls
 24 within ... our standard test data. Regarding the
 25 RVG-30/30, as shown in [a particular detail], also

93

1 follows our recommendations. The brackets for the
 2 vertical barrier only need to penetrate two thirds to
 3 three quarters of the cavity barrier.
 4 "I hope this is of assistance, should you have any
 5 queries please do not hesitate to contact us."
 6 Do you see that there?
 7 A. Yes.
 8 Q. So you've obviously had a conversation with Siderise by
 9 this point; is that right?
 10 A. This follows -- it sounds to me like it follows my
 11 checking the material availability from their catalogue,
 12 and I seem to recall their test data goes up to
 13 a certain void depth.
 14 Q. Yes.
 15 A. And I think it might be along the lines of the void was
 16 actually 350 millimetres, but in their catalogue it says
 17 it's for 325, but it wasn't clear that it was
 18 325 millimetres for the void rather than the product
 19 itself.
 20 Q. Yes, I see.
 21 A. Because there's an air gap. So it was just
 22 clarification of that.
 23 Q. I see, yes. I think it's clear that you'd had some
 24 discussions with him, if you go to the email at the
 25 bottom of this page 1 --

94

1 A. Yes.
 2 Q. -- where you say to him in the previous email:
 3 "Further to our discussions, please find attached
 4 details for rainscreen cladding using your RH25G ... &
 5 RV ..."
 6 A. Yes.
 7 Q. So those are the two different types of cavity barriers,
 8 horizontal and vertical, aren't they?
 9 A. Yes, that's right.
 10 Q. So your conversation with Mr Carrick, was it solely
 11 about the void depth and the testing that you've just
 12 referred to, or did you ask Siderise for any further
 13 advice at this stage about the cavity barriers?
 14 A. No, it was all prompted from how this was fixed to the
 15 wall.
 16 Q. I see.
 17 A. They had -- at the time, they didn't have any details of
 18 both products. Whether it was a new product to them or
 19 what, I don't know, but they had limited data.
 20 Q. And you say:
 21 "... please find attached details for rainscreen
 22 cladding ..."
 23 A. Yes.
 24 Q. By that, do you mean the drawings?
 25 A. Yes, it would have been a couple of typical drawings.

95

1 Q. Did anyone from Siderise comment on the positioning of
 2 the cavity barriers in those drawings?
 3 A. I don't believe so, and I wouldn't have expected them to
 4 unless we'd specifically asked them.
 5 Q. Right.
 6 Can we turn now to an email sent from you to
 7 Simon Lawrence, copying in the design team, on the same
 8 day. So this is {SEA00012850}. So this is you on
 9 3 March 2015 to Simon Lawrence, copying in others,
 10 including Daniel Anketell-Jones, Neil Crawford,
 11 Mark Stapley.
 12 A. Yes.
 13 Q. Ben Bailey is also copied in there, we see. You say:
 14 "Simon,
 15 "Please find attached drawings now showing the fire
 16 breaks, both horizontal and vertical.
 17 "We assume a requirement of 90min integrity & 30min
 18 insulation is sufficient, if not please advise."
 19 Then you say this:
 20 "The vertical breaks are not on all columns, just
 21 party walls."
 22 I think that's the point we were discussing with the
 23 Chairman earlier --
 24 A. Exactly, yes.
 25 Q. -- about whether some columns didn't have a vertical

96

1 cavity barrier --
 2 A. Correct, yes.
 3 Q. -- because it wasn't along a party wall; yes?
 4 A. Mm.
 5 Q. What was it that prompted you to include cavity barriers
 6 on these drawings at this stage, can you remember? This
 7 was 3 March 2015.
 8 A. I think what was prompted was we were getting close to
 9 the point at which we were going to start installing
 10 things on site, so this had to be cleared up. We
 11 couldn't start hanging cladding on the building without
 12 the cavity barriers being finalised.
 13 Q. So it had become time-critical?
 14 A. Yes, yes.
 15 Q. Had you discussed cavity barriers around this time with
 16 Harley? Had you had a round table meeting with them to
 17 discuss it?
 18 A. Yes, certainly before then, yes.
 19 Q. And who do you remember discussing cavity barriers with
 20 before this point?
 21 A. Earlier on it would have been Dan, but certainly Ben and
 22 Ray.
 23 Q. Would it be fair to say that cavity barriers at this
 24 point were being included as a late amendment to
 25 drawings?

97

1 A. Not at all. We always knew that we were going to get to
 2 this point.
 3 Q. Yes, so you wouldn't accept that this was a relatively
 4 late stage to be adding the cavity barriers --
 5 A. No.
 6 Q. -- after the window design was completed and work on
 7 site had begun?
 8 A. No, not at all.
 9 Q. And had you had a discussion about precisely where to
 10 put the cavity barriers before producing these
 11 documents?
 12 A. Well, we had discussed it in the office and these were
 13 issued for their comment.
 14 Q. And again -- sorry, I keep trying to pin you down,
 15 I know it's difficult, but --
 16 A. Yes, yes, it's the typical round table -- I would attend
 17 the office once a week or a fortnight. Who was at that
 18 round-robin discussion would vary, but ...
 19 Q. Had you consulted the guidance that you refer to at
 20 paragraph 50 of your witness statement -- ADB, the CWCT
 21 guidance -- by this stage on the project?
 22 A. Yes, definitely.
 23 Q. You had?
 24 A. Mm.
 25 Q. What had you consulted it in relation to? What

98

1 were you --
 2 A. Just to find clarity, and there was no clarity.
 3 Q. I see. So you're confident that before this point
 4 you've looked at it to find clarity on what the rating
 5 of the barrier should be; is that right?
 6 A. Yes, I believe so.
 7 Q. And specifically for that purpose only?
 8 A. Yes, yes.
 9 Q. Now, you'd issued several drawings for the windows
 10 in January 2015, and we can see that you reissued only
 11 some of them again in March 2015. Can you help us as to
 12 why you didn't revise all of the drawings showing
 13 windows at that point to add cavity barriers?
 14 A. Maybe they didn't need it.
 15 Q. What we see from the attachments to the email -- you can
 16 see them listed there -- is that you revised drawings
 17 200, 201, 202, 301 and 305; does that sound right?
 18 A. Yes, that is only a couple of ... yes, I would guess
 19 that that covers the 20 floors of windows, does it not?
 20 Q. Well, let's look at a drawing. This is drawing 200,
 21 {SEA00003156}. So here we see the elevation, and now
 22 what we can see is there's dotted lines on the columns
 23 and on the spandrels with the label "Firebreak"?
 24 A. Yes.
 25 Q. Is that correct?

99

1 A. Yes, that's right.
 2 Q. And those are the cavity barriers; is that right?
 3 A. That's right, yeah, that's a generic term for cavity
 4 barriers or firestops.
 5 Q. We can see at the bottom in the table that firebreaks
 6 were added on 3 March 2015. Do you see that there?
 7 A. Yes.
 8 Q. Why did you use the word "firebreak" when you were
 9 referring to cavity barriers in this elevation drawing?
 10 A. It's just a generic term that we often would use.
 11 Q. Would you ever use the term "cavity barrier"?
 12 A. Before Grenfell I would probably not, no.
 13 Q. And was that because you were predominantly a curtain
 14 walling and glazing specialist, so your experience prior
 15 to Grenfell might have been on firestopping but not
 16 cavity barriers?
 17 A. Well, I don't think I would have called them firestops
 18 either.
 19 Q. So would you have called both a firebreak?
 20 A. Yes. Generically, yes.
 21 Q. And you didn't think that it was appropriate to
 22 distinguish between whether you were talking about some
 23 firestopping or a cavity barrier?
 24 A. No, because I don't think there was any confusion. You
 25 couldn't put a firestop in those locations.

100

1 Q. And I think it's clear to see that what we don't see, if
 2 we can pan out again, is we don't see cavity barriers
 3 around the sides of the windows, do we?
 4 A. No.
 5 Q. They're at some distance away from the windows.
 6 A. A little way, yes.
 7 Q. And we don't see cavity barriers specifically around the
 8 head, sill or jambs of the windows themselves, do we?
 9 A. No. We've got the one single compartment as shown on
 10 the architect's drawings.
 11 Q. Do you agree that that positioning and location of
 12 cavity barriers would not prevent fire spreading into
 13 the cavity immediately adjacent to the windows?
 14 A. Not immediately adjacent, no.
 15 Q. So we'll look at it on the 1:2 drawings shortly, but
 16 we've got cavities, haven't we? Take the head of the
 17 window there, there's going to be a cavity immediately
 18 above that window, isn't there?
 19 A. That's right, yes.
 20 Q. There's a return of the panel immediately above it --
 21 A. Yes.
 22 Q. -- and then the firebreak is now coming some distance
 23 above the head of the window.
 24 A. Yes. You just want to bear in mind that this is -- the
 25 location of these on this drawing is a little bit

101

1 indicative. When you look at the details, they're a bit
 2 close at the top of the window. But just for visual
 3 ease they've been moved away from the window slightly.
 4 Q. I want to put it to you again: why did you not, when
 5 doing this drawing, include cavity barriers around the
 6 window as well as any other cavity barriers in the
 7 system more generally?
 8 A. This was the only requirement.
 9 Q. Only requirement from who?
 10 A. From Harley and the architect's drawings.
 11 Q. Now, this configuration differs at the head of the
 12 window from what was shown on the Studio E drawings,
 13 doesn't it?
 14 A. It does a little bit, yes.
 15 Q. A little bit. The one we saw earlier at the head of the
 16 window by Studio E was immediately at the head of the
 17 window, wasn't it?
 18 A. Correct, yes.
 19 Q. And this is raised up to come some way into the
 20 spandrel.
 21 A. Yes. If you can throw up the detail above the window,
 22 you'll see it's close to the window without any
 23 interruptions.
 24 Q. When you say "close to the detail without any
 25 interruptions", what do you mean "without any

102

1 interruptions"?
 2 A. Above the window -- is it possible to find that drawing
 3 that shows the detail of that cavity barrier, our
 4 drawing above the window?
 5 Q. We'll check.
 6 A. It will make explanation fire easier.
 7 Q. Yes, it's the next drawing we're going to come to.
 8 A. Brilliant.
 9 Q. Yes, let's do that now then: {RYD00000220}. Yes, so
 10 this is the head of the window; is that right?
 11 A. That's correct, yes.
 12 Q. And we can see you've added the honeycomb cavity
 13 barrier --
 14 A. That's right, yes.
 15 Q. -- into the spandrel section --
 16 A. Yes.
 17 Q. -- of this configuration, and it's not immediately at
 18 the head as shown on the Studio E drawings, is it?
 19 A. That's correct, yes.
 20 Q. Would you agree with me that that's a worsening of the
 21 cavity barrier strategy --
 22 A. Not necessarily --
 23 Q. -- because fire -- sorry, let me just finish my
 24 question.
 25 A. Yes, sorry.

103

1 Q. Because fire has the potential to go up and into the
 2 return of the panel and into that gap before the cavity
 3 barrier?
 4 A. Not necessarily.
 5 Q. Not necessarily? What do you mean by that?
 6 A. Well, the architect shows the position of the cavity
 7 barrier tight on top of the window.
 8 Q. Yes.
 9 A. But the window hangs down below the structure. So you
 10 wouldn't expect to put a cavity barrier where it can't
 11 be backed up by the concrete structure. So, for one,
 12 you would have to put it at least at the bottom of that
 13 concrete floor slab.
 14 The second thing, as this is a refurbishment, the
 15 concrete isn't crisp and flat and straight as it's shown
 16 on that drawing. It's quite a deflection. So the
 17 aluminium -- this special profile at the head of the
 18 window, there would be gaps between that and the
 19 concrete. So if it was mounted on that aluminium
 20 profile, fire could get behind the cavity barrier, and
 21 you would also have to contend with the cavity barrier
 22 sealing over all the fixings. So that appeared to be
 23 the cleanest, safest position.
 24 Q. Why couldn't you have used compressible mineral wool in
 25 that location to create a cavity barrier at the head of

104

1 the window?

2 A. I'm sure lots of options would be available, but this

3 was the option that was proposed and accepted.

4 Q. I'm going to show you a diagram from Mr Hyett's report

5 at this stage, if we go to {PHYR0000003/66} and if we

6 can blow up that figure.

7 Now, what Mr Hyett has done is take your drawing --

8 yes?

9 A. Yes.

10 Q. And he's indicated where, in his opinion -- and he'll be

11 asked about this in due course -- the cavity barrier

12 should have been if following Approved Document B,

13 section 9, paragraph 9.3. And he's put it immediately

14 at the head of the window frame, lower than where you've

15 put it?

16 A. Yes.

17 Q. Do you agree?

18 A. Yes, that's what he's shown.

19 Q. And do you agree that that was a perfectly possible

20 thing to have done, that it was buildable in that way?

21 A. Well, as I say, I think he's shown it too low, and he's

22 assuming that the substrate that that aluminium angle is

23 bolted to is flat, which it clearly wouldn't be.

24 Q. Just break that down. Why has he shown it too low?

25 A. I don't think it should be hanging below the concrete,

105

1 because the fire protection -- the rating of the product

2 relies on a suitable substrate behind it.

3 Q. But you're trying to protect the cavity, the fire from

4 entering the cavity, so why wouldn't you try and put the

5 cavity barrier immediately at the head so that the

6 cavity is protected?

7 A. The fire in the flat can attack the back of that cavity

8 barrier, and I don't think they're designed to resist at

9 that point.

10 Q. I see.

11 A. They're designed to resist at the front or the sides.

12 Q. So are you saying that you don't think it would have

13 been possible to put a cavity barrier in that location

14 in that way as shown by Mr Hyett?

15 A. I think lifting it up very slightly would be better, and

16 then another solution would have to be added to that to

17 protect between the aluminium bracket and the concrete

18 also.

19 Q. I see. Okay. Well, I'm putting it to you that you

20 should have had it lower, you should have had it

21 immediately at the head per the guidance, around

22 openings, to help prevent fire from coming out of the

23 window and getting into the rainscreen cavity.

24 A. Well, a solution was offered and it was accepted.

25 Q. So just to be clear, are you disagreeing with me that it

106

1 would have been possible to do what Mr Hyett is saying?

2 A. It would be possible to do exactly what he's shown, yes.

3 Q. Yes, and that would have been in accordance with the

4 guidance given in Approved Document B, wouldn't it?

5 A. I don't believe so.

6 Q. Why don't you believe that's in accordance with the

7 guidance?

8 A. Because I think that they've not considered that the

9 rear of that cavity barrier is below the substrate.

10 Q. So you're worried that fire might go up behind that, but

11 then it's going to hit the concrete, isn't it?

12 A. This is what I was saying. There's a gap between the

13 concrete and the aluminium angle. But what I'm getting

14 at is that the product is being attacked from behind.

15 It's come along that back edge, which I don't think is

16 appropriate.

17 Q. Why not? I mean, these are mineral wool kind of blocks,

18 aren't they --

19 A. That's right.

20 Q. -- with an intumescent strip on the edge?

21 A. And the thickness of the product defines its rating.

22 Q. Yes.

23 A. Now, if that's hanging down in free space by 50% of its

24 thickness, it's not exhibiting the same properties as

25 a full thickness.

107

1 Q. You mean because it would be insecure, that it's not

2 properly fixed back to the concrete?

3 A. No, not at all, not at all. The flame is attacking that

4 barrier halfway up the back edge.

5 Q. Yes, but it's an inert material, that's the point: it

6 blocks the fire and it blocks the smoke. That's what

7 it's there to do.

8 A. But your implication is that any size of material that

9 is inert would be adequate, and it's clearly not,

10 because they come in different thicknesses to give

11 different resistances.

12 Q. But if you were worried about gaps at the back, isn't it

13 possible around windows -- and we'll look at an example

14 of this later -- to use compressible mineral wool and

15 pack it into gaps? Isn't that sometimes a solution

16 that's adopted when putting cavity barriers around

17 windows?

18 A. It would still have to be a fire product. You couldn't

19 just pack it with a mineral wool.

20 Q. No, fine. You say it's got to be a fire product, but --

21 A. It would have to be an engineered -- you couldn't just

22 say, "Oh, we've got a gap so we'll pack some fire

23 insulation in there". That would have to be referred to

24 fire engineers to approve that.

25 Q. I see. Maybe that's what was required on Grenfell, but

108

1 what you've done here is just raise it up because --
 2 A. Yes, I've offered a more robust solution for comment.
 3 Q. But did you ever check with anybody that that was more
 4 robust in terms of fire spread?
 5 A. No, we're offering it to the professional team.
 6 Q. I see.
 7 A. The architect and his fire engineers. If --
 8 Q. So you expected them to check that that was
 9 an appropriate solution?
 10 A. That's correct. All the drawings were issued to the
 11 team for compliance.
 12 Q. I see.
 13 If we look at paragraph 34 of your witness
 14 statement, {HAR00010419/9}, this is where I think you've
 15 just explained in your statement what you were referring
 16 to:
 17 "In terms of the location of the cavity barriers on
 18 the spandrels, this was drawn above the aluminium
 19 fixings at the head of the window, as it was thought it
 20 was more effective to have them above these fixings,
 21 directly against the concrete and located within the
 22 span of the concrete floor slab."
 23 Do you see that there?
 24 A. Yes.
 25 Q. Who thought it was more effective to have them in that

109

1 location, can you help us?
 2 A. Yes, it was discussed at one of our meetings across the
 3 table at Harley.
 4 Q. Can you remember who was part of that discussion about
 5 moving that cavity barrier up?
 6 A. Well, Ray would definitely have been.
 7 Q. Did you think it was more effective in that location?
 8 A. Definitely.
 9 Q. And Ray Bailey thought it was more effective in that
 10 location?
 11 A. Yes, yes, I agreed with him. Yes.
 12 Q. What about Daniel Anketell-Jones, was he part of that
 13 discussion?
 14 A. Don't know.
 15 Q. Did you ever expressly flag this with the architects and
 16 say to them, "Listen, looking at your drawings and
 17 drafting the drawings, we've decided to move this. This
 18 is why we've moved it, this is why we think it's still
 19 effective, what do you think?" Did you ever do that?
 20 A. No, no.
 21 Q. And why not? Why would you not do that?
 22 A. Because the whole issue of providing drawings for him to
 23 comment is that in itself. We don't ask him to check
 24 every item on the drawing; that is the process, that
 25 he's checking every item on the drawing.

110

1 Q. I see.
 2 Your evidence to us so far has been that what you
 3 were doing was simply translating, you were just
 4 draughting, what the architect wanted into a drawing.
 5 A. That's correct, yes.
 6 Q. Would you accept that, if you were doing that, you would
 7 have put the cavity barrier at the head of the window?
 8 A. There's areas where what the architect has shown are
 9 impractical and you may make minor variations, which is
 10 the whole point of us sending the drawings back to him.
 11 If we were copying his drawings exactly, there would be
 12 no need to send any drawings back to him.
 13 Q. Yes, so there is a design development going on at
 14 Harley's end, isn't there?
 15 A. Yes.
 16 Q. And you're part of that process.
 17 A. That's right, to make things fit the building, yes.
 18 Q. Now, just looking back at the drawing, {RYD00000220},
 19 this is the drawing produced on 3 March, and I just want
 20 to look at what the annotations say.
 21 In that top left label, if we can zoom into that,
 22 where you have put the cavity barrier, you've put
 23 "Firebreak cut around cladding rails". Do you see that
 24 there?
 25 A. Yes.

111

1 Q. So was that a specific instruction that you were adding
 2 to these drawings about cutting firebreaks around
 3 cladding rails?
 4 A. It was as I understood they would be installed, because
 5 the cladding rails come into the zone. So they weren't
 6 going to come as a pre-cut item; they were going to be
 7 cut on site accordingly.
 8 Q. Did you ever consider how the integrity of the cavity
 9 barrier would be maintained if it was going to be cut
 10 around the cladding rail?
 11 A. No, because I guess this is sealing the inside, but the
 12 cladding rail, the area of the cladding rail that you're
 13 implying, is on the outside of the building.
 14 Q. No, it's not. It's on the inside. It's underneath the
 15 rainscreen cladding --
 16 A. But it's also on the outside because it's an open air
 17 gap.
 18 Q. Well, let's focus on the inside. What you had was
 19 a concrete face, and at intervals you had a cavity
 20 barrier coming across --
 21 A. Complete; it wasn't intervals.
 22 Q. And then where there was a cladding rail that came up
 23 the spandrel, the cavity barrier was cut so that the
 24 rail went right through the cavity barrier. Do you
 25 agree?

112

1 A. That's right, yes, it was cut tight .
 2 Q. Yes, but you've still got the break in the cavity
 3 barrier where the rail goes. Do you agree?
 4 A. Yes, but the rails are continuous so there's no
 5 alternative .
 6 Q. Now, you've said to us earlier that you were concerned
 7 about gaps at the head of the window and the fire
 8 attacking the back of the cavity barrier if it was
 9 lower.
 10 A. Yes.
 11 Q. Why didn't you ever give any consideration to the gaps
 12 that would be created by the cladding rails as they went
 13 through the cavity barriers?
 14 A. There were no gaps. It was cut tight to the cladding
 15 rails .
 16 Q. Yes, but the cladding rail itself was a channel through
 17 which the cavity barrier did not fit . Does that make
 18 sense? It didn't go through the middle of the cladding
 19 rail .
 20 A. Yes, the front is, yes.
 21 Q. We'll come and I'll show you some pictures, and I think
 22 in Paul Hyett's report we get --
 23 A. I mean, this is normal practice.
 24 Q. It's normal practice to cut around the cladding rail, is
 25 that what you're saying?

113

1 A. That's right, as long as it's tight on the inside, you
 2 can do no more on the outside because it is
 3 a cladding -- it is a continuous joint .
 4 Q. But wouldn't it have been possible to put a piece of
 5 cavity barrier inside the U-shape of the cladding rail
 6 so that you have a continuous cavity barrier along the
 7 spandrel?
 8 A. But that would be exposed to the outside world then.
 9 Q. No, it was inside the rainscreen.
 10 A. Okay, I think we need to have a look at the detail then.
 11 Q. Yes, we can do that.
 12 SIR MARTIN MOORE-BICK: Before we leave this drawing,
 13 I confess to being not very good at reading drawings,
 14 but can you tell me with your practised eye tell me how
 15 far up this shows the cavity barrier above the head of
 16 the window?
 17 A. Well, it was discussed, it was as tight as possible to
 18 the --
 19 SIR MARTIN MOORE-BICK: Yes, but what's the dimension, as
 20 far as you can tell?
 21 A. I would say that was about -- because it's a scale
 22 drawing, I would say that was about 175 to
 23 200 millimetres. So it was actually quite a small zone.
 24 MS GRANGE: I think we'll have a look over the lunch break
 25 and see if we can find a dimension for that.

114

1 SIR MARTIN MOORE-BICK: All right, thank you very much. I'm
 2 just interested to get a feel for the dimensions.
 3 I find it quite hard to get that just from my reading.
 4 MS GRANGE: Yes, I think we might have some good photographs
 5 and dimensions in Barbara Lane's first report, so we'll
 6 do that .
 7 SIR MARTIN MOORE-BICK: Thank you.
 8 MS GRANGE: Now, if we go on in the chronology, if we turn
 9 to {SEA00000252}, we can see, if we look at the email at
 10 the top of that page, that on 6 March 2015, your email
 11 of 3 March has prompted Neil Crawford to send an email
 12 on 6 March to Paul Hanson at RBKC Building Control, and
 13 you're copied in, amongst others. Do you see that on
 14 the cc list?
 15 A. Yes, yes.
 16 Q. He says:
 17 "Hi Paul
 18 "Following our conversation this afternoon, this
 19 reminded me of another issue. Where we are over
 20 cladding what fire rating do we need to allow for within
 21 the wall build up between apartments (see below and
 22 attached)?"
 23 Do you see that there?
 24 A. Yes.
 25 Q. So he's asking about the fire rating.

115

1 A. Yes.
 2 Q. Can you explain to us exactly what the issue was he was
 3 raising there? Was it about the -- you've put "90min
 4 integrity & 30min insulation is sufficient" in your
 5 email --
 6 A. No, no, I think this is referring to an architectural
 7 detail. This reminds him of another issue.
 8 "Where we are over cladding what fire rating do we
 9 need to allow for within the wall build up between
 10 apartments ..."
 11 So I think that's referring to the internal of the
 12 building.
 13 Q. No, I think he's asking -- I think we'll see it as we
 14 keep going -- within the rainscreen cavity, what fire
 15 rating do we need to allow for in the locations between
 16 apartments, so the horizontal cavity barriers, what
 17 rating should they be; is that not right?
 18 A. But that's exactly what I've asked below, so why is it
 19 another issue, unless he's referring to his
 20 conversation?
 21 Q. That may be right. It may be that you've raised it and
 22 he's said, "That reminds me", but in fact you're talking
 23 about the same issue.
 24 A. Possibly, yes.
 25 Q. Now, we can see you're copied in to this email string.

116

1 Was it as a result of this exchange that prompted you to
 2 look at Approved Document B?
 3 A. No, I think I probably looked at it before. I mean,
 4 very close to this time. I mean, this is only
 5 three days after my email. I think it was literally
 6 around that time, probably before 3 March, but ...
 7 Q. Did you think to look at table A2 of ADB which gives
 8 advice on the rating of cavity barriers?
 9 A. I don't recall.
 10 Q. It appears that you rang Siderise and spoke with
 11 Sue Sheppard at this point. We can see that if we go to
 12 {HAR00003999}. So if we look at the email at the bottom
 13 of that page, on 11 March, you are emailing
 14 Barnaby Carrick and you say this:
 15 "Barnaby,
 16 "Further to your recent help with horizontal &
 17 vertical firebreaks within our rainscreen cladding, we
 18 wonder if you could assist with what would be the normal
 19 fire rating required."
 20 Then you explain about the building, domestic block.
 21 "Internal party walls will be 120min.
 22 "In your experience what would the rating be for
 23 horizontal and vertical breaks. This would help us to
 24 propose hopefully the correct product for
 25 building control to approve."

117

1 A. Yes.
 2 Q. Can you see that there?
 3 And then if we look at the top of that page,
 4 Sue Sheppard says:
 5 "Hi Kevin
 6 "Thank you for sending across following our
 7 conversation. I have just spoken with Barnaby and he
 8 should be responding [to] you shortly."
 9 Do you see that there?
 10 A. Yes.
 11 Q. Now, you're asking for advice from Siderise on the
 12 rating of the barriers at this point.
 13 A. Yes.
 14 Q. Again, my question is: did you take any advice at this
 15 point from Siderise about where to put the vertical and
 16 horizontal barriers?
 17 A. No, not at all.
 18 Q. That was because you were clear in your mind, were you,
 19 where they were going to go?
 20 A. Yes, they were as close to the position shown in the
 21 architect's drawings and they complied with the
 22 discussions with Harley.
 23 Q. Right.
 24 Shortly after that, on 12 March 2015, Mr Mort,
 25 Siderise's technical officer, responds. If we could go

118

1 to {BSD00001779}, so this is Mr Mort to you, and he
 2 says:
 3 "Hi Kevin,
 4 "We would confirm that to meet the requirements of
 5 Approved Document B ... the area between compartment
 6 wall and outer cladding needs only to be a cavity
 7 barrier (30 minutes integrity & 15 minutes insulation)
 8 which would mean that our open state cavity barrier
 9 system ... would be suitable.
 10 "If you need me to comment on a specific detail
 11 the(sic) please forward over and I will respond
 12 immediately, apologise for the delay."
 13 And he says:
 14 "Please see Diagram 33 below."
 15 Can you see that? He's actually cut and pasted
 16 it --
 17 A. Yes.
 18 Q. -- into your email.
 19 A. Can we just page up a little bit?
 20 Q. Go page up?
 21 A. Yes. I see, yeah. So he's made specific comment to
 22 that being rainscreen.
 23 Q. Yes, and about whether or not their product would be
 24 suitable.
 25 A. Yes.

119

1 Q. Now, at this point you were having diagram 33 brought to
 2 your attention.
 3 A. Mm.
 4 Q. Do you recall noticing that diagram 33 marks cavity
 5 barriers around the windows?
 6 A. Yes, yes.
 7 Q. But you were still comfortable, were you, despite that,
 8 with the arrangement that you were showing on your
 9 drawings?
 10 A. We were still discussing it at this stage, yes.
 11 Q. When you say "still discussing it at this stage" --
 12 A. Well, you'll see this email trail goes on quite a while
 13 and it's picked up by Ben.
 14 Q. I appreciate you're still discussing the rating of the
 15 cavity barriers, but is it your evidence that you were
 16 still discussing the location, where to put the cavity
 17 barriers?
 18 A. The whole subject of cavity barriers, yes.
 19 Q. Right. So even though we saw you'd issued those
 20 drawings on 3 March showing cavity barriers --
 21 A. Yes.
 22 Q. -- you felt in your mind, did you, that the issue was
 23 still up for grabs as to how you ended up on that issue?
 24 A. I felt we needed someone to say, "This is all okay".
 25 Q. I see.

120

1 Now, it appears that Mr Hoban had concerns at this
 2 point regarding the fire integrity of the cavity
 3 barriers. If we go to {RBK00048734}, on 20 March, this
 4 is an email from John Hoban, and it's to Neil Crawford
 5 and Paul Hanson -- Neil Crawford and Studio E,
 6 Paul Hanson at RBKC Building Control -- and you're
 7 copied in. John Hoban is referring to the Building
 8 Regulations, and he says to Neil Crawford:
 9 "Further to my conversation with you today, I would
 10 confirm that the fire time for the new Elements of
 11 Structure ... in Grenfell Tower is 120 minutes, as
 12 specified in ..."
 13 And he's talking about table A2 of
 14 Approved Document B.
 15 A. Yes.
 16 Q. Which I just referred to just a moment ago.
 17 A. Yes.
 18 Q. "I would also draw your attention to diagram 33 of
 19 Approved Document B and highlight the detail between
 20 compartment floors and external cladding. In the
 21 meantime should you wish to discuss any other aspects of
 22 the project Neil, then please do not hesitate to call
 23 me ..."
 24 So at this point John Hoban is saying his view is it
 25 needs to be 120 minutes.

121

1 A. No, no. He's saying the new elements of the structure.
 2 We were just talking about the existing elements of the
 3 structure. Where the boxing club was, there was new
 4 elements of the structure being constructed, and that
 5 was a different zone, as far as fire rating was
 6 concerned.
 7 Q. Isn't it rate that what Mr Hoban is referring to as new
 8 elements of structure is the new cladding, the
 9 overcladding on the whole building, new columns, beams,
 10 sections of compartment floor?
 11 A. Not at all. You can have a look at the architect's fire
 12 strategy plans which clearly show the lower levels as
 13 having a greater fire rating. Harley provided some new
 14 walls, where there were no concrete walls, they provided
 15 an SFS construction in these areas. This was the new
 16 structure.
 17 Q. I see. So your evidence is that this wasn't concerned
 18 with levels 4 to 23 of Grenfell Tower?
 19 A. I don't believe so, no.
 20 Q. This was concerned with the lower levels?
 21 A. Yes, definitely.
 22 MS GRANGE: Mr Chairman, I wonder whether that's an
 23 appropriate moment. Again, I'm midway through this
 24 topic, but it goes on and that's as good a moment as
 25 any.

122

1 SIR MARTIN MOORE-BICK: If that suits you, that I think will
 2 suit the rest of us as well. Good, thank you very much.
 3 Well, Mr Lamb, we're going to have a break now for
 4 some lunch. Please remember not to talk to anyone about
 5 your evidence while you're out of the room, and we'll
 6 resume at 2 o'clock, please.
 7 THE WITNESS: Okay, thanks.
 8 SIR MARTIN MOORE-BICK: Thank you very much.
 9 (Pause)
 10 Right, thank you, 2 o'clock, please.
 11 (1.00 pm)
 12 (The short adjournment)
 13 (2.00 pm)
 14 SIR MARTIN MOORE-BICK: Right, ready to carry on, Mr Lamb?
 15 THE WITNESS: Certainly.
 16 SIR MARTIN MOORE-BICK: Good. Thank you.
 17 Yes, Ms Grange.
 18 MS GRANGE: Yes, thank you.
 19 Just to pick up on a couple of points from this
 20 morning before we carry on with the cavity barrier
 21 story.
 22 Would you agree with me that, in general, the
 23 specification takes precedence over the drawings? So
 24 when you're coming to approach design work, it's the
 25 specification that's of higher importance in terms of

123

1 telling you what to include in a design. Would you
 2 agree with that?
 3 A. I think if it's a performance specification I would
 4 agree, but not necessarily a prescriptive.
 5 Q. But here on Grenfell, take cavity barriers, we didn't
 6 get a prescriptive specification, did we?
 7 A. No.
 8 Q. We had something more like a performance specification.
 9 A. Yes.
 10 Q. Yes? We know that the wall had to comply with CWCT
 11 guidance, it had to comply with the Building
 12 Regulations, there's express reference to firebreaks in
 13 accordance with ADB.
 14 A. Yes.
 15 Q. So it's a performance specification, isn't it?
 16 A. To a degree, yes.
 17 Q. On cavity barriers.
 18 A. Yes.
 19 Q. And it's not until Harley come along that the Siderise
 20 cavity barriers are specified, is it?
 21 A. No, that's right.
 22 Q. So the point I want to put to you is that even if cavity
 23 barriers weren't shown in particular locations by the
 24 architect on the drawings, why didn't the specification,
 25 the NBS specification, take precedence in terms of what

124

1 Harley should have been designing?
 2 A. I don't think you could convey the requirement for
 3 positioning cavity barriers adequately in the NBS.
 4 I think you would generally rely on the drawings to show
 5 you where they went.
 6 Q. But why wasn't it adequate to say "firestopping or
 7 firebreaks in accordance with Approved Document B", why
 8 wasn't that more than adequate?
 9 A. Because it was the architect that was ensuring
 10 compliance with Document B; surely it was his place to
 11 interpret Document B and then show them on his drawings.
 12 Q. But in terms of cavity barriers around the windows, you
 13 don't need any interpretation of Approved Document B,
 14 do you? Approved Document B is clear. I think you
 15 accepted paragraph 9.3 was crystal clear that cavity
 16 barriers were required around windows.
 17 A. Yes, but as we've noted before, there were many routes
 18 to compliance, and this may well have been
 19 a fire-engineered solution.
 20 Q. Yes, but we've looked at emails, haven't we, Mr Lamb,
 21 we've looked at emails very recently in the context of
 22 the cavity barrier discussion --
 23 A. Yes.
 24 Q. -- where people are referring to diagram 33 of ADB?
 25 A. Yes, but if that comes from a supplier, it doesn't

125

1 necessarily correlate that that's what the architect is
 2 after.
 3 Q. But you don't ever see an email from anybody on the
 4 project saying, "All very nice what's in ADB, but that's
 5 not what we're following". You don't see that, do you?
 6 A. Nor do we have a very precise email saying exactly what
 7 is required.
 8 Q. Okay. Well, we'll keep going with the story and let's
 9 see what we find.
 10 A. Sure.
 11 Q. Just one more question though before I pick that up.
 12 We talked about the raising of the cavity barrier up
 13 at the head of the window.
 14 A. Yes.
 15 Q. Did Ray Bailey tell you to move it or was it your idea
 16 to move it?
 17 A. Oh, no, it would be part of the team's opinion, yes.
 18 Q. What does that mean, part of the team's opinion?
 19 A. Well, whether it was actually Ray Bailey -- I mean, it
 20 would have been -- I would have been instructed to do
 21 it, but I wouldn't recall if Ray actually said, "You
 22 must put it here". It might have been one of the other
 23 members of the team saying, "We ought to put it there to
 24 ensure adequate sealing against the structure". I don't
 25 recall.

126

1 Q. I see.
 2 Can you recall whether it was your idea to raise it
 3 up?
 4 A. Oh, no, it certainly wasn't my idea.
 5 Q. I see. So what you're saying is that must have come
 6 from somebody within the Harley design team --
 7 A. Yes.
 8 Q. -- to instruct you to do that?
 9 A. Yes.
 10 Q. And you wouldn't have done it otherwise?
 11 A. No, no, this was -- again, as we've mentioned before,
 12 there were certain key concept details that were
 13 discussed round the table, and I think it's not beyond
 14 the realms of expectation that this was a key concept.
 15 Q. Can we be more precise. You say it's not beyond the
 16 realms of expectation that this was a key concept.
 17 A. Well --
 18 Q. Are you speculating as to whether that was discussed?
 19 A. No, not at all. This is a key concept and it would have
 20 been discussed around the table.
 21 Q. Do you have a memory of it actually being discussed?
 22 A. Vaguely, but not in specific terms.
 23 Q. Okay.
 24 Now, let's just pick up where we were in the thread.
 25 We'd looked at some concerns from the Building Control

127

1 officer, John Hoban, that the fire integrity of the
 2 cavity barriers ought to be 120 minutes. I want to pick
 3 it up, if we go to {SEA00013001}, this is on 25 March,
 4 you send an email to Simon Lawrence, copying in the team
 5 again, saying:
 6 "Simon,
 7 "Further to our meeting yesterday, please find
 8 attached details for the firebreaks, all now upgraded to
 9 120min."
 10 Do you see that there?
 11 A. Yes.
 12 Q. And these are general arrangement drawings.
 13 A. Yes.
 14 Q. And our understanding is that that upgrading of
 15 120 minutes that you did at that point was to the
 16 firebreaks at levels 3 to 23 or 4 to 23. It wasn't --
 17 A. If that's where they are, then yes, but I do recall
 18 being asked to change them, and you'll find that there
 19 was a quotation supplied to Rydens to actually upgrade
 20 them, because it was never expected at the beginning of
 21 the project.
 22 Q. Yes. So we've got that.
 23 Then if we looked now at {RYD00037117} on page 1,
 24 here we see Ray Bailey to Simon Lawrence, Neil Crawford,
 25 Ben Bailey, on 27 March 2015, ccing you and others:

128

1 "Hi Simon,
 2 "Reading the email from the specialist suppliers ...
 3 it should be fairly straight-forward.
 4 "A firestop is required to stop fire spreading
 5 between floors or party walls if it is inside the
 6 building. Ie inside of the window or curtainwall.
 7 "A cavity barrier is required to stop fire spreading
 8 inside the cavity. For the fire to enter the cavity it
 9 has had to have gone through the window or curtainwall.
 10 "In our situation the cladding is outside of the
 11 windows and therefore it should have a cavity barrier as
 12 opposed to a firestop .
 13 "I would ask Neil to make this point.
 14 "Best regards
 15 "Ray."
 16 Do you see that there?
 17 A. Yes.
 18 Q. So Harley haven't given up at this point; they're
 19 maintaining their position that it should be a cavity
 20 barrier, not a firestop .
 21 A. That's right. I think this was following -- the email
 22 trail clearly showed there was some confusion amongst
 23 parties. I think Ray was involved to try and explain
 24 how he understood the terminology.
 25 Q. Yes, that sounds fair .

129

1 Turning to the email at the bottom of page 1 and
 2 going on to the top of page 2 {RYD00037117/2}, from
 3 Neil Crawford on 27 March, just have a look at that, on
 4 the top of the next page:
 5 "Hi Simon
 6 "Have spoken with John and he wasn't happy with
 7 Harley's email as we are talking about fire stopping as
 8 opposed to cavity barriers. I have explained again the
 9 specifics of our scenario and he will have
 10 a conversation with Paul Hanson to see if there is
 11 a reduced spec they can agree to and will then speak
 12 with Harley's directly ."
 13 Do you see that there?
 14 A. Yes.
 15 Q. So that's what the architect was saying.
 16 A. Mm.
 17 Q. Can we now go to {HAR00003947}. This is another part of
 18 the same exchange that was occurring at this time on the
 19 topic of cavity barriers. I want to look at the email
 20 at the top of the page first. This is Ben Bailey to
 21 Ray Bailey, to you, to Mark Stapley. It's on
 22 30 March 2015.
 23 A. Yes.
 24 Q. Do you see that? He's saying:
 25 " Still going around in circles .

130

1 "Best regards,
 2 "Ben."
 3 A. Yes. Yeah, that's just highlighting the fact that we're
 4 still not got any closer to a final solution.
 5 Q. To a resolution on this issue?
 6 A. That's right, yes.
 7 Q. Now, in terms of this chain here, if we go to the bottom
 8 of page 7 {HAR00003947/7} -- some of these chains are
 9 very long, I just want to look at the bottom of page 7.
 10 We can see Ricky Kay sends an email on 26 March 2015 at
 11 13.42 to Ben Bailey, copying in you, Mark Stapley,
 12 Sue Sheppard, and he says:
 13 "Hi Ben,
 14 "Apologies for the delay ...
 15 "Please find below extract from the
 16 Approved Document B of the Building Regulations."
 17 A. Yes.
 18 Q. Then on to the next page:
 19 "Here you can see that it clearly states that
 20 30 minutes fire integrity and 15 minutes insulation is
 21 all that is required from a cavity fire barrier. This
 22 is reference to rainscreen cladding applications where
 23 the cavity barrier is deemed to be on the outside of the
 24 building. Our RH25-90/30 will offer 90 minutes fire
 25 integrity and 30 minutes fire insulation, therefore

131

1 exceeds minimum requirements.
 2 "120 minute fire rating is generally the industry
 3 standard for curtain wall to concrete slab edge
 4 firestopping where the firestop is located on the inside
 5 of a building and is considered to be a continuation of
 6 the floor slab.
 7 "Please get in touch if you need anything else from
 8 us to enable you to progress with your order, many
 9 thanks.
 10 "Ricky Kay."
 11 A. Yes.
 12 Q. Now, we note there, don't we, that he's got an extract
 13 from Approved Document B, do you see that there?
 14 A. That's right, yes, from Siderise .
 15 Q. If we go to the email immediately above this,
 16 Neil Crawford, we see Neil Crawford to John Hoban:
 17 "Hi John
 18 "There has been a lot of conversation on site about
 19 the cavity fire barrier requirements to be fitted
 20 between the existing concrete external wall panels and
 21 the new external rainscreen aluminium cassettes.
 22 "Can you please see the proposal by the cladding
 23 contractor below and confirm if this is acceptable to
 24 you."
 25 Do you see that there?

132

1 A. Yes.
 2 Q. Now, Mr Crawford doesn't say, does he, in response to
 3 Mr Kay's email, "No, no, no, you've got this wrong,
 4 we're not following Approved Document B, we've got
 5 a fire-engineered solution, our fire engineer has looked
 6 at this and we're doing something different". He
 7 doesn't say that, does he?
 8 A. He doesn't, no.
 9 Q. And in forwarding to Mr Hoban that Ricky Kay email with
 10 the extract from Approved Document B, would you agree
 11 with me that it would appear from this, and you would
 12 have understood at the time, is my suggestion, that the
 13 professionals on this project did think they were
 14 following Approved Document B as their route to
 15 compliance?
 16 A. No, I think that's your interpretation. I don't think
 17 you could necessarily interpret it one way or another.
 18 Not in this instance.
 19 Q. You couldn't?
 20 A. No.
 21 Q. So the fact that Neil Crawford is saying to the
 22 Building Control officer, "Can you please see the
 23 proposal by the cladding contractor below and confirm if
 24 it is acceptable to you", and that cladding contractor
 25 is setting out an extract from Approved Document B, his

133

1 interpretation, and saying, "We exceed these minimum
 2 requirements", you don't think that's an indication that
 3 Neil Crawford thought they were following
 4 Approved Document B?
 5 A. I think it's a useful bit of documentation, but
 6 I certainly wouldn't have interpreted that one way or
 7 the other.
 8 Q. I suggest when you put emails like that together with
 9 what you say in your witness statement about consulting
 10 Approved Document B in relation to the cavity barrier
 11 requirement --
 12 A. Yes.
 13 Q. -- that it was obvious that at the time that was the
 14 route to compliance you all thought you were following.
 15 A. No, I don't agree with that.
 16 Q. Okay.
 17 A. I think there's no other way to seek any information in
 18 the climate where there seems to be very little actual
 19 action as to what was required.
 20 Q. I'll put the point one more time: we don't see any
 21 email, do we, or any communication where anyone is
 22 saying, "We are not following Approved Document B on
 23 this project", we don't find that, do we?
 24 A. No, no. And we don't say we are.
 25 Q. I think we'll leave the point there.

134

1 Now, Mr Kay goes on to request a drawing of the
 2 build-up of the cladding to send to his technical
 3 officer. If we look at the bottom of page 4 of this
 4 chain and the top of page 5 {HAR00003947/5}, so
 5 Ricky Kay on 30 March 2015, it's in the same chain, if
 6 we look at what he says at the top of page 5:
 7 "All,
 8 "Please can somebody forward over a drawing of the
 9 build-up of the cladding so that my Technical Officer
 10 can evaluate and forward an official response with
 11 a SIDERISE product specification.
 12 "Many thanks.
 13 "Ricky Kay."
 14 A. Don't forget, at this stage I don't seem to be copied in
 15 to these emails.
 16 Q. I understand that. I'm just trying to build up to what
 17 we do see shortly --
 18 A. Of course.
 19 Q. -- which is an email sent by Mr Mort at Siderise.
 20 So I want to go to the second email now on page 1
 21 {HAR00003947/1}. So this is from Chris Mort to
 22 Ben Bailey and Ricky Kay.
 23 Just before we read this email, if we go to the top
 24 of the chain, it's this that you're forwarded on
 25 30 March when Ben Bailey says:

135

1 "Still going around in circles."
 2 A. Yes.
 3 Q. Do you see that? And there's a number of attachments
 4 there to that?
 5 A. Yes.
 6 Q. So you're forwarded this email from Chris Mort,
 7 Siderise's technical officer. If we go back to that
 8 email --
 9 A. I wouldn't necessarily have read all the way down and in
 10 depth.
 11 Q. Well, it's the email immediately below the very short
 12 email you're sent from Ben Bailey. Are you saying you
 13 wouldn't have read this email here from Mr Mort?
 14 A. The fact that the email starts "[We're] still going
 15 round in circles" implies to me there's still no
 16 resolution, so I'm still waiting for an answer as far as
 17 an instruction from Harley as to what I should be doing.
 18 Q. I see.
 19 A. I mean, by this stage Ben has clearly picked up the
 20 baton and he's running with this. I've taken a step
 21 back at this point. I'm just waiting for his
 22 instruction.
 23 Q. Well, let's just see what this email says and I will
 24 then ask you some questions about it. He says:
 25 "Hi Ben,

136

1 "I have reviewed the drawings sent over and sketch
2 a proposal to alleviate the issues raised by the
3 BCO ..."

4 Building Control officer, yes?

5 A. Yes.

6 Q. "... also on the second page of the attachment I have
7 highlighted the weak link so to speak in terms of fire
8 and I think the BCO would have also noticed this".

9 Then he says:

10 "The proposal requires the installation of RH25g
11 90/60 product in two layers one at the head of the
12 window aligning with the compartment floor and the other
13 at the top of the existing up stand, therefore two
14 layers of 60 minutes protection that overall would
15 provide if tested over 120 minutes protection, at the
16 window locations.

17 "Please note that without specific details of the
18 overall construction of internal linings and/or sight of
19 the Fire Strategy for the project I can only offer the
20 proposal above, and as this is a refurbishment I would
21 imagine that the internal linings will remain
22 insitu (sic) and made good to openings only, which does
23 not aid the fire strategy.

24 "At the shearwall(sic) locations I cannot see any
25 justification for anything other than a cavity barrier

137

1 at 30/15 rating, so subject to BCO approval you may be
2 able to down grade in these locations."

3 If we can just go over the page {HAR00003947/2}:

4 "I hope this helps in resolving the design detail
5 for the compartmentation on this project."

6 Do you see that?

7 A. Yes, I see that.

8 Q. If we can go back to the main part of that email then,
9 just to help familiarise yourself with it. Did you read
10 this email when you were forwarded it on the project?

11 A. I'm sure I would have scanned it, but as it's, as I've
12 said before, further down the trail of an email that's
13 headed that we're not any closer to solution, it would
14 have just been an element of scanning.

15 Q. Did you notice at the time that, in the very first
16 paragraph of that email, Mr Mort is saying that on the
17 second page of the attachment he's highlighted the weak
18 link, so to speak, in terms of fire. Did you notice
19 that at the time?

20 A. Not at the time, no.

21 Q. Did you notice that at any point during the Grenfell
22 project?

23 A. I don't believe so, no.

24 Q. You don't believe so?

25 A. No.

138

1 Q. Because I would suggest that what we see in this email
2 is he's doing two things: he's saying he's highlighted
3 the weak link in terms of fire, and then he's trying to
4 offer a solution of how you get the 120 minutes'
5 protection with his products, and he's saying you could
6 use it in two layers: one at the head of the window
7 aligning with compartment floor and the other at the top
8 of the existing upstand.

9 A. But that's to provide 120 minutes --

10 Q. Yes.

11 A. -- which wasn't required.

12 Q. I understand that. What he's trying to do is help. If
13 120 minutes is required, he's trying to explaining how
14 you could do it. Do you agree?

15 A. Yes, by adding an extra cavity barrier in, yes.

16 Q. But I would suggest he's also, in the first paragraph,
17 making clear that he's highlighted the weak link, so to
18 speak, in terms of fire. So he's doing two things in
19 this email: he's highlighting a weak link for fire --
20 and we're going to look at the attachments in
21 a moment -- and he's trying to help as to how you can
22 get 120 minutes.

23 A. I think that's interpretation. I would struggle to read
24 it one way or another, but I would never have read that
25 in any great depth.

139

1 Q. So you're saying you agree with me looking at it now,
2 but --

3 A. No, no, no.

4 Q. -- you would never have read this email in any great
5 depth at the time?

6 A. No, I don't agree. What I'm saying is you could
7 interpret that to highlight a weak link.

8 Q. Yes.

9 A. But you could also interpret it that it's a weak link
10 bearing in mind we're trying to achieve 120 minutes.

11 Q. I see.

12 Do you recall opening the attachments that were
13 forwarded to you at this time?

14 A. Were they on the top page?

15 Q. Yes.

16 A. I may well have done.

17 Q. So if we look at the top page, we can see that a number
18 of attachments are sent with this. What I want to do
19 now is look at that attachment. This is {HAR00003948}.

20 So this is the first page, and we can see that what
21 Mr Mort appears to have done is on the far right-hand
22 side in particular, we've now got some blue and orange
23 sketches that he's done coming out from the window, and
24 what we can see is he's got two cavity barriers in there
25 to get to your 120. Do you see that?

140

1 A. Yes. This actually clarifies that this is a solution to
2 achieve 180 or 120 minutes.
3 Q. Yes. So here he's got one above the head of the window
4 and one further up what he calls the upstand --
5 A. That's right.
6 Q. -- below the sill of the window -- not immediately below
7 it but further up it; yes?
8 A. Yes, yes, just so he can reach a rating that was never
9 required in the end.
10 Q. Yes. Now, you didn't end up having that second one,
11 did you, in the end?
12 A. No.
13 Q. But if we look at the second page of the drawing
14 {HAR00003948/2}, this is a drawing of the window head,
15 it's a drawing we were looking at in detail earlier.
16 A. Yes.
17 Q. Do you see he's put a big orange bubble around the
18 interface between the window frame and the head of the
19 cladding system there?
20 A. Yes.
21 Q. And he's put "Weak link for fire", do you see that
22 there?
23 A. Yes.
24 Q. Did you see this drawing at the time you were working on
25 the Grenfell project?

141

1 A. No, I didn't, no.
2 Q. So you didn't look at the attachments that Ben Bailey
3 sent to you in that email in any detail?
4 A. No, no.
5 Q. Would you agree that it's highlighting a weak link for
6 fire which is exactly the weak link we were discussing
7 earlier, and whether that was a weak link for fire that
8 ought to be addressed with a cavity barrier at the head
9 of the window?
10 A. No, I don't agree with that because he hasn't shown
11 a cavity barrier at the top of the window on his
12 previous drawing.
13 Q. No. What I would suggest to you is he's highlighting
14 something separate from that.
15 A. Really?
16 Q. He's giving you a cavity barrier solution, but he's also
17 saying there's a weak link for fire here and checking
18 that someone has thought about that. Is that not a fair
19 interpretation of the email and that drawing?
20 A. He's got a concern.
21 Q. Now, if you didn't look at it at the time, do you ever
22 recall discussing this weak link for fire with
23 Ben Bailey or anyone else at Harley --
24 A. No.
25 Q. -- who might have had it drawn to their attention?

142

1 A. No, no. No, to be honest, I don't recall seeing the
2 first drawing either.
3 Q. So you don't remember Ben or Ray or Daniel or anybody
4 saying to you, "Well, Siderise have highlighted a weak
5 link for fire, we obviously need to look at that"? You
6 don't recall that?
7 A. No, at this stage we're quite a way into the design. At
8 this stage I'm just waiting for an instruction from Ben.
9 He's not going to say, "Oh, we've had an email. Oh,
10 it's inconclusive". He's only going to instruct me once
11 it has been concluded.
12 Q. Do you mean you were waiting for an instruction as to
13 what rating to put the cavity barrier above the window?
14 A. No, no, I was waiting from an instruction from Ben what
15 drawing work still needed to be done.
16 Q. I see.
17 A. He was actively searching the requirements for cavity
18 barriers. Once he had that fulfilled, then it would be
19 translated to me and I would add it to the drawings.
20 Q. Is it possible that what happened is everyone thought,
21 "Well, it's too late now, we've decided on the
22 positioning of the cavity barriers"?
23 A. Not a chance.
24 Q. "This has come in too late, we're not going to think
25 about that"?

143

1 A. I would be amazed if anyone thought that.
2 Q. Okay.
3 So you didn't discuss these annotations with anybody
4 on the project?
5 A. No, no. These came to light after the event.
6 Q. I think this drawing gets to revision F, but we're not
7 aware of any further revisions made to the drawing in
8 the light of these comments by Mr Mort. So can you
9 confirm that there was nothing that changed in terms of
10 that configuration that's in the orange bubble, nothing
11 changed subsequently?
12 A. No, but don't forget this is a comment from
13 a subcontractor or a supplier that wasn't necessarily in
14 full knowledge of the circumstance.
15 Q. But it's not just any old supplier, is it? It's
16 Siderise who -- wouldn't you expect them to know quite
17 a lot about cavity barriers, how they operate, how
18 they're tested?
19 A. Certainly, but I think he does say in this email,
20 doesn't he, earlier on, that he hasn't got full
21 information?
22 Q. You're right, he does say that, and that's why I read
23 that part of the email to you. But it's Siderise's
24 technical officer, isn't it?
25 A. Yes, but if he hasn't got the information, he can't give

144

1 constructive advice. He's concerned, maybe he's
 2 thinking -- I don't know, maybe he's thinking that
 3 internal board is a flammable board, maybe he's thinking
 4 the bracketry isn't continuous. I don't know. I don't
 5 know what he's thinking.
 6 Q. Isn't it likely that he was aware of
 7 Approved Document B, aware of lots of industry guidance
 8 at this time --
 9 A. Definitely .
 10 Q. -- that cavity barriers around windows were required --
 11 A. Definitely .
 12 Q. -- and was highlighting that at the head of the window
 13 there ought to be some form of cavity barrier?
 14 A. No, I don't think he says that in his email.
 15 Q. Going back to the comments you made earlier about your
 16 concern about the integrity of a barrier fixed against
 17 the bottom of that concrete --
 18 A. Yes.
 19 Q. -- and had degraded, et cetera, did you ever think about
 20 whether you could include something different there,
 21 perhaps not mineral wool but a steel angle? So do you
 22 agree with me that Approved Document B does envisage
 23 that other materials could form proper cavity barriers,
 24 including steel?
 25 A. Yes, it certainly does. However, if the proposal that

145

1 we made was acceptable, there's no need for any of that.
 2 Q. Well, forget for a moment what Studio E did and whether
 3 they picked this up, just in terms of your own work, was
 4 it ever considered that there could be a different
 5 solution to a cavity barrier in this location? If you
 6 were worried about putting something like a Siderise
 7 cavity barrier in that location as shown by Mr Hyett,
 8 was there ever any consideration to, for example,
 9 putting a metal angle as per section 9 of ADB?
 10 A. You could have put a metal angle or a Z-section on the
 11 inside of the extruded aluminium angle.
 12 Q. Yes.
 13 A. I guess that would be something that could be proposed.
 14 Q. Yes. But no consideration was ever given to that?
 15 A. Not as far as I'm aware, no.
 16 Q. I'm going to put to you a few other of the diagrams from
 17 Mr Hyett's report on cavity barriers.
 18 A. Sure.
 19 Q. We've looked a lot at the head position, but I want to
 20 look at a couple of other of the window positions.
 21 A. Incidentally, on the email, I think he implies that the
 22 cavity barrier at the head should align with the slab
 23 anyway.
 24 Q. With the compartment floor?
 25 A. Yes.

146

1 Q. Yes, let's go back --
 2 A. Which, if it was in the position of Hyett, wouldn't be
 3 aligning .
 4 Q. Yes, in fairness to you, let's go back to the email. So
 5 it's {HAR00003947}, and it's the bottom of page 1. That
 6 is what he says in the second paragraph, he says it's
 7 aligning with the compartment floor. Yes?
 8 A. Yes.
 9 Q. And I think that's why we see, when we go back to his
 10 first sketch where he's offering his solution of
 11 120 minutes, if we go back to {HAR00003948}, I think
 12 what you're saying is that when he's offering his
 13 solution on the right-hand side, the lower cavity
 14 barrier, the orange cavity barrier, is in line with your
 15 cavity barrier above the head of the window; yes?
 16 A. I think that's actually confusing. That doesn't follow
 17 what I understand his email to mean.
 18 Q. Ah, because what you're saying is his email should mean
 19 lower than that because he's showing the concrete floor
 20 as lower than that?
 21 A. Yes, yes.
 22 Q. But he's shown it slightly higher.
 23 A. Yes.
 24 Q. My suggestion to you about this is this is really him
 25 trying to show how you can put two of the barriers in to

147

1 get 120.
 2 A. That's right.
 3 Q. And that perhaps the more important sketch from your
 4 point of view was the second sketch with the weak link
 5 for fire .
 6 A. Mm.
 7 Q. Do you agree with that?
 8 A. Maybe. I don't think you can -- I think that's a little
 9 bit out of context. Without understanding his thinking,
 10 why is it a weak link, I think it's really difficult to
 11 be sure of what he meant there. Because it appears that
 12 this sketch shows exactly that lower cavity barrier
 13 exactly where we'd placed it, he's just added
 14 an additional one to get the 120 minutes at the window
 15 cill .
 16 Q. Yes.
 17 A. So by virtue of that, does that not mean that he's happy
 18 with the position of it?
 19 Q. Well, we may be able to ask him. I think he may be
 20 coming to give evidence in due course.
 21 A. Okay. Well, that would be a good --
 22 Q. We can ask him.
 23 A. Yes.
 24 Q. The point I'm putting to you is that the second sketch,
 25 the weak link for fire, should have set in train

148

1 a process of examination and investigation within Harley
 2 and within the scope of your design work --
 3 A. I think it's quite clear that it was already in motion.
 4 Q. What was already in motion?
 5 A. The fact of a requirement of clarification of these
 6 cavity barriers.
 7 Q. But what they were seeking clarification of was the
 8 rating of the cavity barrier and whether or not it
 9 should be 30 minutes, 15 minutes, 60 minutes,
 10 120 minutes. They weren't debating exactly the
 11 positioning of the cavity barriers, were they?
 12 A. I don't know, I find that -- it's difficult to be sure
 13 what's going on because we're -- there seems to be
 14 possibly a lack of clarity throughout these emails of
 15 what is required, what is being asked and what is being
 16 given.
 17 Q. Right. Okay. I think we have your evidence about
 18 whether you looked at that sketch and had any
 19 discussions about it.
 20 So I'm going to take you to look at some of
 21 Mr Hyett's diagrams. Before we do, I just want to show
 22 you -- we were talking this morning about cutting cavity
 23 barriers around cladding rails.
 24 A. Yes.
 25 Q. In the time available we've found an image. It may not

149

1 be the best image available but we'll have a look at it.
 2 It's {BLAR00000003/53}.
 3 If we can blow up that image on the bottom left, the
 4 photograph with the two circles. I think, having blown
 5 that up, am I right that the black line down the middle
 6 is the rail for the Reynobond panels?
 7 A. Correct.
 8 Q. And they are hooked on to that little bolt that we see
 9 at the top, aren't they?
 10 A. That's right, that's right.
 11 Q. And if we look at the bottom of that page, mainly what
 12 we're seeing there behind the rail is the quantity of
 13 insulation, I think it was two layers of 80 millimetres
 14 either Celotex RS5000 or Kingspan K15, do you see --
 15 A. Yes, certainly looks like that.
 16 Q. -- on the spandrel?
 17 And then below that we can see the cavity barriers.
 18 Do you see that there?
 19 A. Yes.
 20 Q. They've got silver on the top, they've got a black face,
 21 which is the intumescent strip --
 22 A. That's correct.
 23 Q. -- on the side.
 24 The point I was putting to you and was asking
 25 whether anyone discussed it within Harley, whether you

150

1 thought about it, is that the cavity barriers -- and
 2 this is consistent all across the building -- they don't
 3 carry through the cladding rail, or there's no solution
 4 within the cavity rail to replicate the cavity barrier.
 5 They're cut around it.
 6 A. No, no, that's right.
 7 Q. And that's why I'm asking whether anyone ever thought
 8 about whether or not that was an unsatisfactory
 9 arrangement and that there ought to be some
 10 consideration of dealing with that vertical gap through
 11 the cavity barrier?
 12 A. In my experience it's not something that is ever done.
 13 You don't fill it with an insulation. But maybe the
 14 argument is that the cavity barriers are to stop the
 15 spread, the unseen spread of flame. If a flame gets
 16 into that black zone, you can see it from between the
 17 gaps in all the panels from outside.
 18 Q. Really?
 19 A. Yes.
 20 Q. I see. What if your firefighters are at an angle to
 21 that rail, or what if that rail is on the 23rd floor or
 22 the 22nd floor?
 23 A. I can't answer that. All I'm saying is that, in my
 24 experience, it's not normal to try and put a cavity
 25 barrier inside that rail.

151

1 Q. I see. So that's just something that everybody does,
 2 is it?
 3 A. I would say so. I mean, that's in my experience, with
 4 my limited experience. Harley, with their far greater
 5 experience, it didn't concern them to fill those gaps.
 6 Q. No, so you never had a discussion with anybody at Harley
 7 about that?
 8 A. No, no.
 9 Q. And it never occurred to you that that might somehow
 10 defeat the logic of putting a cavity barrier in those
 11 locations?
 12 A. No, I don't think it does defeat the logic, but ...
 13 Q. Your justification is that firefighters would be able to
 14 see through the gaps in the sides of the panels and see
 15 that the fire was there, is that your justification?
 16 A. I wouldn't say it's my justification. All I can assume
 17 is that that may be one of the industry reasons why it's
 18 not considered.
 19 Q. But you can't give us any authoritative evidence on
 20 that, can you, because you're not experienced in this
 21 area?
 22 A. No.
 23 Q. Now, Paul Hyett in his report -- we've looked at the
 24 head of the window. He's also addressed cavity barriers
 25 at the window jambs and the cills. Let's look at the

152

1 jambs first . {PHYR0000003/64}, if we could blow that
 2 up, this is figure 3.28 from section 3 of his report.
 3 What he's done is with the solid red line, he's shown
 4 the position of the cavity barrier as indicated on the
 5 Harley drawings.
 6 A. Yes.
 7 Q. And then in the dotted red line, he has shown the cavity
 8 barrier position at window jamb in order to meet ADB,
 9 section 9, paragraph 9.3. Do you see that there?
 10 A. Yes.
 11 Q. And we can see it's an irregular shape, it's not an easy
 12 shape there, and I think he --
 13 A. Correct.
 14 Q. -- acknowledges that in his report. His evidence -- and
 15 to be clear, he will be giving evidence on this and he
 16 will be asked about this -- is that you could either ask
 17 for a bespoke cavity barrier to be made to deal with
 18 that gap, or you could use compressible mineral wool,
 19 Rockwool, to pack it in to that shape so that you've got
 20 protection at the jamb of the window.
 21 A. Yes, yes, makes sense.
 22 Q. My question to you is: why was no consideration ever
 23 given by Harley or yourself in your design work to
 24 protecting the sides of the windows, the jambs, with
 25 some kind of arrangement, either of that nature or

153

1 something similar, that would achieve what ADB and other
 2 guidance requires, which is cavity barriers around the
 3 windows?
 4 A. I was working on instruction from Harley, and the
 5 architect clearly saw all of our drawings and approved
 6 them, and they were based on his details. So --
 7 Q. I appreciate that about the architect, but if we could
 8 just put that aside for one moment. I appreciate you're
 9 saying the architect should have picked this up and your
 10 position is it was his role. But in terms of Harley, we
 11 know that it wasn't a prescriptive specification for
 12 cavity barriers, it was a performance specification, or
 13 more of a performance specification. You've said you
 14 were aware of the relevant regulatory requirements. Can
 15 you explain why there's no cavity barrier in this
 16 location? Was that ever discussed within Harley or in
 17 the design team?
 18 A. At one of our round tables it was discussed that we
 19 would provide cavity barriers as shown by the architect.
 20 Q. So then you just went away and you interpreted the
 21 drawings.
 22 A. Yes.
 23 Q. The drawings we saw before.
 24 A. Yes.
 25 Q. And you produced --

154

1 A. I produced exactly what you see now, yes.
 2 Q. Okay.
 3 A. With the full approval of Harley.
 4 Q. And you didn't ever have a conversation with anybody at
 5 Studio E to check and say, "Why aren't we putting cavity
 6 barriers along the jambs of the windows?"
 7 A. No, but we did make a clear drawing approval request for
 8 the drawing showing these.
 9 Q. Okay.
 10 If we go within this to page 65 {PHYR0000003/65},
 11 the next page of Mr Hyett's report, here we can see the
 12 cill of the window. There's no cavity barrier in a red
 13 block here because no cavity barrier was indicated in
 14 this location on either the Studio E or the Harley
 15 drawings; that's correct, isn't it?
 16 A. Correct, yes.
 17 Q. So he is saying, in the dotted line, it's his evidence
 18 that a cavity barrier ought to have been provided at the
 19 cill location per the guidance in ADB, section 9,
 20 paragraph 9.3. You see that there?
 21 A. Yes, I see that.
 22 Q. Again, in terms of that cill location, can you help us
 23 as to whether that was ever discussed within the Harley
 24 design team?
 25 A. I say what I said before, you know, the whole scope was

155

1 discussed around the table.
 2 Q. So nothing specific about cill location versus jamb
 3 location, just --
 4 A. No.
 5 Q. -- the scope discussed more generally and you were told
 6 to do what was on the Studio E drawings?
 7 A. That's correct, yes, one horizontal barrier around the
 8 whole building on each floor level, and one vertical
 9 cavity barrier on each party wall column.
 10 Q. Can we just turn up some of the transcript from
 11 Mr Anketell-Jones' evidence, this is {Day37/52:5}.
 12 Actually, let's pick it up at the top of that page,
 13 where Mr Anketell-Jones is asked:
 14 "I appreciate what you've said about the architects,
 15 but can you help us as to why nobody at Harley picked up
 16 that there ought to be cavity barriers around the
 17 windows?"
 18 Do you see that there?
 19 A. Yes, yes.
 20 Q. A sense of déjà vu in terms of the question. Then
 21 Mr Anketell-Jones said this:
 22 "Talking from hindsight and looking back, there were
 23 lots and lots of projects that didn't have cavity
 24 barriers around the windows. I don't think that it was
 25 known within the industry or appreciated because of the

156

1 conversion from cavity masonry walls to rainscreen
2 cladding. I think that a lot of people thought that it
3 was something you did for cavity walls rather than
4 rainscreen cladding. So I don't think that anyone at
5 Harley knew that, and it doesn't appear that anybody
6 further up the design team knew that as well."

7 Do you see that there?

8 A. Yes.

9 Q. So he appears to say that no one at Harley knew that
10 cavity barriers were required around windows in
11 a rainscreen façade.

12 A. That's what he says, yes.

13 Q. Now, did you know at the time that Approved Document B
14 and other guidance did require cavity barriers around
15 windows in rainscreen façades?

16 A. Not explicitly.

17 Q. Is it your evidence that you knew that they were
18 required for masonry walls but not for rainscreen
19 cladding?

20 A. I wouldn't concern myself with masonry walls, but I was
21 well aware of many routes to compliance.

22 Q. Did you ever check, for example, the CWCT technical
23 guidance that you refer to in your witness statement or
24 any other industry guidance to see whether cavity
25 barriers were required in rainscreen systems around

157

1 windows?

2 A. No, that was going beyond my remit, although, as I've
3 said before, I did actually look at these documents to
4 see if there was obvious recommendation, but there
5 seemed to be very little that could be taken from these
6 documents, and of course I was reliant on Harley telling
7 me their requirements.

8 Q. If we go back to CWCT Technical Note 73, I just briefly
9 want to look at this again with you. It's
10 {CWCT0000019/4}. I want to look at the foot of page 4
11 and on to page 5 {CWCT0000019/5}. This guidance was
12 from 2011 and it's guidance that you confirm you did
13 consult in paragraph 50 of your statement; yes?

14 A. Yes, briefly, yes.

15 Q. I want to look at the foot of page 4 and on to page 5,
16 and it says there:

17 "For rainscreen walls, AD B requires that cavity
18 barriers are provided:
19 • "To close the edges of cavities including around
20 window openings."

21 Do you see that there?

22 A. Yes, yes.

23 Q. It's very clear in that guidance, isn't it?

24 A. Yes, yes.

25 Q. And just to be clear, what is your evidence about

158

1 whether you knew about that at the time of the Grenfell
2 project?

3 A. Yes, I had a -- I was kind of aware of it, yes.

4 Q. You were kind of aware of it?

5 A. Yes. As I've said before, there are routes to
6 compliance. If an architect, as part of a professional
7 team, deem it's not necessary, I've got no reason to
8 doubt that.

9 Q. I see.

10 Now, the Chalcots project, you've told us that you
11 worked very briefly on that project for Harley.

12 A. That's correct, yes.

13 Q. That was in the transcript -- we don't need to turn it
14 up -- {Day37/69:6-21}.

15 We know that when you came to work on the Grenfell
16 project you were provided with some drawings of the
17 Ferrier project.

18 A. That's right.

19 Q. When you came to work on the Grenfell project, were you
20 provided with any information in relation to the
21 Chalcots project and the cladding design there?

22 A. Not at all, no.

23 Q. Were you told that there had been a fire at Taplow House
24 on the Chalcots Estate?

25 A. No.

159

1 Q. Can we turn up a report that was prepared into that
2 Chalcots fire by Harley. This is {CEP000003223}. This
3 is a fire damage report that was prepared by Harley.
4 Do you recognise this at all?

5 A. No, I was never shown that.

6 Q. You were never shown that?

7 A. No.

8 Q. And page 2 {CEP000003223/2} of the report, in the last
9 sentence, we see it talks about damage to the fabric of
10 the building structure following the fire, and then it
11 says in the last sentence there:

12 "However, the fire was contained from spreading to
13 over floors by the extensive fire breaks located at the
14 head and sill of each window."

15 Do you see that there?

16 A. Yes.

17 Q. And if we go to page 20 {CEP000003223/20}, what we can
18 see in this report is there are two window jamb
19 details --

20 A. Yes.

21 Q. -- from the drawings at Chalcots.

22 A. Mm-hm.

23 Q. And if we can blow up the left-hand diagram, what we can
24 see here is that there's a label on that that says:

25 "100mm Rockwool Duo Slab insulation to face of

160

1 structure returned at window jambs to act as fire
2 barrier."

3 Do you see that there?

4 A. Yes, yes.

5 Q. So this appears to suggest that in a previous Harley
6 project, Rockwool Duo Slab insulation had been returned
7 at the window jambs to act as a fire barrier; yes?

8 A. It looks like it, yes.

9 Q. But that's not something you were ever made aware of --

10 A. No.

11 Q. -- during your time discussing fire barriers with the
12 Harley team?

13 A. No.

14 Q. Moving on then, cavity barriers around the crown.

15 At paragraph 35 of your witness statement
16 {HAR00010419/9} -- I don't think we need to turn this
17 up -- you say that the design of this feature was left
18 until quite late on --

19 A. Yes.

20 Q. -- as you were focused on the 20 floors of the cladding
21 zone; is that right?

22 A. That's correct.

23 Q. Did you ever, during the time you were looking at the
24 design of the crown, consider compliance of the crown
25 with the Building Regulations or Approved Document B?

161

1 A. The crown was designed based on very brief drawings from
2 the architect and a design team meeting on site.

3 Q. So, again, are you saying that you were reliant on what
4 the architect had done and what the design team at
5 Harley were telling you?

6 A. That's correct, yes.

7 Q. Did you ever consider whether there ought to be cavity
8 barriers in the location of the crown to deal with flame
9 spread up at the top of the building?

10 A. Yes. There's always a consideration at the top. In my
11 experience, if the top of a building is inhabited, then
12 you would have a cavity barrier at the very top. In
13 this case it wasn't, so it wasn't necessarily required;
14 however, the architect's drawing does clearly show one.
15 But I think that was another item that we discussed.
16 The drawing was issued without for the architect to
17 comment upon.

18 Q. I see. Are you talking about the cavity barrier here at
19 the head of the cladding system?

20 A. Yes. Yes, the very last one.

21 Q. Now, you deal with this, I think, in paragraph 36 of
22 your witness statement, if we can go to that, this is at
23 page 10, {HAR00010419/10}, and at paragraph 36 you say:

24 "In so far as the positioning of a cavity barrier
25 beneath the Crown is concerned, the typical bay drawings

162

1 [then you list those] show cavity barriers above all
2 windows. The Crown drawings [then you list those] do
3 not show cavity barriers above the windows nor does the
4 specific detail ..."

5 A. Correct.

6 Q. "A screenshot from the CAD model for the project
7 representing drawings [330 to 332] show a blue
8 annotation stating 'firebreak'. I made this note to
9 remind myself to consider the requirement. This did not
10 happen because I never revisited the drawings to revise
11 further or raise for construction as I had expected to.
12 To be clear, the annotation does not appear in printed
13 copies of the drawings. It only appears on screen when
14 you are working on CAD because it is on a non-printing
15 layer."

16 Do you see that there?

17 A. Yes.

18 Q. So is what you're saying that when you were first
19 working on these drawings you made yourself a little
20 blue annotation stating "firebreak" at the head of the
21 building to remind yourself to consider that
22 requirement?

23 A. Yes, what it was, this was after our discussion -- my
24 discussion at Harley. They felt that there was no need
25 for a cavity barrier at the top and I had no reason to

163

1 doubt that, but the reason I put a note on my CAD
2 drawing was to just check, when we had comments back
3 from the architect, it was so that I just double-checked
4 if he'd made a comment as far as a firebreak
5 requirement.

6 Q. Just taking that in stages, you say that after your
7 discussion at Harley --

8 A. Yes.

9 Q. -- they felt there was no need for a cavity barrier at
10 the top.

11 A. Yes.

12 Q. Who was "they"?

13 A. I don't know. Ray and Ben maybe. I can't be exact.

14 Q. And do you have any recollection as to when in the
15 project you were having that discussion about no need
16 for a cavity barrier at the top of the building?

17 A. Probably days before this drawing was issued.

18 Q. Right.

19 If we go to that exhibit there, KL/23, and we find
20 that at {HAR00010427}, this is, I think, the CAD drawing
21 that you're referring to.

22 A. That's correct, yes.

23 Q. So this is the electronic version where you can see your
24 blue annotations; is that correct?

25 A. That's right, yes.

164

1 Q. And are we looking at the head, the very top of
 2 a cladding system at Grenfell?
 3 A. That's correct, yes.
 4 Q. Is the annotation that you're referring to the word
 5 "firebreak" in blue on the left?
 6 A. Yes.
 7 Q. So you made this blue annotation saying "firebreak", you
 8 say you expected to come back and revisit this drawing
 9 later, but in fact you never revisited it so that
 10 firebreak was never included; is that correct?
 11 A. No, that's not correct. This drawing was issued for
 12 comment. It came back from the architect status A, but
 13 for whatever reason it was overlooked -- we never
 14 re-issued the drawing as construction issue.
 15 Q. I see.
 16 A. However, we could take it as a status A, as acceptable.
 17 Q. I see. So there was another opportunity to pick this up
 18 but it just wasn't picked up?
 19 A. That's right, yes.
 20 Q. And there was no checking process or quality control
 21 process in place that might have meant that that was
 22 picked up in practice?
 23 A. Well, no, the architect approved the drawing without
 24 a firebreak.
 25 Q. But you yourself had noticed that it was likely to be

165

1 required, yes, and you put a note for yourself --
 2 A. No, no, there's confusion. When you do the final
 3 firebreak at the top of a cladding, it is considered,
 4 generally considered in the industry, if there was say
 5 a penthouse above here where people were living, that
 6 should have a firebreak or a cavity barrier.
 7 Q. Right, yes.
 8 A. If it's just a flat area with nothing up there, then
 9 there's no need to put a firebreak.
 10 Q. Right.
 11 A. Now, this was an uninhabited area. All it had was
 12 a lift overrun building.
 13 Q. So at the time you made this little note to yourself,
 14 did you know that there was going to be nothing at the
 15 top of the building?
 16 A. Yes.
 17 Q. But you nevertheless thought that a firebreak was
 18 required at this point?
 19 A. No, no, no, that was just to remind myself to check. If
 20 the architect had sent his drawings back with a comment
 21 that we had to have a firebreak, I mustn't forget to put
 22 it in.
 23 Q. I see.
 24 A. Because then the team on site may not put it in.
 25 Q. I see. So it was only if the architect came back and

166

1 showed it that you needed to put it in?
 2 A. That's correct.
 3 Q. I see.
 4 Window infill panels, if we can go to that topic,
 5 which is our last main topic.
 6 Now, if we pick it up at paragraph 63 of your
 7 statement on page 16 {HAR00010419/16}, you say this, you
 8 say:
 9 "In relation to the infill panels, I was told that
 10 we were using products from Panel Systems."
 11 A. Yes.
 12 Q. "As can be seen from drawings [and then you list some
 13 drawings] the two panels used in the window system
 14 within a typical bay from floor 4 to the top of the
 15 building ... are referred to as P1 and P2."
 16 Yes?
 17 A. That's correct, yes.
 18 Q. Now, just focusing on that, you say:
 19 "... I was told that we were using products from
 20 Panel Systems."
 21 Do you recall who told you that you were using
 22 products from Panel Systems?
 23 A. Ben.
 24 Q. Ben? You clearly remember that, do you?
 25 A. Without a doubt, yes.

167

1 Q. How come you're so clear on that when, in relation to
 2 other discussions, you can't be sure who it was that
 3 told you?
 4 A. Because he was doing purchasing, and at the time what
 5 they would do is products would have to come from
 6 suppliers that they used so as they can get credits and
 7 what have you. So I remember asking Ben, "Where are we
 8 getting these panels from?" He said, "Go to
 9 Panel Systems". There's no one else in the company at
 10 that point that -- or maybe Mark Stapley, but I know
 11 I didn't talk to Mark.
 12 Q. You know you didn't talk to Mark?
 13 A. Didn't talk to Mark Stapley, no.
 14 Q. On your understanding, was it Ben who specified these
 15 panels for use?
 16 A. He said we would go to Panel Systems.
 17 Q. Right.
 18 A. And all they offered were single-colour panels with
 19 a styrofoam core.
 20 Q. I see. So is it your evidence that you were told you
 21 had to go to Panel Systems --
 22 A. Yes.
 23 Q. -- and when you went to Panel Systems you only had one
 24 choice, which was aluminium skin with a styrofoam core?
 25 A. That's right, yes.

168

1 Q. Now, if we look at the NBS specification ,
 2 {SEA00000169/145}, here at item 332 we get "Aluminium
 3 windows fixed unit", do you see that there?
 4 A. Yes, yes.
 5 Q. And under "Panel/facing type", so that's the second
 6 bullet down, it says:
 7 "Aluminium faced insulated panel comprising core
 8 insulation , aluminium lining panel and integrated
 9 channel profile around perimeter, fully air-sealed at
 10 edges to achieve minimum U-value [of] 0.15 ..."
 11 Do you see that there?
 12 A. Yes.
 13 Q. Do you remember reading that in the NBS specification ,
 14 that that was what had been specified for --
 15 A. Yes, yes, but there is no specification for the core
 16 material there.
 17 Q. No, so this wasn't a prescriptive bit of the
 18 specification , was it; it was a performance
 19 specification ?
 20 A. No, I think that was overlooked.
 21 Q. Overlooked by who?
 22 A. By whoever drew up the NBS.
 23 Q. Well, aren't they giving some flexibility as to what's
 24 used there?
 25 A. Well, maybe. Maybe that is the reason for that, which

169

1 is why we would put what we were proposing on a drawing
 2 for them to approve.
 3 Q. Actually, to be fair , I may have been wrong. We look
 4 and there is a manufacturer there.
 5 A. Yes.
 6 Q. Wicon. Is that the manufacturer of the windows or --
 7 A. That's the manufacturer of the aluminium windows --
 8 Q. Yes, I see, so that's not telling you --
 9 A. No.
 10 Q. -- who the manufacturer is for the insulating panel
 11 composing the core insulation?
 12 A. And just out of interest , that isn't the window system
 13 that was used on the job.
 14 Q. Yes, correct.
 15 A. There are holes.
 16 Q. If we can look on elevation drawing {HAR00008886}.
 17 I just want to be clear exactly which panels we're
 18 talking about with P1 and P2.
 19 If we blow up the window part of that drawing, we
 20 can see on the big hatched panel in between the windows
 21 in the top left -hand corner we've got P1; yes?
 22 A. Yes, two large panels which are P1 and one small panel
 23 which is a P2.
 24 Q. And P2 is in the kitchen windows, isn't it?
 25 A. That's correct, yes.

170

1 Q. And it housed the kitchen extract fan?
 2 A. Yes.
 3 Q. Now, when you were considering what materials to put in
 4 your specification that you listed out, did you ever go
 5 back and consult the NBS to see what Studio E had
 6 recommended?
 7 A. I believe I did and there's nothing in there, as we've
 8 just read.
 9 Q. Do you ever recall any discussions with anybody at any
 10 stage about fire safety in respect of these window
 11 infill panels?
 12 A. No, no, no. Just went and said, "What panels are we
 13 going to put in here?" And that's when I was directed
 14 to Ben to -- or Ben directed me to Panel Systems.
 15 Q. Did you yourself ever consider the fire performance of
 16 the window infill panels?
 17 A. No. Not of the P1s, no.
 18 Q. Now, we can see in January 2015 you attended a meeting
 19 at which this was discussed. So if we go to
 20 {HAR00003882}. So this is progress meeting number 1.
 21 We see Rob Maxwell, Ray Bailey, Mark Stapley,
 22 Kevin Lamb, you're all in attendance, on the right-hand
 23 side.
 24 A. Yes.
 25 Q. If we look on to page 3 {HAR00003882/3}, item 8, we see:

171

1 "[Sandwich] panels RAL 9010, [source] from new
 2 supplier?"
 3 Yes?
 4 A. Yes.
 5 Q. And the action is said to be for "All". Do you see that
 6 there?
 7 A. Yes.
 8 Q. Can you help us, was that referring to the material for
 9 the window infill panels?
 10 A. That was, that's referring to the P1 panels.
 11 Q. And who was the original supplier? It's spelt wrong but
 12 it says "[source] from new supplier". Who was the
 13 original supplier?
 14 A. I don't know who they used to buy their panels from.
 15 Q. And you don't know why they needed to find a new
 16 supplier?
 17 A. No, I wasn't aware of that.
 18 Q. Now, shortly afterwards on 15 January -- if we look at
 19 document {HAR00003866}. If we blow up this
 20 specification note on the left -hand side and look at the
 21 P1 and P2, I just want to look at the main black text to
 22 start with.
 23 A. Yes.
 24 Q. For the glazing P1 panels, it says:
 25 "Outer ... aluminium skin RAL 9010 ..."

172

1 And then:
 2 "Core - 24mm Kingspan TP10 rigid insulation."
 3 Do you see that there?
 4 A. Yes.
 5 Q. We see the same for the P2 panel below it.
 6 A. That's right.
 7 Q. So is it right that, based on this, you initially had
 8 TP10 specified for the P1 and P2 panels?
 9 A. This was never issued outside of Harley. This was
 10 issued internally for comment.
 11 Q. Yes, I understand that. But --
 12 A. Yes, that was a standard product that I've used over
 13 many years, so I put it on there for us to discuss.
 14 Q. Yes, so that's what we're just trying to get to the
 15 bottom of: it was you who put the TP10 in, and was that
 16 off your own back? You didn't have that suggested to
 17 you by anyone at Harley?
 18 A. No, no, it was just a suggestion to be discussed.
 19 Q. And why did you select that TP10 product to start with?
 20 A. Because it's a class 0 panel that I've used many, many,
 21 many times over the years.
 22 Q. A class 0 panel?
 23 A. Correct, yes.
 24 Q. Now, we saw in the NBS spec that this was an insulating
 25 panel.

173

1 A. Yes.
 2 Q. Did you check with Approved Document B or any other
 3 piece of guidance what any insulating material in an
 4 external wall had to be in terms of compliance?
 5 A. Not specifically to this, no.
 6 Q. So you didn't check, for example, in section 12 of ADB
 7 and come across 12.7, that makes clear that any
 8 insulating material for a wall in a building above
 9 18 metres needed to be of limited combustibility? That
 10 wasn't something that you checked?
 11 A. I think -- I mean, with hindsight now, I think it's
 12 quite clear that there's doubt whether this actually
 13 applies, because it's in a panel. I think the
 14 documentation is more referring to the product which is
 15 screwed to the wall, rather than as a core of
 16 an insulated panel.
 17 Q. When you say you think it's quite clear that there's
 18 doubt whether this actually applies, what do you mean by
 19 "this"? Doubt about what applying?
 20 A. Well, ADB, does that not just mean the material, the
 21 insulation itself, when it's used on its own, this is
 22 comprised of a product with an insulant core?
 23 Q. So is what you're saying that because it was wrapped in
 24 aluminium and it wasn't just a board insulation on its
 25 own --

174

1 A. Yes.
 2 Q. -- your understanding was that you didn't have to worry
 3 about those parts of ADB? Was that actually a thought
 4 process that you went through at the time?
 5 A. I was -- I'd been told -- all these years I've been led
 6 to believe that this configuration gives you a class 0
 7 panel.
 8 Q. Yes, but what I'm asking is whether you checked in ADB
 9 whether class 0 was enough for this kind of panel or
 10 whether you needed something else?
 11 A. No, when you look at diagram 40, it implies that class 0
 12 is okay to be used over 18 metres.
 13 Q. What I want to know is whether you checked in ADB
 14 whether class 0 was enough for this kind of panel.
 15 Did you do that check?
 16 A. No, no, no. This was offered to the team for comment,
 17 which is why we're here now.
 18 Q. Did you ever think about paragraph 12.7 of ADB --
 19 A. No.
 20 Q. -- that makes clear that an insulating material within
 21 an external wall above 18 metres must be of limited
 22 combustibility?
 23 A. No, no.
 24 Q. And just to be clear, when you were specifying these
 25 panels, were you thinking, "Well, this is class 0,

175

1 that's okay"?
 2 A. I wasn't specifying. I was suggesting them to the team.
 3 Q. Okay. When you were suggesting them to the team,
 4 did you think, "This is class 0 so that should be okay"?
 5 A. I was suggesting them as a class 0 panel. I wouldn't
 6 have thought further than that.
 7 Q. Yes, so class 0 was in your mind?
 8 A. Yes, yes.
 9 Q. Now, can you help us as to who then applied the red
 10 annotations that we see to the right on P1?
 11 A. I believe that was Mark Stapley.
 12 Q. Yes. And can you help us as to why that insulation
 13 material was amended by Mark Stapley?
 14 A. Well, I would guess he's checked this with the
 15 manufacturers and that they could offer styrofoam cores.
 16 The styrofoam -- this would be a cheaper product, the
 17 styrofoam with thinner skins of aluminium rather than
 18 what I've shown.
 19 Q. Cheaper than the TP10?
 20 A. That's correct, yes.
 21 Q. And from those annotations, did you understand that the
 22 "As above" for the P2 panel, meant that styrofoam was
 23 also going to be used for that panel as well?
 24 A. Yes, but we did discuss that wasn't possible because
 25 Panel Systems could only supply a panel with the same

176

1 colour on each side of the panel. The P2 panels had
 2 a different colour inside to outside.
 3 Q. So what happened about the P2 panels?
 4 A. They were happy to go with what was shown there.
 5 Q. The TP10?
 6 A. Yes.
 7 Q. Our experts on site have found some kitchen extract
 8 panels with a styrofoam core. Can you help us
 9 understand why that might have been?
 10 A. I don't follow the quality control of -- I do my best to
 11 put things on the drawing. If the team purchase
 12 something else, I've got no control over that at all.
 13 Q. Now, we can see, if we go to a further version of these
 14 specification notes, this is {HAR00003869}, so this is
 15 a further version -- we don't have anything in the table
 16 in the middle below but we've got a Studio E stamp on
 17 the right.
 18 A. Yes.
 19 Q. If we blow up the left-hand side, there the P1 panel has
 20 been changed to styrofoam but the P2 panel hasn't.
 21 A. Correct.
 22 Q. Now, can you help us as to why we see that in this
 23 version of the specification notes?
 24 A. Because this is following that discussion and the
 25 marked-up drawing, so this is typical of one of our

177

1 round-the-table discussions where we said, "Okay, change
 2 it to this, change it to that, we'll send it out". So
 3 this is our internal changes --
 4 Q. I see.
 5 A. -- put out to the rest of the team.
 6 Q. Yes. So is the sequence of events that you specified
 7 TP10 for both, then Mark Stapley tried to say, "Let's
 8 have styrofoam for both" --
 9 A. Yes.
 10 Q. -- then you realised after that that you couldn't have
 11 the styrofoam for the P2 panel --
 12 A. Correct.
 13 Q. -- so that stayed as per your suggestion?
 14 A. That's correct, yes.
 15 Q. So would you accept that you did specify TP10 for the P2
 16 panel?
 17 A. I suggested it to the team.
 18 Q. Yes. And that ended up being accepted.
 19 A. Yes, yes. Harley were happy and so was the architect.
 20 Q. Before you specified the TP10 -- you've said why you
 21 specified it, you'd used it before, you thought it was
 22 class 0 -- did you have any discussions with anybody at
 23 Harley before you put TP10 on the original version of
 24 this spec?
 25 A. No, I would have just put something down on paper so as

178

1 we could discuss, and as it's a product that I often put
 2 down on paper, it went down there as a starting point.
 3 Q. Did you undertake any checks before you suggested the
 4 TP10 product for use on the Grenfell project?
 5 A. No, no, I'd been assured that was a class 0 product
 6 many, many years ago.
 7 Q. Who had you been assured by that it was a class 0
 8 product many years ago?
 9 A. It was from a fabricator via a client of mine.
 10 Q. Did you take any steps to investigate the fire
 11 performance of TP10 before you put it on the spec notes?
 12 A. No.
 13 Q. Had you ever, prior to the project, seen any
 14 BBA certificates for these panels?
 15 A. No.
 16 Q. Did you investigate whether it was an appropriate
 17 product for use on buildings over 18 metres?
 18 A. No, all I knew is that it was a class 0 assembly.
 19 Q. Did you appreciate at the time that the building being
 20 over 18 metres might make a difference in terms of what
 21 insulation products were compliant?
 22 A. Yes, maybe, but the point is I put this to the Harley
 23 team as a class 0 product and they were happy, as was
 24 the architect.
 25 Q. Yes. Can I just repeat my question: did you appreciate

179

1 at the time that the building being over 18 metres might
 2 make a difference in terms of what insulation products
 3 were compliant?
 4 A. Possibly, yes.
 5 Q. Possibly?
 6 A. Yes.
 7 Q. Can you be any more specific as to whether or not you
 8 knew that over 18 metres might make a difference to an
 9 insulation product?
 10 (Pause)
 11 A. You're saying I've got to be positive about something
 12 that might be?
 13 Q. I'm asking you whether or not you had an awareness that
 14 the building being over 18 metres might make
 15 a difference to what insulation products you were using
 16 in the external wall.
 17 (Pause)
 18 A. Can you put that a different way?
 19 SIR MARTIN MOORE-BICK: I think the point that's being put
 20 to you is, at the time when you considered this matter,
 21 did you say to yourself, "Wait a minute, this building
 22 is over 18 metres in height, that might affect what can
 23 be put on it"? Did that process go through your mind?
 24 A. Well, yes. Yes, certainly. Certainly.
 25 SIR MARTIN MOORE-BICK: Right.

180

1 A. But I did put this to Harley as a class 0 product.
 2 MS GRANGE: Thank you.
 3 Let's look at the BBA certificate for the Kingspan
 4 Thermopitch TP10. This is {KIN00000276}. So here we
 5 have the BBA certificate. We can see at the bottom, in
 6 the paler blue box, that the date of first issue was
 7 30 January 2009, so this certificate significantly
 8 pre-dated the Grenfell project.
 9 Do you think you ever saw this certificate prior to
 10 the Grenfell project?
 11 A. I don't believe so, no.
 12 Q. If we look at "Behaviour in relation to fire", it says:
 13 "The product will not contribute to the development
 14 stages of a fire or present a smoke or toxic hazard.
 15 When tested to BS476-7: 1987, the product achieved
 16 a Class 1 rating ..."
 17 Do you see that there?
 18 A. The product in its own form, yes. We weren't using it
 19 in that particular form.
 20 Q. I see. So are you saying that when you specified TP10,
 21 and you're saying it had a class 0 rating --
 22 A. Yes.
 23 Q. -- you're referring to something different to just TP10,
 24 are you?
 25 A. It was an assembly. So we started with -- or the

181

1 manufacturer starts with the insulation, and then they
 2 pressure-bond two thick pieces of aluminium, one to each
 3 face, so it's now a sandwich. So the properties of that
 4 material may be different as an assembly.
 5 Q. Are you saying that you knew that the surface of that
 6 assembled product attracted class 0?
 7 A. Yes.
 8 Q. You did?
 9 A. Yes.
 10 Q. And how did you know that?
 11 A. Well, I'd never checked any documentation, but I've been
 12 told that, yes.
 13 Q. Told it by who?
 14 A. It was a client from many, many years ago.
 15 Q. Right.
 16 Would you agree with me, though, if we're just
 17 looking at the TP10 itself as an insulation product,
 18 here what we're seeing is it's achieved a class 1, which
 19 would not be sufficient?
 20 A. But it wasn't used in this form so --
 21 Q. I see.
 22 A. -- it's irrelevant.
 23 Q. So what we don't see in this BBA certificate, do we,
 24 just to be clear, is it saying that the TP10 was
 25 class 0?

182

1 A. No.
 2 Q. Immediately below "Product scope and summary of
 3 certificate", if we can go back up to the top of this,
 4 it says this:
 5 "This Certificate relates to Kingspan Thermopitch
 6 TP10 board, a warm roof insulation system, using rigid
 7 polyisocyanurate (PIR) board, faced on both sides with
 8 aluminium foil for use in pitched roofs in new and
 9 existing domestic and non-domestic buildings."
 10 Do you see that there?
 11 A. Yes.
 12 Q. So were you aware that, in its raw form, albeit it's got
 13 aluminium foil on both sides, it was an insulation
 14 product for use in roofing insulation?
 15 A. Not specifically that it was for roofing, but I was
 16 aware that it was a general building product.
 17 Q. And why would you specify this product for your core of
 18 these aluminium panels? Why do that?
 19 A. Well, as I said, this was a product that was offered to
 20 me many years ago. Once the manufacturer takes this and
 21 combines it with the aluminium skins, he's creating
 22 another product. So I'm not suggesting that we use
 23 a roof insulation; I'm suggesting that we use a sandwich
 24 panel.
 25 Q. But did it ever occur to you that, once the aluminium

183

1 melts or delaminates, inside there you have combustible
 2 insulation?
 3 A. The aluminium is compressed -- first of all it's
 4 pressure-bonded, but the aluminium and the insulation is
 5 all held together within the rebates of the window, so
 6 it couldn't delaminate.
 7 Q. So are you saying that in a fire the aluminium skins of
 8 these panels couldn't come off?
 9 A. Correct.
 10 Q. That's not what happened at Grenfell, is it?
 11 A. I don't know.
 12 Q. Okay.
 13 A. I mean, don't forget, this is different to the P1s.
 14 There was none of this on the north and south
 15 elevations, and the panels that were involved, they were
 16 only tiny panels, about 400 millimetres square. So
 17 don't get confused.
 18 Q. I'm going to put my question in a simpler way: did it
 19 ever occur to you that there was combustible insulation
 20 inside this product, and you ought to at least check
 21 that that was something that was appropriate to put on
 22 an external wall of a tall building above 18 metres?
 23 A. No, no, I didn't consider that. It was offered to the
 24 team as a suggestion. Harleys have got far more
 25 experience of this sort of thing than myself, as is the

184

1 architect .
2 Q. Would you agree that you had no evidence at the time
3 that these panels were of limited combustibility?
4 A. No, no.
5 Q. Now, at paragraph 39 of your witness statement on
6 page 11 {HAR00010419/11}, you say in the second
7 sentence:
8 "My remit did not involve choice of materials or
9 specifications for the cladding or insulation ."
10 Do you see that there?
11 A. Correct.
12 Q. Would you agree with me that the P2 panel is an example
13 of where your remit did involve -- maybe not specifying
14 it yourself if you're drawing a distinction between who
15 specifies it, but certainly you were involved in the
16 choice of that material, weren't you?
17 A. Yes, my remit didn't require that I specified anything,
18 but, trying to be helpful, I suggested that for the team
19 to consider.
20 MS GRANGE: On the P1 panel, if we go back to that, and we
21 go back to the specification, {SEA00003060} ...
22 Mr Chairman, I've not got long to finish my
23 questions, so if you're happy, I would quite like to
24 finish this topic and then break.
25 SIR MARTIN MOORE-BICK: How long is long?

185

1 MS GRANGE: Well, I've got two pages of questions, so
2 five minutes.
3 SIR MARTIN MOORE-BICK: Five minutes. Oh, well, that's all
4 right.
5 MS GRANGE: If we go back to that specification, the design
6 of the infill panel at P1 was going to be styrofoam --
7 yes?
8 A. Yes.
9 Q. Once it was changed, and you reflected that here.
10 A. Mm-hm.
11 Q. Were you aware at the time that styrofoam is a trading
12 name for extruded polystyrene insulation material,
13 otherwise known as XPS?
14 A. No.
15 Q. Do you know why a specific product was not specified at
16 this point in the design process? It just says "Core
17 ... styrofoam", you haven't actually specified
18 a product, have you?
19 A. Well, you saw the mark-up from previous pages.
20 Q. You've just taken Mark Stapley --
21 A. I've taken what Mark Stapley has said and I've put it
22 down. But I don't think it would have needed any more
23 than just styrofoam. I don't think at the time there
24 were any grades of styrofoam that performed differently.
25 Q. I see.

186

1 To what extent did you consider or did you discuss
2 with anyone at Harley whether the use of styrofoam in
3 the P1 panel was compliant with the Building Regulations
4 and associated guidance in ADB?
5 A. I didn't need to. I was told what product to use.
6 Q. Did you ever consider whether those panels as insulating
7 panels fell within 12.7 of ADB and therefore needed to
8 be of limited combustibility?
9 A. No, never considered that, no.
10 Oh, just a point, could I go back? I apologise.
11 Q. Yes.
12 A. You say that the P2 panels did actually burn?
13 Q. The panels around the kitchen extract fan?
14 A. Yes.
15 Q. Yes. I mean, we saw a good example of that outside
16 flat 16 when the fire broke out.
17 A. Did that one have a Kingspan core or the styrofoam core?
18 Q. I'm not sure there was much left of the core to know
19 exactly what it was.
20 A. So it's difficult to know if they're the ones that
21 I specified or not?
22 Q. Yes. I don't think we can take it any further.
23 A. Sorry to interrupt.
24 Q. No, no, that's fine.
25 When you added styrofoam -- and I appreciate you say

187

1 you were acting on Mark Stapley's instructions --
2 were you aware of its fire performance?
3 A. No.
4 Q. Were you aware that it's not of limited combustibility?
5 A. No, no. But, again, as a sandwich panel, I would assume
6 the properties to be slightly different from the core.
7 Q. Did you take any steps to assess whether that panel was
8 suitable for use on buildings above 18 metres?
9 A. Not at all. That was outside my remit.
10 Q. Were you aware of warnings within Approved Document B
11 about insulating core panel systems, including extruded
12 polystyrene?
13 A. No.
14 Q. So you weren't aware that in appendix F it warns that
15 these types of panels can be particularly dangerous,
16 including for firefighters?
17 A. No.
18 Q. You weren't aware of that?
19 A. Was it actually saying you shouldn't use them?
20 Q. Let's look at that. {CLG00000224/147}. So this is
21 appendix F, "Fire behaviour of insulating core panels
22 used for internal structures":
23 "Insulating core panel systems are used for external
24 cladding as well as for internal structures."
25 Do you see that in paragraph 1?

188

1 A. Yes.
 2 Q. That's how you were using these, wasn't it, insulating
 3 core panels for external cladding?
 4 A. Correct, yes.
 5 Q. If we go down:
 6 "The most common use of insulating core panels, when
 7 used for internal structures is [X] ..."
 8 It says in the next paragraph:
 9 "These panels typically consist of an inner core
 10 sandwiched between and bonded to facings of galvanised
 11 steel, often with a PVC facing for hygiene purposes.
 12 The panels are then formed into a structure by jointing
 13 systems, usually designed to provide an insulating and
 14 hygienic performance. The panel structure can be free
 15 standing, but is usually attached to the building
 16 structure by lightweight fixings or hangers ..."
 17 Then it's got:
 18 "The most common forms of insulation in present use
 19 are ..."
 20 And you can see polystyrene and extruded polystyrene
 21 are in that list. Do you see there?
 22 A. Yes.
 23 Q. Then if you look on the right-hand side under the
 24 heading "Firefighting", it says this:
 25 "When compared with other types of construction

189

1 techniques, these panel systems therefore provide
 2 a unique combination of problems for firefighters,
 3 including:
 4 • "Hidden fire spread within panels with
 5 thermoplastic cores;
 6 • "Production of large quantities of black toxic
 7 smoke; and
 8 • "Rapid fire spread leading to flashover.
 9 • "Hidden fire behind lining systems.
 10 "These three characteristics are common to both
 11 polyurethane and polystyrene cored panels, although the
 12 rate of fire spread in polyurethane cores is
 13 significantly less ..."
 14 A. Yes.
 15 Q. That's a pretty clear warning, isn't it?
 16 SIR MARTIN MOORE-BICK: I think it's fair to say, Ms Grange,
 17 that that's really all directed to the use of these
 18 panels as internal dividing walls, isn't it? That's the
 19 whole context of what's being said here.
 20 MS GRANGE: Well, it says in paragraph 1 on the left-hand
 21 side at the top --
 22 SIR MARTIN MOORE-BICK: I know what it says up there, but if
 23 you read on, the whole context of the following
 24 paragraph seems to be directed to the use of these
 25 panels as internal dividers, and that's why they're

190

1 a problem for firefighters, who will have to go into the
 2 building.
 3 MS GRANGE: Well, I'm not sure that was the evidence of
 4 Dr Lane at Phase 1, but anyway ...
 5 SIR MARTIN MOORE-BICK: I think you may find it was.
 6 MS GRANGE: If we go to the next page [CLG00000224/148], we
 7 see there "Specifying panel core materials":
 8 "Where at all possible the specification of panels
 9 with core materials appropriate to the application will
 10 help ensure an acceptable level of performance ... when
 11 involved in fire conditions."
 12 Do you see that there?
 13 A. Yes, yes.
 14 Q. Were you aware of these warnings in Approved Document B
 15 about these types of panels?
 16 A. No, I wasn't, but it indicates to me that it should be
 17 considered, but it's not saying you shouldn't use these
 18 materials.
 19 Q. Sorry, I'm being told just above this ... Yes, my
 20 attention is being drawn to:
 21 "In summary the performance of the building
 22 structure, including the insulating envelope, the
 23 superstructure, the substructure etc, must be considered
 24 in relation to their performance in the event of
 25 a fire."

191

1 Do you see that there?
 2 A. Yes, yes. But as sandwich panels to be used as infill
 3 panels, I don't think it quite applies.
 4 Q. You didn't think that was --
 5 A. No. Well, on the previous page it says that special
 6 care has got to be taken to the fixing of these back to
 7 the building. Well, in our case the panel is
 8 self-supporting within a window frame.
 9 Q. Right.
 10 A. So it shouldn't fall away and --
 11 Q. I think it was your evidence just a moment ago that you
 12 weren't aware these panels were extruded polystyrene; is
 13 that correct?
 14 A. I'd never considered what styrofoam was. I knew it was
 15 a rigid insulation of some sort.
 16 Q. And you didn't give any consideration to the fire
 17 performance of those panels --
 18 A. I didn't need to, no.
 19 Q. -- on the external wall?
 20 A. No.
 21 Q. Are you aware that anybody within Harley -- we can see
 22 that it was Mr Stapley that suggested these styrofoam
 23 panels. Are you aware of whether there were any
 24 discussions within Harley about the appropriateness of
 25 these panels?

192

1 A. I would assume it was a product that they'd used many
 2 times before. I'm sure the projects over the years must
 3 have incorporated sandwich panels, but that's
 4 an assumption.
 5 MS GRANGE: Mr Chairman, I've come to the end of my
 6 questions. That would be an appropriate moment for
 7 a break.
 8 SIR MARTIN MOORE-BICK: Yes, it would. Thank you very much.
 9 Well, now, we'll have a break at this point,
 10 Mr Lamb. Ms Grange thinks she's got to the end of her
 11 questions, but we always allow a short time so that
 12 counsel can just check that there aren't further things
 13 that need to be covered.
 14 THE WITNESS: Okay.
 15 SIR MARTIN MOORE-BICK: How long do you think you might
 16 need, Ms Grange?
 17 MS GRANGE: 15 minutes.
 18 SIR MARTIN MOORE-BICK: Right.
 19 We'll come back at 3.45, please.
 20 THE WITNESS: Okay.
 21 SIR MARTIN MOORE-BICK: I don't suppose you'll have much
 22 chance to talk to anyone about your evidence, but if you
 23 do, don't take it, please.
 24 THE WITNESS: Okay.
 25 SIR MARTIN MOORE-BICK: All right. Thank you very much.

193

1 (Pause)
 2 Good. Thank you. 3.45.
 3 (3.31 pm)
 4 (A short break)
 5 (3.51 pm)
 6 SIR MARTIN MOORE-BICK: All right, Mr Lamb?
 7 THE WITNESS: Yes.
 8 SIR MARTIN MOORE-BICK: Now, Ms Grange, did you find some
 9 more questions?
 10 MS GRANGE: Just a few very short questions.
 11 SIR MARTIN MOORE-BICK: There we are. Right. Off you go,
 12 then.
 13 MS GRANGE: Thank you.
 14 First question. On the styrofoam and the switch
 15 from TP10 to styrofoam, did you get the impression that
 16 styrofoam was being selected because it was cheaper?
 17 A. I had no reason to consider that. It's a very common
 18 core for insulated panels, so I don't think that was the
 19 prime motive, to be honest.
 20 Q. But would it in fact have been cheaper?
 21 A. To be honest, I don't believe styrofoam is a cheap
 22 product.
 23 Q. Right, okay.
 24 Were you aware in October 2014 that Panel Systems
 25 did offer an FR version of their insulated core panel,

194

1 an A1 version with a mineral fibre core?
 2 A. No, I wasn't.
 3 Q. We talked about the head of the building and that
 4 annotation you made in blue on your CAD drawing --
 5 A. Yes.
 6 Q. -- headed "firebreak". Can you explain, why did you not
 7 raise that issue directly with Studio E and ask them
 8 whether or not they required cavity barriers at the very
 9 head of the building?
 10 A. We didn't generally -- or I wouldn't generally raise any
 11 issues. Generally the drawing speaks for itself. It's
 12 there for full checking.
 13 Q. I see. So that's the way you left it: it's not there on
 14 the drawing, they can check that?
 15 A. Yes.
 16 Q. And you didn't think to have a direct conversation with
 17 them about it?
 18 A. No. To be honest, we didn't have much success when
 19 discussing the firebreaks at the earlier stage. I can't
 20 imagine we would have got anywhere with this.
 21 Q. I see.
 22 Mr Lamb, we've gone through a lot of questions about
 23 the project and your role on it. What would you have
 24 done differently, knowing what we know now?
 25 A. Well, without the luxury of hindsight, and just

195

1 considering I was a design resource, a freelance design
 2 resource, I don't think that there was anything
 3 different I could have done.
 4 However, it's quite clear from a lot of our
 5 conversations that there's a total lack of clarity in
 6 the regulations that everyone is supposed to adhere to,
 7 and I really think something needs to be done just to
 8 take the ambiguity out of the documentation that
 9 everyone is expected to conform to.
 10 MS GRANGE: I see. Okay, thank you.
 11 SIR MARTIN MOORE-BICK: Well, thank you very much for coming
 12 to give your evidence, Mr Lamb. It has been very useful
 13 to hear from you.
 14 THE WITNESS: Thank you.
 15 SIR MARTIN MOORE-BICK: I'm sorry it's taken up quite a lot
 16 of your time, but that can't be helped.
 17 THE WITNESS: No, that's fine.
 18 SIR MARTIN MOORE-BICK: Anyway, it's all over now, you're
 19 free to go. Thank you very much indeed.
 20 THE WITNESS: Thank you very much. Cheers.
 21 (The witness withdrew)
 22 SIR MARTIN MOORE-BICK: Well, Ms Grange, I take it that
 23 that's it for the day?
 24 MS GRANGE: That is it for the day, and another Harley
 25 witness on Monday.

196

1 SIR MARTIN MOORE-BICK: Good. Thank you very much.

2 Well, we'll stop at that point, then, and resume at

3 10 o'clock on Monday.

199

4 MS GRANGE: Thank you.

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

6 (3.55 pm)

7 (The hearing adjourned until 10 am

8 on Monday, 21 September 2020)

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197

1 INDEX

2 MR KEVIN LAMB (continued)1

3 Questions from COUNSEL TO THE INQUIRY1

(continued)

4

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13

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16

17

18

19

20

21

22

23

24

25

198

A						
a1 (1) 195:1	adb4 (1) 82:25	110:11	163:8,12,20 165:4,7	approval (15) 1:20,24	156:17,16,24	attracted (1) 182:6
a2 (2) 117:7 121:13	add (4) 2:12 72:19	agreeing (1) 30:25	195:4	2:22 3:13 6:6 7:20	157:10,14,25 158:19	august (5) 6:10,24
able (4) 63:19 138:2	99:13 143:19	agreement (1) 57:12	annotations (6) 92:6	9:20 13:11,18 17:2,9	161:14 169:9 187:13	34:18,20 75:17
148:19 152:13	added (8) 75:18,21	ah (1) 147:18	111:20 144:3 164:24	87:18 138:1 155:3,7	arrangement (5) 89:3	authorised (1) 39:16
above (31) 36:14 47:12	aid (1) 137:23	aid (1) 137:23	176:10,21	approvals (2) 5:15 89:2	120:8 128:12 151:9	authoritative (1) 152:19
54:10,11 68:16 69:6	106:16 148:13 187:25	air (4) 70:24 93:23	another (21) 2:14 5:25	approve (3) 108:24	153:25	availability (1) 94:11
80:13 81:1	adding (3) 98:4 112:1	94:21 112:16	8:10 30:13 35:17 51:2	117:25 170:2	ashton (9) 77:19,25	available (3) 105:2
101:18,20,23 102:21	139:15	airsealed (1) 169:9	54:1 55:3,6 91:5	approved (43) 3:22	78:3 80:2 84:7,20	149:25 150:1
103:2,4 109:18,20	addition (1) 2:5	albeit (1) 183:12	106:16 115:19	9:4,7 12:8 14:8,11	85:6,16 86:7	aware (52) 11:11
114:15 132:15 137:20	additional (2) 6:17	aldrige (1) 86:16	116:7,19 130:17	37:17 45:17 48:24	aside (1) 154:8	18:21,25 23:17
141:3 143:13 147:15	148:14	align (1) 146:22	133:17 139:24 162:15	61:10 64:6 67:20,25	ask (17) 1:5 19:3 29:19	25:3,23 29:8 30:8 33:4
163:1,3 166:5 174:8	address (2) 2:16,17	aligning (4) 137:12	165:17 183:22 196:24	90:23 91:18 93:7	31:2 32:3,22 54:24	34:3 37:9
175:21 176:22 184:22	addressed (2) 142:8	139:7 147:3,7	answer (4) 29:15 32:2	105:12 107:4 117:2	65:12 68:1 95:12	38:11,16,16,20 41:1
188:8 191:19	152:24	alignment (1) 16:7	136:16 151:23	119:5 121:14,19	110:23 129:13 136:24	45:5,10,23
absolutely (2) 22:19	addressing (1) 5:6	alleviate (1) 137:2	anybody (16) 19:2 38:4	125:7,13,14 131:16	148:19,22 153:16	67:19,22,24 71:5 74:9
72:22	adequate (4) 108:9	allow (5) 5:16 115:20	40:1 59:5 70:10 90:6	132:13 133:4,10,14,25	195:7	83:6,9,22 84:19 85:5
academy (1) 86:17	125:6,8 126:24	116:9,15 193:11	109:3 126:3 143:3	134:4,10,22 145:7,22	asked (14) 1:23 19:2	144:7 145:6,7 146:15
accept (5) 43:1 69:13	adequately (2) 50:18	alluded (1) 79:6	144:3 152:6 155:4	154:5 157:13 161:25	28:17 35:22 68:4	154:14 157:21 159:3,4
98:3 111:6 178:15	125:3	almost (2) 26:25 86:17	157:5 171:9 178:22	165:23 174:2 188:10	85:24 86:12 96:4	161:9 172:17
acceptable (7) 12:1	adhere (1) 196:6	along (7) 88:21 94:15	192:21	191:14	105:11 116:18 128:18	183:12,16 186:11
81:8 132:23 133:24	adjacent (2) 101:13,14	97:3 107:15 114:6	anyone (19) 9:18 31:24	approving (1) 8:4	149:15 153:16 156:13	188:2,4,10,14,18
146:1 165:16 191:10	adjourned (1) 197:7	124:19 155:6	41:23 43:4 62:17	approximate (1) 28:17	191:14 192:12,21,23	191:14 192:12,21,23
accepted (5) 44:3 105:3	adjournment (1) 123:12	already (6) 32:25 36:11	70:15 74:9 76:14 96:1	architect (49) 3:24 8:6	194:24	
106:24 125:15 178:18	adjusted (1) 6:13	57:15 71:20 149:3,4	123:4 134:21 142:23	13:18 16:17,20,21	116:13 118:11 150:24	awareness (1) 180:13
accordance (6) 10:17	adopted (1) 108:16	also (25) 10:23 13:24	144:1 150:25 151:7	17:1 21:25 25:5 42:5	151:7 168:7 175:8	away (4) 101:5 102:3
64:1 107:3,6 124:13	advance (1) 39:9	22:13 26:17 36:8	157:4 173:17 187:2	44:15 49:3 51:1,5	180:13	154:20 192:10
125:7	advice (13) 36:13 49:6	42:17 53:7 58:10	193:22	54:23 55:21 57:13,20	aspect (1) 14:12	awful (1) 59:4
according (1) 36:4	57:22 64:14 80:19	65:22 67:22 68:15	anything (12) 2:8 24:16	59:14 60:18,24 61:7	aspects (2) 52:5 121:21	
accordingly (3) 76:8	82:6 84:20 85:5 95:13	81:13 93:25 96:13	31:8 38:5 60:1,4 92:25	63:10 65:7 73:16	assembled (1) 182:6	
89:25 112:7	117:8 118:11,14 145:1	104:21 106:18 112:16	132:7 137:25 177:15	104:6 109:7 111:4,8	assembly (3) 179:18	
account (1) 14:1	advise (1) 96:18	121:18 137:6,8 139:16	185:17 196:2	124:24 125:9 126:1	181:25 182:4	
accurate (1) 27:2	advocating (1) 59:5	140:9 142:16 152:24	anyway (4) 56:24	130:15 154:5,7,9,19	assess (1) 188:7	
achieve (4) 140:10	aesthetic (4) 16:1,14,24	176:23	146:23 191:4 196:18	159:6 162:2,4,16	assessments (2) 36:14	
141:2 154:1 169:10	58:16	alternative (2) 37:18	anywhere (3) 59:24	164:3 165:12,23	40:7	b (47) 3:25 4:12 7:5,13
achieved (2) 181:15	aesthetically (1) 15:18	113:5	88:5 195:20	166:20,25 178:19	assist (1) 117:18	10:10 12:3,7
182:18	affect (1) 180:22	although (4) 36:14 84:9	apart (1) 85:19	179:24 185:1	assistance (2) 49:14	13:4,7,8,25 37:17
acknowledges (1)	after (16) 13:11,18	158:2 190:11	apartments (3) 115:21	architects (27) 3:20	94:4	45:17 48:24 64:6
153:14	36:11 80:6 81:5 87:10	alucobond (2) 18:19	116:10,16	14:12 15:9,11 17:9	associated (2) 19:17	67:20,25 92:8 93:7
acm (20) 17:12,23	89:1 91:12 98:6 117:5	26:4	apologies (1) 131:14	18:8,10 22:14 49:6	187:4	105:12 107:4 117:2
18:17 19:16 23:2,10	118:24 126:2 144:5	aluminium (33) 11:9	apologise (3) 75:16	50:5,21 56:15,21	assume (6) 22:1 35:3	119:5 121:14,19
26:8,13,21 27:13	163:23 164:6 178:10	15:20,22 18:22,25	119:12 187:10	57:3,7 61:18,24 63:18	96:17 152:16 188:5	125:7,10,11,13,14
28:23 29:5,18,23	afternoon (1) 115:18	23:4 33:20 71:2	apparent (1) 25:15	67:10 87:18 101:10	193:1	131:16 132:13
30:1,13 31:5,9,13,24	afterthought (1) 79:11	104:17,19 105:22	appear (4) 7:17 133:11	102:10 110:15 118:21	assumed (1) 19:10	133:4,10,14,25
across (13) 20:21	afterwards (1) 172:18	106:17 107:13 109:18	157:5 163:12	122:11 156:14 162:14	assuming (2) 43:4	134:4,10,22 145:7,22
24:10,20 55:8 59:24	again (26) 6:3 13:12	132:21 146:11 168:24	appeared (1) 104:22	architectural (1) 116:6	105:22	157:13 158:17 161:25
60:25 69:10 73:8	19:25,25 20:2 26:5	169:2,7,8 170:7	appears (9) 9:2 11:6	area (16) 17:15 54:1,15	assumption (3) 19:11	174:2 188:10 191:14
110:2 112:20 118:6	28:2,13 33:13 48:4	172:25 174:24 176:17	117:10 121:1 140:21	55:16,17 60:15 64:15	21:17 193:4	b2 (1) 37:19
151:2 174:7	59:16 64:16 82:18	182:2	148:11 157:9 161:5	67:7 72:16 73:5 74:22	assured (2) 179:5,7	b3 (1) 46:20
acting (1) 188:1	98:14 99:11 101:2	183:8,13,18,21,25	163:13	112:12 119:5 152:21	attach (1) 87:15	b34 (1) 45:6
action (2) 134:19 172:5	102:4 118:14 122:23	184:3,4,7	appendix (2) 188:14,21	166:8,11	attached (23) 2:21 3:4	b4 (1) 47:1
actively (1) 143:17	127:11 128:5 130:8	always (6) 13:6 50:5	applicable (1) 49:20	areas (6) 12:13 72:13	5:10 7:2 8:17	back (60) 1:23 3:1 9:25
actual (4) 18:25 35:5	155:22 158:9 162:3	81:21 98:1 162:10	application (2) 47:19	73:9 74:20 111:8	10:3,4,16 11:16 26:15	12:14 13:5,6 22:25
59:6 134:18	188:5	193:11	191:9	122:15	42:18 71:18 78:12	30:1 41:4 47:1 53:1,2
actually (31) 13:6 16:19	against (5) 21:14 60:18	amazed (1) 144:1	applications (1) 131:22	arent (6) 95:8 107:18	81:13 87:17,24 89:23	54:23 61:2,6 62:16
24:2 34:24 44:12,25	109:21 126:24 145:16	ambiguity (1) 196:8	applied (2) 93:8 176:9	150:9 155:5 169:23	95:3,21 96:15 115:22	63:4 65:10 67:1,8,10
53:13 56:24 57:10,17	agf (2) 11:9 12:23	amended (1) 176:13	applies (4) 46:21	193:12	128:8 189:15	78:20 84:3 86:7 88:17
58:22 75:17 84:3	ago (9) 39:3 41:6 59:4	amendment (1) 97:24	174:13,18 192:3	arguing (1) 84:21	attaches (1) 5:24	90:19 91:21 106:7
94:16 114:23 119:15	121:16 179:6,8 182:14	amongst (2) 115:13	apply (2) 47:5 62:17	argument (2) 57:10	attachment (5) 3:7 7:3	107:15 108:2,4,12
126:19,21 127:21	183:20 192:11	129:22	applying (1) 174:19	151:14	137:6 138:17 140:19	111:10,12,18 113:8
128:19 141:1 147:16	agree (38) 12:19 18:2	amount (1) 49:2	appreciate (12) 25:12	arising (1) 77:21	attachments (9) 8:22	136:7,21 138:8 145:15
156:12 158:3 170:3	31:16 42:23 43:1	andor (2) 21:3 137:18	42:9 47:7 49:7 60:2	around (54) 48:1,7,13	10:23 27:12 99:15	147:1,4,9,11 156:22
174:12,18 175:3	46:13 55:15 63:8,17	angle (9) 15:20,22	120:14 154:7,8 156:14	50:16 51:7 55:22	136:3 139:20	158:8 164:2 165:8,12
186:17 187:12 188:19	64:18 73:18 74:25	105:22 107:13 145:21	179:19,25 187:25	58:7,21 59:6,9,17	140:12,18 142:2	166:20,25 171:5
ad (2) 37:19 158:17	75:13 88:4 89:8 92:5	146:9,10,11 151:20	appreciated (1) 156:25	61:6,21 64:8,23 66:9	attack (1) 106:7	173:16 183:3
adb (30) 17:15 19:17	101:11 103:20	angles (2) 16:10 79:1	approach (5) 49:1,9	67:21 68:3 73:19	attacked (1) 107:14	185:20,21 186:5
45:19,23 46:11 47:21	105:17,19 112:25	anketelljones (26) 2:19	68:1 78:15 123:24	85:19 97:15 101:3,7	attacking (2) 108:3	187:10 192:6 193:19
48:20 49:17,20,24	113:3 123:22 124:2,4	8:14 30:15 31:3,8	appropriate (13) 19:16	102:5 106:21	113:8	backed (2) 49:3 104:11
50:2 61:3 74:1 98:20	130:11 133:10 134:15	34:20 35:8,10 48:4	21:7 22:21 57:19 70:6	108:13,16 111:23	attempt (1) 78:15	bailey (24) 8:14 11:8,14
117:7 124:13 125:24	139:14 140:1,6	71:9 72:5,7 75:7 80:22	100:21 107:16 109:9	112:2,10 113:24 117:6	attend (1) 98:16	15:18,22 26:12 30:15
126:4 146:9 153:8	142:5,10 145:22 148:7	81:1,16 82:12 87:2,12	122:23 179:16 184:21	120:5 125:12,16	attendance (1) 171:22	34:19 90:6 96:13
154:1 155:19 174:6,20	182:16 185:2,12	89:21 90:7 96:10	191:9 193:6	127:20 130:25 136:1	attended (1) 171:18	110:9 126:15,19
175:3,8,13,18 187:4,7	agreed (6) 18:14 31:12	110:12 156:11,13,21	appropriateness (1)	141:17 145:10 149:23	attention (6) 51:17	128:24,25 130:20,21
	41:16 59:7 90:4	annotation (6)	192:24	151:5 154:2	52:12 120:2 121:18	131:11 135:22,25
					142:25 191:20	136:12 142:2,23
						171:21
						barbara (1) 115:5

barnaby (4) 93:12	163:1,3 195:8	132:23 133:23 136:11	147:5 150:3,11 173:15	called (7) 11:8 25:16	112:8,19,23,24	193:22
117:14,15 118:7	base (1) 55:3	141:6,6 150:17 173:5	181:5	33:2 34:7 35:14	113:2,8,13,17	change (9) 14:22 16:16
barrier (125) 45:13,15	based (6) 4:10 5:14	177:16 183:2	box (4) 7:9 24:4 74:19	100:17,19	114:5,6,15 116:14,16	35:16 44:13,14,16
47:12 53:17,22	87:18 154:6 162:1	ben (34) 8:14 11:8,14	181:6	calls (1) 141:4	117:8 119:6,8	128:18 178:1,2
54:6,17,22,25 55:11	173:7	12:22 26:12 38:22	boxing (1) 122:3	came (11) 19:23 21:23	120:4,15,16,18,20	changed (7) 14:12
59:20 60:6,10,15 64:3	basic (2) 48:12 78:15	39:25 40:6 56:1 96:13	br (1) 37:20	36:11 40:25 52:5	121:2 123:20	34:15 76:1 144:9,11
65:9,19,22 66:22	baton (1) 136:20	97:21 120:13 128:25	bracket (3) 75:20,21	112:22 144:5	124:5,17,20,22	177:20 186:9
67:16,16 68:16,22	bay (4) 51:25 52:20	130:20 131:2,11,13	106:17	159:15,19 165:12	125:3,12,15,22 126:12	changes (3) 13:4 44:13
71:3 76:2,3,9,15	162:25 167:14	135:22,25	bracketry (1) 145:4	166:25	128:2 129:7,8,8,11,19	178:3
77:1,2 80:11	bba (9) 23:13,17,22	136:12,19,25 142:2,23	brackets (1) 94:1	cannot (2) 36:13 137:24	130:8,19 131:21,23	channel (2) 113:16
81:7,22,25	24:9,23 179:14	143:3,8,14 164:13	break (11) 62:8,15,24	cant (18) 28:16 32:14	132:19 134:10 137:25	169:9
88:8,11,13,16 89:5	181:3,5 182:23	167:23,24 168:7,14	105:24 113:2 114:24	40:11 43:21 44:7,24	139:15 140:24	characteristics (1)
91:2 93:23 94:2,3 97:1	bba00000047 (1) 23:25	171:14,14	123:3 185:24 193:7,9	47:9 66:11 86:24	142:8,11,16	190:10
99:5 100:11,23	bba000000475 (1) 25:9	beneath (1) 162:25	194:4	92:20 104:10 144:25	143:13,17,22 144:17	cheap (1) 194:21
103:3,13,21	bco (3) 137:3,8 138:1	beside (1) 54:10	breaking (1) 61:14	151:23 152:19 164:13	145:10,13,23	cheaper (4) 176:16,19
104:3,7,10,20,21,25	beams (1) 122:9	bespoke (1) 153:17	breaks (4) 96:16,20	168:2 195:19 196:16	146:5,7,17,22	194:16,20
105:11 106:5,8,13	bear (2) 18:5 101:24	best (5) 12:19 129:14	117:23 160:13	care (1) 192:6	147:13,14,15 148:12	check (24) 20:17 21:2
107:9 108:4 110:5	bearing (2) 19:16	131:1 150:1 177:10	brickwork (1) 46:24	carefully (1) 61:16	149:6,8,11,22 150:17	24:16 39:4 54:23
111:7 122:4	140:10	better (2) 82:24 106:15	brief (1) 162:1	carrick (3) 93:12 95:10	151:1,4,4,11,14,24	56:15,21 61:7 70:16
112:9,20,23,24	became (1) 38:20	between (34) 5:17 30:8	briefly (4) 33:11	117:14	152:10,24 153:4,7,17	91:6 103:5 109:3,8
113:3,8,17 114:5,6,15	become (1) 97:13	45:12 46:23 57:12	158:8,14 159:11	carry (5) 1:10 6:9	154:2,12,15,19	110:23 155:5 157:22
119:7,8 123:20 125:22	becomes (1) 25:15	60:6 65:4 66:10	brilliant (1) 103:8	123:14,20 151:3	155:5,12,13,18	164:2 166:19 174:2,6
126:12 129:7,11,20	before (46) 9:7 13:1	68:12,23 72:17 73:9	broke (2) 1:18 187:16	carrying (1) 84:3	156:9,16,23	175:15 184:20 193:12
131:21,23 132:19	18:19 21:23 22:9	76:24 77:19 83:2,7,10	broken (1) 23:4	casings (1) 85:20	157:1,3,10,14,24	195:14
134:10 137:25 139:15	23:23 24:10,17,20	88:17 100:22 104:18	brought (1) 120:1	cassette (3) 17:22	158:17 161:14	checked (10) 12:25
142:8,11,16 143:13	30:9 39:5 44:2 45:19	106:17 107:12 115:21	bruce (2) 71:14 87:12	18:13 24:21	162:7,12,18,24	22:9 39:13 82:10 90:7
145:13,16 146:5,7,22	51:13 56:10,12 58:8	116:9,15 119:5 121:19	bs (1) 37:21	cassettes (3) 23:7 41:11	163:1,3,25 164:9,16	174:10 175:8,13
147:14,14,15 148:12	86:20 90:7 97:18,20	129:5 132:20 141:18	bs4767 (1) 181:15	132:21	166:6 195:8	176:14 182:11
149:8 151:4,11,25	98:10 99:3 100:12	151:16 170:20 185:14	bsd00001779 (1) 119:1	catalogue (2) 94:11,16	cc (1) 115:14	checking (13) 8:4 14:24
152:10 153:4,8,17	104:2 114:12 117:3,6	189:10	bubble (2) 141:17	category (2) 4:15 16:25	cced (1) 71:15	21:4,7,13,14,19 38:1
154:15 155:12,13,18	123:20 125:17 126:11	beyond (3) 127:13,15	144:10	caused (2) 2:5 9:17	ccing (2) 71:15 128:25	94:11 110:25 142:17
156:7,9 161:2,7	127:11 135:23 138:12	158:2	bubbles (1) 4:17	cavities (6) 46:2 48:1	ceiling (1) 86:19	165:20 195:12
162:12,18,24 163:25	149:21 154:23 155:25	big (2) 141:17 170:20	buck (1) 8:5	61:14 80:9 101:16	cel00002047 (1) 37:6	checks (2) 86:16 179:3
164:9,16 166:6	158:3 159:5 164:17	bit (19) 15:15 17:14	build (3) 115:21 116:9	158:19	cel000020472 (1) 37:14	cheers (1) 196:20
barriers (154)	178:20,21,23 179:3,11	33:18 39:18 43:2	135:16	cavity (286) 30:19,21	celotex (20) 33:2,18	chimney (7) 72:18
30:19,19,21 45:4,19	193:2	54:12 55:17 56:6,9	buildable (1) 105:20	45:4,13,14,15,19	34:23,25 35:3,17	73:10 74:12,13,14
46:9,14,23 47:25	began (2) 29:15 79:23	77:16 84:2 101:25	builder (1) 25:6	46:9,14,22,23	36:4,15,21 37:12	75:1 76:19
48:6,12 49:14	begin (1) 26:23	102:1,14,15 119:19	building (67) 3:10 16:6	47:12,13,23,25	38:10,13,24 39:12,22	choice (5) 82:17,22
50:10,16 51:7,12	beginning (3) 7:23	134:5 148:9 169:17	19:16 21:8 22:21,22	48:6,12 49:13 50:9,16	40:1 44:15,21 81:13	168:24 185:8,16
52:24 55:22 56:6,8	43:10 128:20	black (5) 150:5,20	32:5,9,12 35:23,25	51:6,12 52:24	150:14	choices (1) 36:11
58:7,11,21 59:5,12,13	begins (1) 17:19	151:16 172:21 190:6	36:23 37:5 42:10	53:17,22	cem (1) 68:23	chris (2) 135:21 136:6
60:9,19,20,21,25	begun (1) 98:7	blades (1) 26:12	45:6,7,14 46:6 48:21	54:6,17,22,25	cep (5) 26:12 27:15	chronology (1) 115:8
61:6,21 63:16 64:7	behaviour (3) 25:10	blar0000000353 (1)	50:25 62:5 64:1 80:15	55:11,21 56:5,7	29:1,10 30:7	cill (17) 53:14 54:13
66:5,9,10 67:5,12,21	181:12 188:21	150:2	86:21 97:11 111:17	58:7,11,21	cep000000512 (1) 26:9	55:23 59:8 60:2 64:16
68:3 69:14,22,23,25	behind (11) 32:23 41:10	block (2) 117:20 155:13	112:13 115:12 116:12	59:5,12,13,20	cep000000513 (1)	73:20 79:2 88:8 101:8
70:1,6,12,18 71:5,8	76:20 78:17 80:9	blocks (3) 107:17	117:20,25 121:6,7	60:6,9,10,15,19,20,21,25	27:14	141:6 148:15
72:2,5 73:19 74:3	104:20 106:2	108:6,6	122:9 124:11 127:25	61:5,21 63:15 64:3,7	cel0000005134 (1)	155:12,19,22 156:2
76:20 77:7,9,11	107:10,14 150:12	blow (8) 36:10 105:6	129:6 131:16,24 132:5	65:8,18,22	28:10	160:14
78:17,24	190:9	150:3 153:1 160:23	133:22 137:4 151:2	66:5,9,10,22	cep000003223 (1)	cills (1) 152:25
79:7,11,15,23 81:21	being (37) 5:17 7:24	170:19 172:19 177:19	156:8 160:10 161:25	67:5,12,16,16,21	160:2	circled (1) 92:8
84:22,25 85:4 88:4,25	12:22 17:8 20:23	blown (1) 150:4	162:9,11 163:21	68:3,16,22,23,23	cep0000032232 (1)	circles (4) 130:25
90:15,25 91:13	27:15 30:3 34:3 40:18	blue (9) 24:4 140:22	164:16 166:12,15	69:14,22,23,25	160:8	136:1,15 150:4
92:6,13,22 93:2,4	41:15,24 42:7 46:22	163:7,20 164:24	167:15 174:8 179:19	70:1,6,12,18,24 71:5,8	cep00000322320 (1)	circumstance (1)
95:7,13 96:2	63:19 71:7 73:6,13	165:5,7 181:6 195:4	180:1,14,21 183:16	72:1,5 73:19 74:3	160:17	144:14
97:5,12,15,19,23	82:6 97:12,24 107:14	board (6) 68:23 145:3,3	184:22 187:3 189:15	76:2,3,9,15,20	certain (3) 57:12 94:13	circumstances (1) 22:8
98:4,10 99:13	114:13 119:22 122:4	174:24 183:6,7	191:2,21 192:7	77:1,2,7,9,11 78:17,24	127:12	cladding (75) 6:17
100:2,4,9,16	127:21 128:18	boarder (2) 9:12,14	195:3,9	79:7,11,15,23	certificate (14)	15:16,19 16:4
101:2,7,12 102:5,6	149:15,15 178:18	bolt (1) 150:8	buildings (4) 36:3	80:11,14 84:22,25	23:13,17,22	17:12,22 18:11 26:15
108:16 109:17 113:13	179:19 180:1,14,19	bolted (1) 105:23	179:17 183:9 188:8	85:4,18 86:15,18,25	24:6,16,23 25:8	33:14 35:24
116:16 117:8	190:19 191:19,20	bonded (1) 189:10	buildup (2) 135:2,9	88:4,8,11,13,16,25	181:3,5,7,9 182:23	36:2,4,12,15,21 37:7
118:12,16	194:16	both (12) 33:20 67:6	bullet (2) 33:17 169:6	89:4 90:15,25 91:2,13	183:3,5	50:17 53:18 57:25
120:5,15,17,18,20	believe (24) 16:10 34:6	68:2,22 95:18 96:16	burn (2) 84:10 187:12	92:6,13,21 93:2,4,23	certificates (2) 24:9	59:21 72:13,17,18
121:3 124:5,17,20,23	39:13 51:17 68:18,19	100:19 178:7,8	buy (1) 172:14	94:3 95:7,13 96:2	179:14	74:20 76:22 79:2
125:3,12,16 128:2	72:15 73:3 81:6,20,25	183:7,13 190:10		97:1,5,12,15,19,23	cetera (2) 5:18 145:19	80:10 85:19 86:1 89:3
130:8,19 140:24	82:2 96:3 99:6 107:5,6	bottom (37) 2:15 4:24		98:4,10 99:13	chain (11) 11:21 30:16	95:4,22 97:11 111:23
143:18,22 144:17	122:19 138:23,24	7:9 9:3 10:24 14:7		100:2,3,9,11,16,23	39:22 77:19 79:9,25	112:3,5,10,12,12,15,22
145:10,23 146:17	171:7 175:6 176:11	19:23 24:2 27:16 28:2		101:2,7,12,13,17	86:6 131:7 135:4,5,24	113:12,14,16,18,24
147:25 149:6,11,23	181:11 194:21	53:7,12,16 60:25		102:5,6 103:3,12,21	chains (1) 131:8	114:3,5 115:20 116:8
150:17 151:1,14	believed (1) 81:21	65:16 75:18 76:25	c1059 (1) 8:22	104:2,6,10,20,21,25	chairman (5) 62:7 96:23	117:17 119:6 121:20
152:24 154:2,12,19	below (20) 46:9 47:12	80:1,3,14 84:5 85:19	c1059302 (1) 15:14	105:11	122:22 185:22 193:5	122:8 129:10 131:22
155:6 156:16,24	81:6 86:14 104:9	90:21 94:25 100:5	164:1,20 195:4	calculations (4) 35:4,6	chalcots (5)	132:22 133:23,24
157:10,14,25 158:18	105:25 107:9 115:21	104:12 117:12 130:1		40:21 41:15	159:10,21,24 160:2,21	135:2,9 141:19 149:23
161:11,14 162:8	116:18 119:14 131:15	131:7,9 135:3 145:17	call (2) 49:23 121:22	110:5 111:7,22	chance (2) 143:23	151:3 157:2,4,19

159:21 161:20 162:19 165:2 166:3 185:9 188:24 189:3 clarification (4) 72:3 94:22 149:5,7 clarifies (1) 141:1 clarity (7) 65:11 85:15 99:2,2,4 149:14 196:5 class (38) 36:2 81:5,17 82:7,16,19,22,24 83:1,3,7,10,17 84:1,8,10 85:7 173:20,22 175:6,9,11,14,25 176:4,5,7 178:22 179:5,7,18,23 181:1,16,21 182:6,18,25 clean (2) 9:12 16:5 cleanest (1) 104:23 clear (48) 3:25 12:10 13:2 21:17 22:19 24:15 30:17 34:3 46:13 50:24 53:21 54:22 59:22 61:5 64:7 68:1,2 72:4,22 77:6,13 82:25 85:17 86:20 94:17,23 101:1 106:25 118:18 125:14,15 139:17 149:3 153:15 155:7 158:23,25 163:12 168:1 170:17 174:7,12,17 175:20,24 182:24 190:15 196:4 cleared (1) 97:10 clearer (2) 47:4 48:5 clearly (13) 41:13 66:16 86:2 90:3 105:23 108:9 122:12 129:22 131:19 136:19 154:5 162:14 167:24 clerical (2) 9:9,10 clg00000224147 (1) 188:20 clg00000224148 (1) 191:6 clg0000022482 (1) 45:18 clg0000022483 (1) 47:22 client (6) 18:5 21:24 56:17 61:17 179:9 182:14 climate (1) 134:18 close (11) 30:7 47:25 69:16 70:24 97:8 102:2,22,24 117:4 118:20 158:19 closed (1) 46:14 closer (2) 131:4 138:13 closure (1) 16:10 closures (1) 47:23 club (1) 122:3 colour (2) 177:1,2 column (31) 32:23 53:16,21,25 55:18 59:23 60:7,13 64:23 65:4,19 66:3,6,9,14,15,16,18,19 67:5 75:2,13 76:10,19 85:20 86:1 88:13,18,21 91:15 156:9	columns (16) 5:17 60:6 67:6 72:16 73:1,2,4,6,9 74:13,15,22 96:20,25 99:22 122:9 combination (2) 62:3 190:2 combines (1) 183:21 combustibility (12) 83:4,7,11,19,20 86:14,25 174:9 175:22 185:3 187:8 188:4 combustible (4) 80:10 85:8 184:1,19 come (29) 1:6 3:18 20:1 21:21 22:25 24:10 35:11 62:16 69:18 75:9 77:8 78:20 102:19 103:7 107:15 108:10 112:5,6 113:21 124:19 127:5 143:24 165:8 168:1,5 174:7 184:8 193:5,19 comes (3) 3:1 55:8 125:25 comfortable (1) 120:7 coming (9) 9:25 67:8 101:22 106:22 112:20 123:24 140:23 148:20 196:11 comment (20) 6:21 15:12 36:13 41:2 81:16 86:14 90:12 96:1 98:13 109:2 110:23 119:10,21 144:12 162:17 164:4 165:12 166:20 173:10 175:16 commentapproval (1) 8:18 commented (1) 3:6 comments (25) 3:4,25 4:15,17 5:13 6:13 7:2 10:3,9,17 11:23 12:8,11,14 13:17 15:9 87:18 91:20,24 92:1,3,9 144:8 145:15 164:2 common (8) 12:6 13:3 14:17 17:5 189:6,18 190:10 194:17 commonsense (1) 67:25 communication (1) 134:21 company (1) 168:9 comparable (1) 66:6 compared (1) 189:25 compartment (11) 53:17 66:22 70:24 101:9 119:5 121:20 122:10 137:12 139:7 146:24 147:7 compartmentation (1) 138:5 competitive (1) 26:17 complete (1) 112:21 completed (1) 98:6 compliance (22) 36:4,16,21 37:8,19 38:1,5,6 40:9 48:14,15,17 67:23 109:11 125:10,18 133:15 134:14 157:21	159:6 161:24 174:4 compliant (7) 21:20 22:10 35:24 64:5 179:21 180:3 187:3 complied (2) 63:23 118:21 comply (3) 50:15 124:10,11 complying (2) 37:16 50:9 components (1) 14:10 composing (1) 170:11 composite (4) 19:6 23:7 30:3 71:2 composition (2) 30:2 41:16 compressed (1) 184:3 compressible (4) 55:9 104:24 108:14 153:18 comprised (1) 174:22 comprising (1) 169:7 concealed (3) 45:9 46:2,4 conceivable (1) 86:18 concept (7) 18:9 83:3 90:10 127:12,14,16,19 concern (4) 142:20 145:16 152:5 157:20 concerned (11) 19:18 29:24 63:18 82:15 83:17 113:6 122:6,17,20 145:1 162:25 concerns (5) 17:8 42:7 85:9 121:1 127:25 conclude (1) 59:9 concluded (2) 55:21 143:11 concrete (19) 55:8 68:24 104:11,13,15,19 105:25 106:17 107:11,13 108:2 109:21,22 112:19 122:14 132:3,20 145:17 147:19 conditions (1) 191:11 confess (1) 114:13 confidence (1) 61:17 confident (1) 99:3 configuration (5) 14:13 102:11 103:17 144:10 175:6 confirm (12) 26:17 56:16 72:12 81:8 86:13 93:21 119:4 121:10 132:23 133:23 144:9 158:12 confirmation (2) 71:20 73:16 confirmed (2) 58:6,10 confirming (2) 12:1 86:24 conform (1) 196:9 conformance (3) 21:16 22:2 61:11 conforms (5) 4:14 6:5 7:12 22:15 92:8 confused (1) 184:17 confusing (1) 147:16 confusion (6) 9:17 29:10 30:10 100:24 129:22 166:2 consequences (1) 2:6	consider (19) 19:15 24:14 36:22 47:17 50:14 51:1 83:16 90:12 112:8 161:24 162:7 163:9,21 171:15 184:23 185:19 187:1,6 194:17 consideration (11) 73:22 74:6 76:14 87:21 113:11 146:8,14 151:10 153:22 162:10 192:16 considered (15) 22:2 25:1 61:15 77:7 107:8 132:5 146:4 152:18 166:3,4 180:20 187:9 191:17,23 192:14 considering (7) 60:19 71:4 79:15 82:19 83:8 171:3 196:1 consist (1) 189:9 consistent (2) 8:7 151:2 constructed (2) 45:7 122:4 construction (22) 3:23 5:14 7:18,25 9:4,7 11:16 13:1 14:8,11 46:23 47:8,10 89:24 90:21,23 91:19 122:15 137:18 163:11 165:14 189:25 constructive (1) 145:1 consult (4) 49:17 78:19 158:13 171:5 consulted (3) 74:2 98:19,25 consulting (3) 77:13,15 134:9 contact (1) 94:5 contain (1) 90:15 contained (1) 160:12 contend (1) 104:21 contents (1) 24:14 context (5) 15:15 125:21 148:9 190:19,23 continuation (1) 132:5 continue (1) 63:1 continued (4) 1:7,14 198:2,3 continuous (8) 80:14 85:18 86:15,25 113:4 114:3,6 145:4 contractor (3) 132:23 133:23,24 contrary (1) 33:10 contribute (1) 181:13 control (14) 32:5,9,12 42:10 86:21 115:12 117:25 121:6 127:25 133:22 137:4 165:20 177:10,12 convenient (1) 58:20 conversation (13) 31:24 51:8 93:9 94:8 95:10 115:18 116:20 118:7 121:9 130:10 132:18 155:4 195:16 conversations (2) 56:12 196:5 conversion (1) 157:1 convey (1) 125:2 conveying (1) 24:24	copied (15) 2:18 5:20 8:12 9:15 26:10 30:17 77:21 80:23 86:8 91:22 96:13 115:13 116:25 121:7 135:14 copies (1) 163:13 coping (2) 5:10,16 copingsflashing (1) 4:20 copy (3) 5:2,5 9:12 copying (10) 3:1 5:1 26:12 87:11 93:13 96:7,9 111:11 128:4 131:11 core (38) 18:23,24 19:1,3,8 28:22 29:4,11,14,18,20,25 168:19,24 169:7,15 170:11 173:2 174:15,22 177:8 183:17 186:16 187:17,17,18 188:6,11,21,23 189:3,6,9 191:7,9 194:18,25 195:1 cored (1) 190:11 cores (4) 29:9 176:15 190:5,12 corner (4) 9:4 27:16 52:19 170:21 correct (94) 2:6,7 3:9,15 4:1,2,16,21 5:7 6:3 7:7,8 8:9 9:5 10:21 11:5,12 12:9 13:16,20 14:3 17:7,24 23:8,11 27:5 28:5,8,25 43:19 44:8,23 45:11,21 48:8 53:6,19 57:5,8,8 58:9,13,18 68:17 70:19,20 73:21 76:3,11 79:10 82:13 83:5 88:6,15 89:6,15 91:16 92:7 97:2 99:25 102:18 103:11,19 109:10 111:5 117:24 150:7,22 153:13 155:15,16 156:7 159:12 161:22 162:6 163:5 164:22,24 165:3,10,11 167:2,17 170:14,25 173:23 176:20 177:21 178:12,14 184:9 185:11 189:4 192:13 correctly (1) 21:6 correlate (1) 126:1 correspondence (2) 80:25 81:6 cost (2) 2:6 14:20 costing (1) 28:19 couldnt (15) 12:11 32:17 38:24 40:5 48:5 55:9 97:11 100:25 104:24 108:18,21 133:19 178:10 184:6,8 counsel (3) 1:14 193:12 198:3 couple (4) 95:25 99:18 123:19 146:20 course (5) 85:3 105:11 135:18 148:20 158:6 covered (3) 10:20 20:22 193:13 covers (1) 99:19	crawford (43) 2:17 3:1 4:11 5:6,21,23 6:24 9:2,23 10:8 11:22,25 12:20 22:14,20 32:7 71:14 77:19,25 78:10 80:20 86:7 87:12 89:21 91:20,21 92:3,13,17,21 93:2 96:10 115:11 121:4,5,8 128:24 130:3 132:16,16 133:2,21 134:3 crawfords (2) 4:10 10:12 crawled (1) 86:17 create (1) 104:25 created (1) 113:12 creating (1) 183:21 credits (1) 168:6 crisp (1) 104:15 criteria (1) 37:20 criticising (1) 67:4 cross (1) 78:7 crossed (1) 23:19 crown (12) 2:21 3:4,11,12 5:11 161:14,24,24 162:1,8,25 163:2 crystal (1) 125:15 currently (1) 65:15 curtain (4) 8:17 10:16 100:13 132:3 curtainwall (2) 129:6,9 cut (11) 38:11 69:24 111:23 112:7,9,23 113:1,14,24 119:15 151:5 cutting (2) 112:2 149:22 cwct (6) 63:23 74:1 98:20 124:10 157:22 158:8 cwct00000194 (1) 158:10 cwct00000195 (1) 158:11	D d (3) 15:14 75:22 76:2 damage (2) 160:3,9 dan (11) 21:3 35:7,8,10 40:20 56:1 72:8 84:21 85:3 86:2 97:21 danger (1) 46:5 dangerous (1) 188:15 daniel (16) 2:19 8:14 31:3 34:20 71:9,24 80:22 81:10 86:12,24 87:12 89:21 90:7 96:10 110:12 143:3 dash (1) 33:19 data (3) 93:24 94:12 95:19 datasheet (1) 81:14 datasheets (1) 42:12 date (5) 11:7 18:3 24:2,3 181:6 dated (4) 15:8 27:17 72:10 93:11 day (6) 5:24,24 11:14 96:8 196:23,24 day37525 (1) 156:11 day3769621 (1) 159:14	days (5) 39:5 87:10 91:19 117:5 164:17 deal (3) 153:17 162:8,21 dealing (2) 86:2 151:10 dealt (2) 45:20 78:25 debate (2) 57:16 59:6 debating (1) 149:10 decided (6) 15:19 17:21 25:3 71:20 110:17 143:21 deciding (1) 58:23 decision (1) 41:20 deem (1) 159:7 deemed (1) 131:23 defeat (2) 152:10,12 defines (1) 107:21 definitely (16) 9:22 41:22,22 48:22 58:25 87:3 92:23 98:22 110:6,8 122:21 145:9,11 definition (1) 83:23 deflection (1) 104:16 degraded (1) 145:19 degree (6) 24:14 29:24 36:25 47:20 92:23 124:16 delaminate (1) 184:6 delaminates (1) 184:1 delay (2) 119:12 131:14 deliberate (1) 41:20 density (1) 18:22 departure (2) 67:19,24 departures (1) 18:8 depth (6) 93:3 94:13 95:11 136:10 139:25 140:5 described (1) 15:8 description (1) 83:20 design (47) 4:14 6:5 7:12,24 18:2,3 20:21,22 22:15 24:10 50:2,24 52:5 61:16 63:14,15 64:5 79:8,14 89:8,20 90:3 92:8,14,18 96:7 98:6 111:13 123:24 124:1 127:6 138:4 143:7 149:2 153:23 154:17 155:24 157:6 159:21 161:17,24 162:2,4 186:5,16 196:1,1 designed (5) 45:7 106:8,11 162:1 189:13 designing (1) 125:1 designs (2) 4:10 48:19 despite (2) 91:18 120:7 detail (25) 5:10 45:20 51:21 53:15 54:10,11,19 58:14 59:19 61:12 63:9 67:17 75:13 93:25 102:21,24 103:3 114:10 116:7 119:10 121:19 138:4 141:15 142:3 163:4 detailed (7) 43:13 63:12,18 65:13 68:10 88:25 89:14 detailing (5) 1:20 3:9 47:10 53:16 89:5
---	--	--	--	--	--	--	---

details (24) 29:4,4,17,17 30:2 43:10 60:12 65:10 78:4,6 79:2 80:6 87:20 88:6 93:20 95:4,17,21 102:1 127:12 128:8 137:17 154:6 160:19 determine (1) 35:4 develop (3) 18:2 64:4,5 developed (1) 84:11 developing (2) 63:13,15 development (3) 89:9 111:13 181:13 diagram (19) 46:11,13,18 47:2,4,8,18 50:9 60:20 82:25 93:7 105:4 119:14 120:1,4 121:18 125:24 160:23 175:11 diagrams (2) 146:16 149:21 dialogue (1) 12:16 didn't (58) 19:3,12 26:6,23 41:14 49:2 50:21 57:7,11,19,22 58:5,24 61:23 64:2 66:10 70:14 75:9 81:19,20 82:12 83:16 86:4 87:4,6 89:7 95:17 96:25 99:12,14 100:21 113:11,18 124:5,24 141:10 142:1,2,21 144:3 152:5 155:4 156:23 168:11,12,13 173:16 174:6 175:2 184:23 185:17 187:5 192:4,16,18 195:10,16,18 difference (10) 59:7 83:2,6,10,15,16 179:20 180:2,8,15 different (31) 15:25 17:11 26:5 29:8 40:18 44:25 45:2,2 48:20 50:3 55:13,15,17 64:25 76:3,4 84:4 95:7 108:10,11 122:5 133:6 145:20 146:4 177:2 180:18 181:23 182:4 184:13 188:6 196:3 differently (2) 186:24 195:24 differs (1) 102:11 difficult (7) 39:2 50:15 58:22 98:15 148:10 149:12 187:20 difficulties (2) 50:8,11 dimension (3) 76:1 114:19,25 dimensions (3) 27:2 115:2,5 direct (1) 195:16 directed (6) 74:19 84:16 171:13,14 190:17,24 directly (5) 79:20 92:12 109:21 130:12 195:7 disagreeing (1) 106:25 discrepancy (1) 16:12 discuss (14) 35:10,12 43:12 55:1,20 79:23 90:10 97:17 121:21 144:3 173:13 176:24 179:1 187:1	discussed (27) 15:18 26:3 30:6 32:10,18,25 67:12,15 72:1 76:16 97:15 98:12 110:2 114:17 127:13,18,20,21 150:25 154:16,18 155:23 156:1,5 162:15 171:19 173:18 discussing (15) 12:5 30:18 87:1,7 93:1 96:22 97:19 120:10,11,14,16 142:6,22 161:11 195:19 discussion (27) 55:25 56:4,7,14,20 58:20 59:2 61:2 75:6 77:8 81:19 87:5,10 91:24 92:21 93:5 98:9,18 110:4,13 125:22 152:6 163:23,24 164:7,15 177:24 discussions (27) 7:23 20:14 21:24 22:2 29:1 30:8 38:4 40:17 58:2 67:19 72:2,4 87:19 92:12,17,25 93:1,3 94:24 95:3 118:22 149:19 168:2 171:9 178:1,22 192:24 distance (3) 66:10 101:5,22 distinction (2) 45:12 185:14 distinguish (1) 100:22 dividers (1) 190:25 dividing (1) 190:18 dj (1) 156:20 document (43) 13:5 20:3,3 37:16,17 41:6 42:8,18 45:17 48:24 64:6 67:20,25 85:15 93:7 105:12 107:4 117:2 119:5 121:14,19 125:7,10,11,13,14 131:16 132:13 133:4,10,14,25 134:4,10,22 145:7,22 157:13 161:25 172:19 174:2 188:10 191:14 documentation (4) 134:5 174:14 182:11 196:8 documents (4) 1:19 98:11 158:3,6 does (37) 9:1 12:5 23:9 27:20 28:22 30:23 33:23 34:13 46:16 47:1 48:15,18 55:15 60:1,4 76:1 81:24 84:18 99:17,19 102:14 113:17 126:18 133:2,7 137:22 144:19,22 145:22,25 148:17 152:1,12 162:14 163:3,12 174:20 doesn't (10) 34:13 53:13 102:13 125:25 133:2,7,8 144:20 147:16 157:5 doing (22) 18:10 20:17 35:6 40:20 47:19	50:14 52:13 62:11,12 64:10,12 78:6 85:14 92:16 102:5 111:3,6 133:6 136:17 139:2,18 168:4 domestic (2) 117:20 183:9 done (22) 21:11 24:20 29:23 35:4 41:15 44:24 57:23 63:10 105:7,20 109:1 127:10 140:16,21,23 143:15 151:12 153:3 162:4 195:24 196:3,7 dont (119) 2:12,12 6:15 9:17 12:18 16:22 20:17 21:21,22,25 25:6 28:19 31:21 33:7,9,25 34:6,7,9,10,24 39:8 41:23 42:7 43:1,1,4 50:3 55:12 56:1,15,15,20,23 58:2 63:17 65:7,8,10 70:15 73:8 77:15 79:19 82:2 84:16,18 92:15,23 95:19 96:3 100:17,24 101:1,2,7 105:25 106:8,12 107:5,6,15 110:14,23 117:9 122:19 125:2,13 126:3,5,24 132:12 133:16 134:2,15,20,23,24 135:14,14 138:23,24 140:6 142:10 143:1,3,6 144:12 145:2,4,4,14 148:8 149:12 151:2,13 152:12 156:24 157:4 159:13 161:16 164:13 172:14,15 177:10,15 181:11 182:23 184:11,13,17 186:22,23 187:22 192:3 193:21,23 194:18,21 196:2 dotted (4) 9:20 99:22 153:7 155:17 doublechecked (1) 164:3 doubt (7) 20:16 159:8 164:1 167:25 174:12,18,19 down (34) 11:21 13:23 17:19 18:2 21:5 33:17,19 36:1 52:23 53:9 54:6,12 64:15 65:3,4,5 67:5 76:9 88:7,8 98:14 104:9 105:24 107:23 136:9 138:2,12 150:5 169:6 178:25 179:2,2 186:22 189:5 dr (2) 67:1 191:4 drafting (1) 110:17 draughting (1) 111:4 draughtsman (1) 24:13 draughtsmen (1) 45:2 draw (3) 18:13 67:15 121:18 drawing (125) 4:1,5,9,12,23 5:25	6:3,9,17,22 7:5,13,18 8:25 9:6,12,13,13,13 10:5,6,9,23 11:4 12:2 13:25 14:11 15:14,15,17 21:5 27:17,22 28:22 34:9,12 41:18 43:6,7,13,13,14,17,24,25 44:1,14,14,17,17 52:1,6,9,15 54:21 57:21 59:18 60:22 63:5,18 65:16 68:8,9,10 69:3 76:7 80:11 88:2,17 89:16 90:19 91:1,3,10,12 92:2 99:20,20 100:9 101:25 102:5 103:2,4,7 104:16 105:7 110:24,25 111:4,18,19 114:12,22 135:1,8 141:13,14,15,24 142:12,19 143:2,15 144:6,7 155:7,8 162:14,16 164:2,17,20 165:8,11,14,23 170:1,16,19 177:11,25 185:14 195:4,11,14 drawings (138) 2:21 3:5 7:22 8:4,21 9:12 10:4,17 11:15,16,22 12:10,20 13:12 14:8,9,15 15:6,7,16 17:1,3,4,8 18:11 21:13 29:5,24 30:5 32:9 34:7,8 42:18 43:21,22 44:8,22 50:6,21 51:11,16,18,19 52:13 54:5 57:3,3,7,10,17,24 61:9,10,19,24 62:1 63:5,10,12 64:13,15 65:13 68:10 69:11,11,15,18 78:13,14,19 87:15,17,24,25 88:21,23,25 89:9,11,23 90:5,7,10,15 91:1,18,25 95:24,25 96:2,15 97:6,25 99:9,12,16 101:10,15 102:10,12 103:18 109:10 110:16,17,22 111:10,11,12 112:2 114:13 118:21 120:9,20 123:23 124:24 125:4,11 128:12 137:1 143:19 153:5 154:5,21,23 155:15 156:6 159:16 160:21 162:1,25 163:2,7,10,13,19 166:20 167:12,13 drawn (4) 42:20 109:18 142:25 191:20 drew (2) 27:20 169:22 due (2) 105:11 148:20 duo (4) 40:13 43:17 160:25 161:6 duragloss (1) 28:4 during (8) 31:25 56:14,20 58:19 71:7 138:21 161:11,23	E e (29) 4:7 7:22 9:2,7 22:14 32:4 34:9 51:16 52:6 61:25 63:5 68:2 71:14 77:19 88:21 89:9,11,21 102:12,16 103:18 121:5 146:2 155:5,14 156:6 171:5 177:16 195:7 earlier (13) 40:13 41:7 74:5 91:7 96:23 97:21 102:15 113:6 141:15 142:7 144:20 145:15 195:19 early (5) 63:10 79:14,16,17,22 earth (1) 85:14 ease (1) 102:3 easier (1) 103:6 easy (2) 47:11 153:11 edge (5) 16:5 107:15,20 108:4 132:3 edges (3) 48:1 158:19 169:10 effect (7) 72:18 73:10 74:12,13,14 75:1 76:19 effective (5) 109:20,25 110:7,9,19 either (10) 3:25 67:7 68:1 88:16 100:18 143:2 150:14 153:16,25 155:14 electronic (1) 164:23 electronically (1) 63:20 element (5) 2:21 5:11,14 67:12 138:14 elements (7) 8:17 30:5 121:10 122:1,2,4,8 elevation (7) 51:25 88:2,5 92:2 99:21 100:9 170:16 elevations (1) 184:15 else (13) 21:25 40:1 55:12,13 70:10,15 74:9 76:21 132:7 142:23 168:9 175:10 177:12 email (90) 2:17 3:7 4:25 5:1,19 6:11 8:11 9:24 10:12 11:7,21,21,25 12:9 26:9,10 27:13 30:14,14,16 51:10 56:12 77:18 79:25 80:19,22 84:4,4,5 87:9 89:7,19,22 91:20 93:10,12 94:24 95:2 96:6 99:15 115:9,10,11 116:5,25 117:5,12 119:18 120:12 121:4 126:3,6 128:4 129:2,21 130:1,7,19 131:10 132:15 133:3,9 134:21 135:19,20,23 136:6,8,11,12,13,14,23 138:8,10,12,16 139:1,19 140:4 142:3,19 143:9 144:19,23 145:14 146:21 147:4,17,18 emailed (1) 91:20 emailing (1) 117:13	emails (6) 30:24 125:20,21 134:8 135:15 149:14 employed (1) 30:9 enable (1) 132:8 end (8) 14:6 85:16 111:14 141:9,10,11 193:5,10 ended (5) 12:16 41:18 62:1 120:23 178:18 engineer (3) 48:19 49:4 133:5 engineered (1) 108:21 engineers (2) 108:24 109:7 enough (2) 175:9,14 enquiry (1) 67:10 ensure (5) 14:21 52:24 60:8 126:24 191:10 ensuring (1) 125:9 enter (1) 129:8 entering (1) 106:4 entire (1) 69:3 entirely (1) 4:9 entrance (2) 6:13,16 envelope (1) 191:22 envisage (1) 145:22 envisaged (1) 89:4 error (2) 9:9,10 es (2) 51:11 52:10 essential (1) 14:22 establish (1) 78:15 estate (1) 159:24 et (2) 5:18 145:19 etc (1) 191:23 evaluate (1) 135:10 even (9) 33:7 42:4 57:23 67:24 80:13 88:24 89:10 120:19 124:22 event (2) 144:5 191:24 events (1) 178:6 eventually (1) 5:20 ever (61) 17:8 23:22 24:10 26:2 31:8,24 32:11 33:9 34:3 35:10,12 38:4 40:17 44:7 50:1,3,14 51:5,8 54:23 70:11 76:14,16 82:6,12 85:9,24 92:12,20 93:5 100:11 109:3 110:15,19 112:8 113:11 126:3 142:21 145:19 146:4,8,14 151:7,12 153:22 154:16 155:4,23 157:22 161:9,23 162:7 171:4,9,15 175:18 179:13 181:9 183:25 184:19 187:6 every (11) 44:11,14,16 72:15 73:3 74:21 76:21 85:1 86:17 110:24,25 everybody (2) 59:7 152:1 everyone (5) 1:3 42:6 143:20 196:6,9 everything (3) 55:12,13 57:8 evidence (31) 1:5 13:2,3 15:23 19:25 25:12 32:7 37:24	62:18 67:18 84:19 87:4 111:2 120:15 122:17 123:5 148:20 149:17 152:19 153:14,15 155:17 156:11 157:17 158:25 168:20 185:2 191:3 192:11 193:22 196:12 exact (1) 164:13 exactly (22) 2:4 22:1 28:19 30:3 53:10 61:17 66:20 68:4 74:25 96:24 107:2 111:11 116:2,18 126:6 142:6 148:12,13 149:10 155:1 170:17 187:19 examination (1) 149:1 example (22) 2:2,10,14 3:16 7:20 8:10 14:14 15:13 16:15 19:8 21:8 42:10,19 43:20 44:20 90:16 108:13 146:8 157:22 174:6 185:12 187:15 exceed (2) 66:11 134:1 exceeds (1) 132:1 exceptional (1) 2:3 exchange (2) 117:1 130:18 exhibit (1) 164:19 exhibiting (1) 107:24 existed (1) 24:11 existing (7) 4:19 68:23 122:2 132:20 137:13 139:8 183:9 exo00001291 (1) 72:9 exova (1) 77:20 expand (1) 70:23 expect (14) 21:2,4 22:8 24:25 29:9 30:1 42:4 60:24,24 61:11 66:13 82:18 104:10 144:16 expectation (2) 127:14,16 expected (9) 24:19,22 55:14 96:3 109:8 128:20 163:11 165:8 196:9 expensive (1) 29:14 experience (12) 29:3,16 77:4 100:14 117:22 151:12,24 152:3,4,5 162:11 184:25 experienced (1) 152:20 expert (2) 31:21 54:21 experts (1) 177:7 explain (7) 14:4 59:16 116:2 117:20 129:23 154:15 195:6 explained (5) 13:22,24 15:22 109:15 130:8 explaining (2) 2:1 139:13 explanation (3) 66:20 67:3 103:6 explicitly (1) 157:16 exposed (2) 84:11 114:8 express (1) 124:12 expressly (4) 5:15 56:16 61:15 110:15 extensive (1) 160:13 extent (3) 72:12,23
--	---	---	---	---	---	--

187:1	few (3) 87:10 146:16	firestop (7) 45:13,14	forms (1) 189:18	115:2,3 124:6 132:7	greater (3) 46:4 122:13	har000039475 (1) 135:4
exterior (1) 35:23	194:10	100:25 129:4,12,20	forthcoming (1) 77:16	139:4,22 140:25	152:4	har000039477 (1) 131:8
external (20) 14:13	fibre (1) 195:1	132:4	fortnight (1) 98:17	148:1,14 168:6 169:2	grenfell (39) 11:17	har00003948 (2) 140:19
37:17 45:15 47:5	fiddly (1) 58:22	firestopping (5) 30:21	forward (4) 89:18	173:14 184:17 194:15	13:15 14:17 24:6	147:11
48:19 49:1 52:5 61:13	fifth (1) 17:19	100:15,23 125:6 132:4	119:11 135:8,10	gets (3) 80:19 144:6	26:13,16 31:9 32:24	har000039482 (1)
63:11 78:7 121:20	figure (2) 105:6 153:2	firestops (2) 100:4,17	forwarded (5) 80:19	151:15	33:5 40:9,19 43:22	141:14
132:20,21 174:4	fill (3) 40:23 151:13	first (24) 2:16 3:18 4:5	135:24 136:6 138:10	getting (8) 1:23 12:23	44:8 45:5,24 47:18	har00003999 (1) 117:12
175:21 180:16 184:22	152:5	15:4 16:11 18:3 20:22	140:13	49:22 85:12 97:8	48:9,23 49:9 50:10,15	har00004013 (1) 93:11
188:23 189:3 192:19	fin (1) 75:20	24:3 34:19 41:14	forwarding (1) 133:9	106:23 107:13 168:8	84:14 93:8 100:12,15	har00004443 (1) 6:10
extra (1) 139:15	final (5) 41:16 46:2	46:20 52:19 115:5	found (4) 39:11 68:19	gf (3) 8:17,19 10:16	108:25 121:11 122:18	har00004590 (1) 8:11
extract (7) 131:15	87:18 131:4 166:2	130:20 138:15 139:16	149:25 177:7	give (12) 14:14 15:13	124:5 138:21 141:25	har00004669 (1) 9:25
132:12 133:10,25	finalised (2) 27:6 97:12	140:20 143:2 147:10	four (2) 15:4 52:23	49:2 59:2 76:14	159:1,15,19 165:2	har000046703 (1) 10:6
171:1 177:7 187:13	find (29) 2:21 3:4 5:10	153:1 163:18 181:6	fr (2) 33:10 194:25	108:10 113:11 144:25	179:4 181:8,10 184:10	har00004743 (1) 10:13
extrapolate (1) 47:9	8:17 10:16,23 87:17	184:3 194:14	fr5000 (6) 33:2,6,20	148:20 152:19 192:16	grey (1) 47:11	har00006585 (1) 30:14
extruded (5) 146:11	71:18 86:24 87:17	fit (3) 4:20 111:17	34:4,8,10	196:12	groove (1) 55:7	har00008886 (1) 170:16
186:12 188:11 189:20	89:23 95:3,21 96:15	113:17	frame (4) 88:18 105:14	given (17) 10:18 20:19	ground (3) 8:20 10:3,16	har00008902 (1) 75:12
192:12	99:2,4 103:2 114:25	fitted (1) 132:19	141:18 192:8	21:8,10,15 22:21 34:1	guess (9) 22:12 27:1	har0001041910 (1)
eye (1) 114:14	115:3 126:9 128:7,18	five (4) 13:23 26:25	free (3) 107:23 189:14	46:9 67:20 77:1,2 82:7	42:12 79:18,24 99:18	162:23
	131:15 134:23 149:12	186:2,3	196:19	107:4 129:18 146:14	112:11 146:13 176:14	har0001041911 (2)
	164:19 172:15 191:5	fixed (6) 36:22 37:5	freelance (1) 196:1	149:16 153:23	guessing (1) 42:14	38:9 185:6
F	194:8	95:14 108:2 145:16	front (7) 37:13 64:23	gives (2) 117:7 175:6	guidance (34) 17:15	har0001041912 (1)
	fine (4) 32:16 108:20	169:3	75:13 76:15,24 106:11	giving (6) 63:11 84:20	19:17 37:16 48:24	69:20
f (3) 144:6 188:14,21	187:24 196:17	fixing (1) 192:6	113:20	85:6 142:16 153:15	58:11 61:4,5 64:6	har0001041913 (3)
faade (3) 14:13 52:5	finish (5) 28:3,24	fixings (6) 37:1,2	fulfil (1) 12:11	169:23	67:20 73:23	35:20 49:13 73:25
157:11	103:23 185:22,24	104:22 109:19,20	fulfilled (1) 143:18	glass (1) 11:9	74:1,1,7,10 77:6,13,15	har0001041914 (1) 36:9
faades (2) 11:9 157:15	finished (1) 86:15	189:16	full (7) 60:6 89:23	glazing (2) 100:14	98:19,21 106:21	har0001041916 (1)
fabric (3) 45:9 46:5	finite (1) 27:1	flag (1) 110:15	107:25 144:14,20	172:24	107:4,7 124:11 145:7	167:7
160:9	fire (111) 25:9,11,18,25	flagged (1) 61:15	155:3 195:12	goes (12) 5:20 45:14,15	154:2 155:19	har000104194 (1) 51:14
fabrication (9) 14:1,9	30:19 31:4,5,14,25	flame (6) 46:21 70:24	fully (3) 12:25 84:11	60:18 64:22 65:13	157:14,23,24	har000104195 (1) 17:18
15:16 17:3 26:24	35:25 45:8 48:19 49:3	108:3 151:15,15 162:8	169:9	86:7 94:12 113:3	158:11,12,23 174:3	har000104197 (1) 13:22
29:4,17,24 57:3	53:17 58:12 61:13,14	flammable (2) 82:18	functional (2) 45:6	120:12 122:24 135:1	187:4	har000104198 (1) 15:3
fabricator (2) 11:12	68:22 71:21 72:19	145:3	48:21	going (56) 1:4 2:9 3:20	guide (10) 36:5,16,21	har000104199 (3)
179:9	77:2,11 80:12	flashover (1) 190:8	further (27) 1:4 6:13	7:21 17:22 18:4 22:25	37:6,8,8,12,18 38:6	78:22 109:14 161:16
face (4) 112:19 150:20	81:6,21,22,25 84:11	flat (6) 80:13 104:15	7:2 13:17 14:15 15:15	24:21 29:2	44:22	har00010424 (1) 68:11
160:25 182:3	86:16 96:15 101:12	105:23 106:7 166:8	19:13 33:19 78:4	34:2,22,24,25 36:22	guys (1) 85:14	har00010427 (1) 164:20
faced (4) 18:24 33:20	103:6,23 104:1,20	187:16	87:20 88:21 95:3,12	40:1,23 60:12 61:2		hard (1) 115:3
169:7 183:7	106:1,3,7,22 107:10	flexibility (1) 169:23	117:16 121:9 128:7	62:15 68:7 79:9 86:20		harley (98) 7:23 18:5,13
facefitted (1) 57:11	108:6,18,20,22,24	floor (22) 8:20 10:3,16	138:12 141:4,7 144:7	88:10 91:21 97:9 98:1		19:20,21 20:9,15,16
facefixed (2) 18:11 62:5	109:4,7 113:7	69:5,5 72:16 73:4,7	157:6 163:11 176:6	101:17 103:7 105:4	h (1) 51:21	21:2,19,22 22:8,9
facing (2) 15:20 189:11	115:20,25 116:8,14	74:21 104:13 109:22	177:13,15 187:22	107:11 111:13	h92 (1) 33:13	24:19,22 26:3,23
facings (1) 189:10	117:19 121:2,10	122:10 132:6 137:12	193:12	112:6,6,9 116:14	hadnt (1) 57:23	28:9,25 30:7 38:5,22
fair (8) 27:10 66:21	122:5,11,13 128:1	139:7 146:24 147:7,19		118:19 123:3 126:8	halfway (1) 108:4	40:15 41:4 43:9,22
79:7 97:23 129:25	129:4,7,8 130:7	151:21,22 156:8		130:2,25 136:1,14	hand (1) 85:17	55:1,20 56:17,18
142:18 170:3 190:16	131:20,21,24,25	167:14		139:20 143:9,10,24	hangers (1) 189:16	57:8,12,16,22 58:20
fairly (2) 78:14 129:3	132:2,19 133:5	floors (7) 68:12 89:24	ga (2) 8:22 17:3	145:15 146:16	hanging (3) 97:11	59:5 61:3,20 62:2
fairness (1) 147:4	137:7,19,23 138:18	99:19 121:20 129:5	galvanised (1) 189:10	149:13,20 158:2	105:25 107:23	63:13 64:2,14 67:13
fall (1) 192:10	139:3,18,19 141:21	160:13 161:20	gap (11) 53:18 76:23	166:14 171:13 176:23	hangs (1) 104:9	68:2,4 70:8,11 73:23
falling (1) 86:19	142:6,7,17,22 143:5	focus (1) 112:18	77:3 93:23 94:21	184:18 186:6	hanson (4) 115:12	74:10 78:18 79:15
falls (1) 93:23	148:5,25 152:15	focused (1) 161:20	104:2 107:12 108:22	gone (4) 31:5,13 129:9	121:5,6 130:10	90:6 91:10 97:16
familiar (4) 18:17,18	159:23	focusing (1) 167:18	112:17 151:10 153:18	195:22	happen (1) 163:10	102:10 110:3 118:22
24:9 30:23	160:2,3,10,12,13	foil (3) 33:20 183:8,13	gaps (11) 16:8 55:10	good (19) 1:3,8,9,12,16	happened (7) 2:11	122:13 124:19 125:1
familiarise (1) 138:9	161:1,7,11 171:10,15	follow (10) 32:17 50:5	104:18 108:12,15	31:19 62:8,9,22	13:15 38:21 40:8	127:6 129:18 136:17
fan (2) 171:1 187:13	179:10 181:12,14	61:18,24 64:13,13	113:7,11,14 151:17	114:13 115:4 122:24	143:20 177:3 184:10	142:23 149:1 150:25
far (19) 5:17 29:23 37:9	184:7 187:16 188:2,21	84:18 93:21 147:16	152:5,14	123:2,16 137:22	happy (10) 7:15 16:22	152:4,6 153:5,23
40:25 47:4 56:3 63:18	190:4,8,9,12	177:10	gave (2) 32:7 61:17	148:21 187:15 194:2	58:22 61:11 130:6	154:4,10,16
83:16 111:2 114:15,20	191:11,25 192:16	followed (2) 14:25 49:6	general (9) 18:18 25:23	197:1	148:17 177:4 178:19	155:3,14,23 156:15
122:5 136:16 140:21	firebreak (20) 75:18,22	following (19) 3:24 9:23	46:1 58:6 72:6 74:20	grabs (1) 120:23	179:23 185:23	157:5,9 158:6 159:11
146:15 152:4 162:24	99:23 100:8,19 101:22	48:24 50:2 51:18 61:9	123:22 128:12 183:16	grade (1) 138:2	har00001999 (1) 11:6	160:2,3 161:5,12
164:4 184:24	111:23 163:8,20 164:4	105:12 115:18 118:6	generally (11) 15:9 24:9	grades (2) 26:5 186:24	har00003638 (1) 77:18	162:5 163:24 164:7
feature (1) 161:17	165:5,7,10,24	126:5 129:21 133:4,14	55:18 102:7 125:4	grange (44) 1:13,15	har000036381 (1) 84:6	173:9,17 178:19,23
featured (1) 33:1	166:3,6,9,17,21 195:6	134:3,14,22 160:10	132:2 156:5 166:4	27:11 31:20,23 34:15	har000036382 (1) 80:20	179:22 181:1 187:2
february (4) 26:11,24	firebreaks (14) 63:25	177:24 190:23	195:10,10,11	55:9 58:4,5	har000036383 (2) 78:2	192:21,24 196:24
27:17 79:18	71:19 72:13,24 73:7,8	follows (3) 94:1,10,10	generic (4) 18:20 42:25	62:6,10,12,14 63:3,4	80:2	harleys (7) 25:4
februarymarch (1)	100:5 112:2 117:17	foot (3) 78:2 158:10,15	100:3,10	66:20 67:4 74:18,23	har000036384 (1) 77:23	78:13,14 111:14
85:12	124:12 125:7 128:8,16	forget (6) 77:15 135:14	generically (1) 100:20	114:24 115:4,8 122:22	har00003866 (1) 172:19	130:7,12 184:24
feedback (1) 49:22	195:19	144:12 146:2 166:21	geof (2) 26:12,14	123:17,18 181:2	har00003869 (1) 177:14	hasnt (5) 12:16 142:10
feel (1) 115:2	fireengineered (8) 48:18	184:13	get (42) 3:22 6:24 7:22	185:20 186:1,5	har00003882 (1) 171:20	144:20,25 177:20
fell (1) 187:7	49:1,8,21 51:3 67:23	form (6) 145:13,23	16:8 24:5 27:2 28:23	190:16,20 191:3,6	har000038823 (1)	hatch (1) 42:25
felt (7) 13:18 16:21	125:19 133:5	181:18,19 182:20	40:1 41:8 43:16 46:11	193:5,10,16,17	171:25	hatched (7) 53:4,20
58:1 120:22,24 163:24	firefighters (5) 151:20	183:12	47:1 48:18 51:24	194:8,10,13	har00003947 (2) 130:17	54:1 60:15 64:15
164:9	152:13 188:16 190:2	formally (1) 26:21	53:14 56:16,25	196:10,22,24 197:4	147:5	68:15 170:20
ferrier (6) 40:15	191:1	formed (2) 18:21	58:19,22 80:2 84:6	great (3) 43:8 139:25	har000039471 (1)	hatching (8) 54:16
43:6,7,21 44:25	firefighting (1) 189:24	189:12	85:13 86:4 87:4 89:2	140:4	135:21	55:16 64:18,19,22
159:17			98:1 104:20 113:22		har000039472 (1) 138:3	

67:8 68:19 69:6	122:1 130:24 132:12	identifying (1) 43:22	individuals (2) 3:2 8:13	186:12 189:18 192:15	60:5 73:18 74:16,19	186:1,21,21 193:5
havent (5) 4:6 101:16	136:20 138:17	ie (1) 129:6	industry (8) 17:5 64:6	integrated (1) 169:8	80:13 85:17 90:17	
125:20 129:18 186:17	139:2,2,2,3,5,12,13,16,17	139:22 113:21	132:2 145:7 152:17	integrity (9) 96:17	91:5,13,16 101:18	J
having (9) 5:16 12:20	140:23,24 141:3,17,21	134:20	156:25 157:24 166:4	112:8 116:4 119:7	104:15 107:11	
86:15 92:17 120:1	142:13,16,16,20	im (39) 3:9 11:11 12:25	inert (2) 108:5,9	121:2 128:1 131:20,25	108:12,15 111:14	j (1) 93:12
122:13 141:10 150:4	143:9,10 145:1,1,2,3,5	18:5 30:25 39:13 44:9	infill (8) 41:8 167:4,9	145:16	122:7 124:15 144:24	jamb (9) 53:24,25 54:24
164:15	147:10,12,19,22	57:1 65:2 75:3 84:16	171:11,16 172:9 186:6	intended (2) 55:10	145:4,6 155:15 158:23	60:4 73:20 153:8,20
hazard (1) 181:14	148:13,17 152:24	105:2,4 106:19 107:13	192:2	67:11	170:12,24 190:15,18	156:2 160:18
head (46) 15:1	153:3,3 176:14 183:21	115:1 122:23 135:16	info (1) 6:18	intense (1) 67:7	issued (19) 3:13 6:6	jams (8) 54:7 101:8
53:5,9,10 60:1,16	hesitate (2) 94:5 121:22	136:16,21 138:11	informal (2) 32:3,8	intent (5) 4:14 6:5 7:12	7:18,24 9:20 17:3,9	152:25 153:1,24 155:6
68:16 69:6 73:19 79:2	hi (17) 1:17 3:3 7:1	140:6 143:8 146:15,16	information (10) 24:24	22:15 92:8	22:14 42:12 90:8	161:1,7
88:10 101:8,16,23	10:2 23:4 26:14 86:10	148:24 149:20	36:13 38:2 71:11	interest (1) 170:12	98:13 99:9 109:10	january (11) 24:3 89:19
102:11,15,16	91:23 93:19 115:17	151:7,23 175:8 180:13	85:17,25 134:17	interested (1) 115:2	120:19 162:16 164:17	90:20,20 91:12,19,22
103:10,18 104:17,25	118:5 119:3 129:1	183:22,23 184:18	144:21,25 159:20	interface (3) 65:3 88:17	165:11 173:9,10	99:10 171:18 172:18
105:14 106:5,21	130:5 131:13 132:17	187:18 191:3,19 193:2	informed (1) 76:6	141:18	issues (2) 137:2 195:11	181:7
109:19 111:7 113:7	136:25	196:15	inhabited (1) 162:11	interfaces (1) 59:23	item (8) 33:13 52:7	job (4) 44:11 63:13 64:3
114:15 126:13 137:11	hidden (3) 16:12	image (3) 149:25	inhibited (1) 45:10	internal (14) 46:21	110:24,25 112:6	170:13
139:6 141:3,14,18	190:4,9	150:1,3	initial (3) 26:8 78:12,13	61:13 66:18 116:11	162:15 169:2 171:25	jobs (1) 23:23
142:8 145:12	higher (2) 123:25	imagine (5) 23:20 39:6	initially (1) 173:7	117:21 137:18,21	items (2) 62:4 78:25	john (9) 32:18 86:17
146:19,22 147:15	147:22	51:1 137:21 195:20	inner (1) 189:9	145:3 178:3 188:22,24	its (167) 3:25 4:10,23	121:4,7,24 128:1
152:24 160:14 162:19	highlight (2) 121:19	immediately (18) 53:5	inquiry (3) 1:14 32:7	189:7 190:18,25	6:3,21 7:17 8:21	130:6 132:16,17
163:20 165:1 195:3,9	140:7	68:16 69:6 78:25	198:3	internally (2) 51:9	10:24,24 11:14 15:25	join (1) 88:13
headcoping (1) 6:1	highlighted (5) 137:7	101:13,14,17,20	insecure (1) 108:1	173:10	18:14,20 24:1,1	joined (1) 34:18
headed (3) 74:19	138:17 139:2,17 143:4	102:16 103:17 105:13	inside (16) 45:14	interpret (6) 54:6 74:17	26:11,12 27:10	joint (4) 16:24 76:16,21
138:13 195:6	highlighting (5) 131:3	106:5,21 119:12	112:11,14,18	125:11 133:17 140:7,9	30:15,18 31:15 33:13	114:3
heading (1) 189:24	139:19 142:5,13	132:15 136:11 141:6	114:1,5,9 129:5,6,8	interpretation (6) 61:25	39:2 41:2 42:25	jointing (1) 189:12
hear (3) 1:4 57:20	145:12	183:2	132:4 146:11 151:25	125:13 133:16 134:1	43:2,3,8,8,14	joints (1) 76:21
196:13	hindsight (3) 156:22	implication (1) 108:8	177:2 184:1,20	139:23 142:19	44:18,19,20 45:9	july (1) 4:25
hearing (2) 1:4 197:7	174:11 195:25	implications (1) 14:20	insignificant (1) 58:14	interpreted (2) 134:6	46:20 47:4 50:2,24	junctions (1) 47:23
heat (1) 70:23	historic (1) 84:17	implies (3) 136:15	insitusive (1) 137:22	154:20	52:1 53:1,4 54:3,3,10	june (1) 2:25
hed (2) 31:23 164:4	history (1) 39:18	146:21 175:11	install (1) 58:21	interpreting (2) 31:18	55:6 59:4,22 60:5	justification (4) 137:25
height (1) 180:22	hit (1) 107:11	implying (1) 112:13	installation (1) 137:10	68:9	61:5,12 62:3	152:13,15,16
held (1) 184:5	hits (1) 60:7	importance (1) 123:25	installed (1) 112:4	interrelated (1) 60:5	64:20,22,24,24,24,25	
hell (1) 105:10	hoban (10) 32:18 86:17	important (6) 52:9	installers (1) 6:18	interrupt (2) 57:1	65:8,8 66:25 73:11	K
help (47) 4:3 8:19 9:6	121:1,4,7,24 122:7	58:11 61:8,12,12	installing (1) 97:9	187:23	75:2 82:25 87:13	
16:2,25 20:6 26:22	128:1 132:16 133:9	148:3	instance (5) 9:14 18:10	interruption (4)	88:10 90:20,23 91:13	k15 (5) 38:8 39:15,20
33:23 36:20 38:20	holes (1) 170:15	impractical (1) 111:9	46:15,16 133:18	38:12,18,25 39:21	94:17,23 98:15,16	40:9 150:14
39:1 40:7,11 41:10	holistic (1) 48:25	impression (3) 56:25	instead (1) 15:21	interruptions (3)	100:10 101:1 102:22	kay (7) 131:10 132:10
42:17 43:20 44:24	honest (6) 83:16 92:15	58:19 194:15	instruct (2) 127:8	102:23,25 103:1	103:7,17 104:15,16	133:9 135:1,5,13,22
51:6 56:3 59:3 64:1	143:1 194:19,21	improved (1) 15:17	143:10	intervals (2) 112:19,21	107:11,15,21,23,24	keys (1) 133:3
69:2 70:7 73:12	195:18	improving (1) 16:23	instructed (2) 20:8	into (31) 1:6 14:1	108:1,5,7,9,20 110:18	keen (1) 29:13
74:2,24 77:16 85:24	honestly (1) 40:5	incidentally (1) 146:21	126:20	20:11,25 47:9,12 55:7	112:14,14,14,16,16	keep (8) 9:23 62:3 67:8
88:23 90:25 92:20	honeycomb (1) 103:12	include (7) 15:20 41:20	instruction (10) 20:20	56:3 57:3 61:14 64:16	113:24 114:1,21	68:7 88:10 98:14
99:11 106:22 110:1	hooked (1) 150:8	63:15 97:5 102:5	62:1 68:1 112:1	68:10 77:20 86:17	120:13 121:4 123:24	116:14 126:8
117:16,23 138:9	hope (2) 94:4 138:4	124:1 145:20	136:17,22 143:8,12,14	89:13 101:12 102:19	124:3,15,19 127:13,15	kensington (1) 86:16
139:12,21 155:22	hopefully (1) 117:24	included (4) 27:13	154:4	103:15 104:1,2 106:23	130:21 134:5 135:5,24	kept (1) 1:23
156:15 172:8 176:9,12	horizontal (17) 52:24	91:14 97:24 165:10	instructions (5) 18:6	108:15 111:4,21 112:5	136:11 138:11 140:9	kevin (11) 1:5,7 3:3 7:1
177:8,22 191:10	60:8 67:16 68:22	including (20) 2:18 8:13	21:5,14 56:17 188:1	119:18 143:7 151:16	141:15 142:5	10:2 91:23 93:19
helped (1) 196:16	69:25 70:18 72:13,24	10:20 22:22 29:17	insulant (1) 174:22	160:1 189:12 191:1	143:10,21	118:5 119:3 171:22
helpful (2) 8:2 185:18	73:7,8 95:8 96:16	35:23 40:15 48:1	insulated (4) 169:7	introduced (1) 65:22	144:15,15,23	198:2
helps (1) 138:4	116:16 117:16,23	72:7,8 74:1 86:18 91:1	174:16 194:18,25	intumescent (6)	147:5,5,6 148:10	key (7) 44:18 52:5 68:9
here (42) 3:9 6:1 9:19	118:16 156:7	96:10 145:24 158:19	insulating (13) 170:10	70:1,18,22,23 107:20	149:3,12 150:2	127:12,14,16,19
10:8 20:2 26:11 27:14	house (1) 159:23	188:11,16 190:3	173:24 174:3,8 175:20	150:21	151:12,24 152:16,17	kin00000276 (1) 181:4
28:22 43:12 44:25	housed (1) 171:1	191:22	187:6 188:11,21,23	invariably (1) 84:10	153:11,11 155:17	kind (15) 29:3,5,17 30:1
50:2 53:15 63:9	however (10) 9:3 14:10	inconclusive (1) 143:10	189:2,6,13 191:22	investigate (2)	158:9,12,23 159:7	38:2,24 53:20 64:18
72:9,18 74:13 89:8,14	15:10 38:11 81:20	incorporate (1) 12:7	33:2 34:16 35:1,24	179:10,16	166:8 172:11 173:20	81:9 107:17 153:25
91:1,21 99:21 109:1	145:25 160:12 162:14	incorporated (1) 193:3	36:3,12 38:10	investigation (1) 149:1	174:11,13,17,21,21,24	159:3,4 175:9,14
124:5 126:22 128:24	165:16 196:4	incorporation (2) 4:14	40:14,18,24 41:10	investigations (2) 40:8	179:1 181:18	kindly (1) 93:20
131:7,19 136:13 141:3	hyett (6) 105:7 106:14	92:9	42:1,11,20,24,25	70:11	182:3,18,22 183:12,12	kingspan (10)
142:17 155:11,13	107:1 146:7 147:2	incorrect (1) 9:15	43:3,16,18,23	involve (2) 185:8,13	184:3 187:20 188:2,4	38:8,12,17 39:6 44:16
160:24 162:18 166:5	152:23	increased (1) 75:22	44:3,10,21 45:1 55:7,9	involved (11) 29:19	189:17 190:16 191:17	150:14 173:2 181:3
169:2 171:13 175:17	hyetts (5) 105:4 113:22	incurred (1) 14:20	64:22 80:9 81:5,17,20	32:14 40:17 42:9	194:17 195:11,13	183:5 187:17
181:4 182:18 186:9	146:17 149:21 155:11	indented (1) 33:19	82:7,17,20,22 85:21	79:20 86:4 87:4	196:4,15,18	kingspantype (1) 35:3
190:19	hygiene (1) 189:11	index (1) 198:1	96:18 108:23 116:4	129:23 184:15 185:15	itself (7) 72:9 94:19	kitchen (4) 170:24
heres (1) 88:2	hygienic (1) 189:14	indicate (1) 49:19	119:7 131:20,25	191:11	110:23 113:16 174:21	171:1 177:7 187:13
hes (72) 7:15 10:4,9		indicated (6) 13:4 44:9	150:13 151:13 160:25	involvement (2) 17:21	182:17 195:11	k123 (1) 164:19
61:10,11 74:14,15,20	I	65:3 105:10 153:4	161:6 169:8 170:11	36:11	ive (25) 21:5 29:23,25	knew (19) 19:5 24:11
75:4 80:6 81:24 84:21		155:13	173:2 174:21,24	irregular (3) 54:3 60:14	39:23 76:7 78:6 109:2	26:5 29:1 42:6
85:3 92:8	id (9) 18:19 21:10 30:9	indicates (1) 191:16	176:12 179:21	153:11	116:18 136:20 138:11	58:5,6,8,11 98:1
105:10,13,18,21,21	49:19 78:19 175:5	indication (3) 39:15	180:2,9,15 182:1,17	irrelevant (2) 84:24	158:2 159:5,7	157:5,6,9,17 159:1
107:2 110:25 115:25	179:5 182:11 192:14	63:11 134:2	183:6,13,14,23	182:22	173:12,20 175:5	179:18 180:8 182:5
116:13,19,22	idea (5) 19:7 39:3	indicative (2) 64:19	184:2,4,19 185:9	irrespective (1) 85:20	176:18 177:12 180:11	192:14
119:15,21 121:13	126:15 127:2,4	102:1		isnt (29) 47:11 53:5	182:11 185:22	know (69) 9:6 19:2,3
	identified (1) 63:22					21:21,22,25 25:6,17

26:6,21 27:8 31:5,23	150:3 161:17 165:5	60:14 73:14 77:16	loosely (2) 67:22,24	115:1,7 123:1,8,14,16	mentioned (3) 3:14	62:9,11,13,15,20
33:1,7 34:7,15,18 39:2	187:18 195:13	90:21 101:6,25	lot (7) 132:18 144:17	180:19,25 185:25	40:21 127:11	63:1,3
40:10,13 43:9 49:3,11	lefthand (9) 65:16,23	102:14,15 119:19	146:19 157:2 195:22	186:3 190:16,22 191:5	merely (1) 69:10	65:12,15,18,21,25
56:1 58:2 60:9,14	68:19 76:12 160:23	134:18 148:8 150:8	196:4,15	193:8,15,18,21,25	met (1) 32:18	66:2,5,8,13,17 67:3
61:3,4,7 63:22,25	170:21 172:20 177:19	158:5 163:19 166:13	lots (7) 58:10 61:4 92:3	194:6,8,11	metal (4) 4:19 23:4	74:18 114:12,19
70:15 73:24 74:11,11	190:20	living (1) 166:5	105:2 145:7 156:23,23	196:11,15,18,22	146:9,10	115:1,7 123:1,8,14,16
84:16,25 89:10,10	lengthy (1) 79:1	local (1) 71:21	low (3) 18:22 105:21,24	197:1,5	metallic (1) 28:4	180:19,25 185:25
92:15 95:19 98:15	less (3) 79:9 93:22	located (4) 92:22	lower (9) 105:14 106:20	masonry (4) 47:8	metres (12) 37:13 174:9	186:3 190:16,22 191:5
110:14 124:10 144:16	190:13	109:21 132:4 160:13	113:9 122:12,20	157:1,18,20	175:12,21 179:17,20	193:8,15,18,21,25
145:2,4,5 149:12	let (1) 103:23	location (27) 22:5	147:13,19,20 148:12	matched (1) 65:25	180:1,8,14,22 184:22	194:6,8,11
154:11 155:25 157:13	lets (28) 2:14,14 26:8	55:11 59:25 64:20	lucy (1) 11:9	material (29) 17:23	188:8	196:11,15,18,22
159:15 164:13 166:14	33:11 37:6 51:11	69:2 88:20 91:14,17	lunch (2) 114:24 123:4	19:7,12 22:5 28:3,6,11	middle (12) 2:1 8:22	197:1,5
168:10,12 172:14,15	54:15 61:6 66:3 68:7	92:13 101:11,25	luxury (1) 195:25	29:1 34:1 41:23 42:6	28:2 35:20 36:1 53:20	more (38) 2:8,10 5:17
175:13 182:10 184:11	69:19 71:8 72:9 90:15	104:25 106:13 109:17		64:20 71:2,4 83:17	61:1 78:11 91:14	7:20 27:1 39:21,23
186:15 187:18,20	91:4 99:20 103:9	110:1,7,10 120:16	M	84:8 94:11 108:5,8	113:18 150:5 177:16	43:2 46:5 54:3 55:18
190:22 195:24	112:18 126:8 127:24	146:5,7 154:16	m (2) 51:24 52:7	169:16 172:8	midway (1) 122:23	58:20 59:3 65:11 67:7
knowing (1) 195:24	136:23 147:1,4 152:25	155:14,19,22 156:2,3	main (7) 6:13,15 48:24	174:3,8,20 175:20	might (33) 2:5 19:7	68:10 89:13 102:7
knowledge (2) 70:10	156:12 178:7 181:3	162:8	80:22 138:8 167:5	176:13 182:4 185:16	20:16 32:4 34:6 39:1	109:2,3,20,25 110:7,9
144:14	188:20	locations (10) 46:10	172:21	186:12	49:8,19 50:8 60:15	114:2 124:8 125:8
known (4) 19:9 42:23	letter (1) 15:7	81:7 82:1 100:25	mainly (1) 150:11	materials (20) 18:4	63:15 66:13,20 76:15	126:11 127:15 134:20
156:25 186:13	level (20) 53:12,14,14	116:15 124:23	112:9	20:8,18 21:7,10,19	78:20 86:1 93:16	148:3 154:13 156:5
kvl (1) 27:18	54:13 55:23 57:12	137:16,24 138:2	maintained (2) 69:13	23:1 25:2,3 28:18	94:15 100:15 107:10	174:14 180:7 184:24
	59:8 63:9 64:4,17,17	152:11	129:9	32:21 36:12 43:24	115:4 126:22 142:25	186:22 194:9
L	69:4 72:16 73:4,7	logic (2) 152:10,12	maintaining (1) 129:19	82:19 145:23 171:3	152:9 165:21 177:9	morning (7) 1:3,8,9,16
	74:21 85:1 88:8 156:8	long (12) 39:3,8 41:6	makes (3) 153:21 174:7	185:8 191:7,9,18	179:20	6:14 123:20 149:22
	191:10	59:4 62:7 66:10 114:1	175:20	matter (3) 34:13 53:13	180:1,8,12,14,22	mort (9) 118:24 119:1
label (9) 43:22 44:9,12	levels (4) 122:12,18,20	131:9 185:22,25,25	making (3) 35:16 68:2	180:20	193:15	135:19,21 136:6,13
53:8,16 60:8 99:23	128:16	193:15	139:17	maximum (1) 40:22	mike (1) 11:8	138:16 140:21 144:8
111:21 160:24	life (2) 58:17 61:13	look (96) 2:14,15 5:12	manufacture (1) 16:20	maxwell (1) 171:21	millimetres (5) 94:16,18	most (8) 13:3 20:22
labelled (3) 43:16	lift (1) 166:12	7:3 8:10 13:21 17:18	manufactured (1) 89:25	maybe (22) 21:3 25:5,5	114:23 150:13 184:16	26:17 29:13 51:17
55:12,14	lifting (1) 106:15	19:25 20:1 22:25	manufacturer (7) 33:18	28:18 42:4 56:1,9	mind (10) 14:12 18:5	63:20 189:6,18
labelling (1) 45:1	light (2) 144:5,8	23:13 24:16 25:8,13	170:4,6,7,10 182:1	65:10 89:6 99:14	19:16 23:19 101:24	motion (2) 149:3,4
labels (2) 44:8 52:23	lightweight (2) 19:5	26:8 27:16 33:11	183:20	108:25 145:1,2,3	118:18 120:22 140:10	motive (1) 194:19
lack (3) 67:5 149:14	189:16	36:8,9 38:8 41:8 42:19	manufacturers (1)	148:8 151:13 164:13	176:7 180:23	mounted (1) 104:19
196:5	like (11) 2:10 15:17	43:6 45:17 46:12,22	176:15	168:10 169:25,25	mine (1) 179:9	move (7) 32:2 45:4
lamatherm (4)	66:18 73:17 94:10	47:21 49:11 51:11,13	manufacturing (1)	179:22 185:13	mineral (13) 40:14,19	59:18 89:18 110:17
69:22,23,25 70:5	124:8 134:8 146:6	52:18,23 54:11 63:8	16:19	mean (41) 19:10 21:25	42:24 43:3,5 55:10	126:15,16
lamb (21) 1:5,5,7,8,16	150:15 161:8 185:23	65:15 66:15 68:11	many (23) 21:24 30:8	27:20 29:7,7 30:23	104:24 107:17	moved (2) 102:3 110:18
27:18 31:21 62:16	likely (2) 145:6 165:25	69:17,19 71:7 72:9	37:1 48:17 56:12	33:7 34:6 46:17	108:14,19 145:21	moving (2) 110:5
63:1 66:21 67:6 74:24	limited (15) 11:9 33:18	74:10 77:23 78:21	72:1,4 93:3 125:17	48:16,18 54:13 57:9	153:18 195:1	161:14
123:3,14 125:20	78:14 83:3,7,10,19,20	84:5 86:6 90:15 91:4	132:8 135:12 157:21	61:9 69:4 71:11 76:1	minimum (4) 66:11	ms (44) 1:13,15 27:11
171:22 193:10 194:6	95:19 152:4 174:9	93:11 99:20 101:15	173:13,20,20,21	82:18 91:7 95:24	132:1 134:1 169:10	31:20,23 34:15 55:9
195:22 196:12 198:2	175:21 185:3 187:8	102:1 108:13 109:13	179:6,6,8 182:14,14	102:25 104:5 107:17	minor (2) 16:11 111:9	58:4,5 62:6,10,12,14
lane (1) 191:4	188:4	111:20 114:10,24	183:20 193:1	108:1 113:23 117:3,4	minute (3) 49:11 132:2	63:3,4 66:20 67:4
lanes (2) 67:1 115:5	line (16) 8:21 9:20	115:9 117:2,7,12	march (25) 19:24 30:18	119:8 126:18,19	180:21	74:18,23 114:24
large (3) 90:5 170:22	10:24 17:19 30:24	118:3 122:11 130:3,19	56:7 75:16 93:11 96:9	136:19 143:12	minutes (27) 119:7,7	115:4,8 122:22
190:6	31:2 42:21 53:17	131:9 135:3,6 139:20	97:7 99:11 100:6	147:17,18 148:17	121:11,25 128:2,15	123:17,18 181:2
last (5) 87:19 160:8,11	67:10 85:9 91:24	140:17,19 141:13	111:19 115:10,11,12	152:3 174:11,18,20	131:20,20,24,25	185:20 186:1,5
162:20 167:5	147:14 150:5 153:3,7	142:2,21 143:5 146:20	117:6,13 118:24	184:13 187:15	137:14,15	190:16,20 191:3,6
late (7) 2:5 26:24 97:24	155:17	149:20 150:1,11	120:20 121:3 128:3,25	meaning (1) 81:17	139:4,9,13,22 140:10	193:5,10,16,17
98:4 143:21,24 161:18	lines (7) 13:23 14:7	152:25 158:3,9,10,15	130:3,22 131:10	means (3) 4:3,5 8:19	141:2 147:11 148:14	194:8,10,13
later (14) 3:22 5:24	15:4 36:1 47:12 94:15	169:1 170:3,16 171:25	135:5,25	meant (7) 4:4 13:25	149:9,9,9,10 186:2,3	196:10,22,24 197:4
15:10 26:25 33:8	99:22	172:18,20,21 175:11	mark (19) 8:14 21:3	22:20 60:16 148:11	193:17	much (18) 1:12 19:9
34:15 39:16 56:6 77:8	lining (2) 169:8 190:9	181:3,12 188:20	26:11 28:16 93:13	165:21 176:22	missing (1) 30:5	62:20 89:13 90:3
87:10 89:5 91:19	linings (2) 137:18,21	189:23	96:11 130:21 131:11	meantime (1) 121:21	mm (6) 89:17 97:4	115:1 123:2,8 187:18
108:14 165:9	link (17) 137:7 138:18	looked (22) 8:8 9:8 11:7	168:10,11,12,13	meet (7) 32:11 52:24	98:24 120:3 130:16	193:8,21,25 195:18
lawrence (11) 1:23 2:17	139:3,17,19 140:7,9	15:17 20:10 24:23	171:21 176:11,13	60:9,10,16 119:4	148:6	196:11,19,20 197:1,5
4:25 8:12 71:13 87:11	141:21	41:5 45:18 52:1	178:7 186:20,21 188:1	153:8	mmhm (4) 77:22 78:1	multipurpose (1) 46:18
89:20 96:7,9 128:4,24	142:5,6,7,17,22 143:5	54:5,21 83:2 99:4	marked (10) 7:17 9:7	meeting (11) 20:22	160:22 186:10	must (9) 9:14 18:3 27:7
layer (1) 163:15	148:4,10,25	117:3 125:20,21	10:10 12:20 13:25	34:19 37:19 58:19	model (3) 8:22 9:13	76:6 126:22 127:5
layers (5) 43:17	list (11) 12:13	127:25 128:23 133:5	15:7 22:15 34:10	62:2 87:19 97:16	163:6	175:21 191:23 193:2
137:11,14 139:6	28:11,15,17 44:19	146:19 149:18 152:23	54:22 90:20	128:7 162:2 171:18,20	moment (11) 5:2 62:8	mustnt (1) 166:21
150:13	51:19 115:14 163:1,2	looking (22) 3:8 10:5	markedup (1) 177:25	meetings (6) 20:21 26:3	69:17 121:16	myself (5) 74:8 157:20
laying (1) 56:5	167:12 189:21	20:2 35:19 36:25 44:1	market (1) 35:11	32:3 55:2 92:19 110:2	122:23,24 139:21	163:9 166:19 184:25
lead (2) 26:18 79:1	listed (4) 43:24 44:7	47:10 49:14 58:23	marks (1) 120:4	meets (3) 48:20 53:25	146:2 154:8 192:11	
leading (1) 190:8	99:16 171:4	60:21 63:5 79:25	markup (1) 186:19	91:15	193:6	N
least (5) 21:23 67:9	listen (1) 110:16	90:17 91:7 110:16	martin (63) 1:3,8,10,12	melts (1) 184:1	monday (3) 196:25	name (2) 43:23 186:12
77:1 104:12 184:20	literally (2) 31:15 117:5	111:18 140:1 141:15	27:8 31:19,21 34:12	member (1) 24:25	197:3,8	national (2) 83:3,10
leave (3) 53:18 114:12	little (32) 7:9 15:14	156:22 161:23 165:1	55:5 57:1,6,14,19,23	members (4) 24:25 72:6	months (1) 26:25	native (1) 63:6
134:25	17:14 27:18 29:23	182:17	58:3 62:9,11,13,15,20	89:20 126:23	moorebick (63)	nature (3) 44:10 59:2
led (2) 75:7 175:5	33:18 39:18 44:12	looks (5) 2:10 66:18	63:1,3	memory (4) 16:1 34:3	1:3,8,10,12 27:8	153:25
left (15) 7:10 22:7 23:3	47:11 49:22 53:4	73:17 150:15 161:8	65:12,15,18,21,25	67:1 127:21	31:19,21 34:12 55:5	nbs (17) 20:11,17 22:4
27:25 53:12,15	54:1,12 55:17 56:6,9,9	looped (1) 1:23	66:2,5,8,13,17 67:3	mention (2) 28:22 92:5	57:1,6,14,19,23 58:3	32:25 33:1,5,12,15
66:15,22 90:21 111:21			74:18 114:12,19			

53:2 63:22 124:25	normal (12) 2:10 3:17	official (1) 135:10	69:11 91:24 104:22	185:3 187:6,7,12,13	phase (2) 67:2 191:4	114:4,17 143:20
125:3 169:1,13,22	16:18 17:5 27:10	offline (1) 52:16	114:24 115:19 116:8	188:15,21	phone (1) 91:24	176:24 191:8
171:5 173:24	29:3,16 90:9	often (6) 14:20 30:5	119:11 123:23 135:8	189:3,6,9,12	photograph (1) 150:4	possibly (6) 37:10 66:15
nearly (1) 86:19	113:23,24 117:18	44:11 100:10 179:1	137:1,15 138:3 160:13	190:4,11,18,25	photographs (1) 115:4	116:24 149:14 180:4,5
necessarily (17) 2:2	151:24	189:11	173:12,21 175:12	191:8,15	phyr000000364 (1)	potential (3) 76:19 77:2
12:16 18:19 21:21	normally (6) 2:3 3:18	oh (10) 41:22 75:21	177:12 179:17,20	192:2,3,12,17,23,25	153:1	104:1
29:7,15 84:9 85:8	76:20 77:4 84:1 90:9	92:23 108:22 126:17	180:1,8,14,22 193:2	193:3 194:18	phyr000000365 (1)	potentially (3) 55:10
103:22 104:4,5 124:4	north (1) 184:14	127:4 143:9,9 186:3	196:18	panning (1) 20:2	155:10	58:16 65:3
126:1 133:17 136:9	nose (3) 75:13 76:16,19	187:10	overall (2) 137:14,18	paper (2) 178:25 179:2	phyr000000366 (1)	practice (7) 3:23
144:13 162:13	note (10) 23:2 28:21	okay (45) 2:13 6:23	overcladding (1) 122:9	paragraph (40) 13:21	105:5	12:6,19 17:6
necessary (6) 58:1	132:12 137:17 158:8	17:13 19:14 22:25	overlooked (3) 165:13	14:6 15:3,4 17:18	pick (12) 14:6 17:17	113:23,24 165:22
76:15 81:7 82:1,3	163:8 164:1 166:1,13	27:11 30:12 33:16	169:20,21	35:19,21 36:8 38:8,9	35:21 42:4,5 123:19	practised (1) 114:14
159:7	172:20	39:24 44:15 47:1	overrun (1) 166:12	47:21 49:12 51:14,15	126:11 127:24 128:2	precedence (2) 123:23
need (35) 2:12 16:5	noted (2) 76:7 125:17	52:21 68:6 69:17	oversight (6)	52:4 69:20 73:24	156:12 165:17 167:6	124:25
52:16 57:20 59:25	notes (12) 10:18 19:21	75:11 77:5 78:20	41:13,19,22 42:6	78:22,23 85:16 98:20	picked (8) 41:25 120:13	precise (3) 22:7 126:6
61:20 71:20 73:6,8	20:7,23 22:14 24:17	80:16 81:15 91:5,7	44:5,6	105:13 109:13 125:15	136:19 146:3 154:9	127:15
80:10 85:3,15 86:19	41:12 42:2 44:7	93:17 106:19 114:10	oversize (1) 70:2	138:16 139:16 147:6	156:15 165:18,22	precisely (1) 98:9
94:2 99:14 111:12	177:14,23 179:11	120:24 123:7 126:8	own (7) 27:9 50:2 146:3	153:9 155:20 158:13	picture (1) 66:14	precut (2) 70:1 112:6
114:10 115:20	nothing (7) 76:12	127:23 134:16 144:2	173:16 174:21,25	161:15 162:21,23	pictures (1) 113:21	predated (2) 24:6 181:8
116:9,15 119:10	144:9,10 156:2	148:21 149:17 155:2,9	181:18	167:6 175:18 185:5	piece (2) 114:4 174:3	predominantly (1)
125:13 132:7 143:5	166:8,14 171:7	175:12 176:1,3,4		188:25 189:8	pieces (2) 74:1 182:2	100:13
146:1 159:13 161:16	notice (3) 138:15,18,21	178:1 184:12		190:20,24	pin (1) 98:14	prefixed (1) 84:1
163:24 164:9,15 166:9	noticed (2) 137:8	193:14,20,24 194:23		parapet (1) 4:19	pink (1) 37:12	preliminary (1) 27:5
187:5 192:18	165:25	196:10		part (18) 19:15 23:14	pir (1) 183:7	preordered (1) 28:18
193:13,16	noticing (1) 120:4	old (1) 144:15	p1 (13) 167:15	24:15 25:13 33:13	pitched (1) 183:8	prepared (3) 20:3
needed (15) 27:1 48:6	notional (1) 28:11	once (8) 13:8 14:8	170:18,21,22	48:6 53:21 85:19	place (5) 41:14 56:24	160:1,3
53:22 57:6 60:10	november (2) 10:13	98:17 143:10,18	172:10,21,24 173:8	110:4,12 111:16	82:14 125:10 165:21	preparing (1) 20:7
65:10 78:25 120:24	11:8	183:20,25 186:9	176:10 177:19 185:20	126:17,18 130:17	placed (1) 148:13	prescriptive (4) 124:4,6
143:15 167:1 172:15	nth (1) 36:25	ones (2) 18:9 187:20	186:6 187:3	138:8 144:23 159:6	placing (1) 13:1	154:11 169:17
174:9 175:10 186:22	number (19) 8:13	open (3) 40:3 112:16	p10435 (1) 53:1	170:19	plan (4) 53:12 59:15	present (3) 93:23
187:7	10:8,18 19:24 24:1	119:8	p1s (2) 171:17 184:13	particular (10) 9:14	64:16,17	181:14 189:18
needs (3) 119:6 121:25	32:8 41:7 51:19 52:1	opening (1) 140:12	p2 (15) 167:15	22:5,5 36:2 52:12	planning (1) 26:22	presents (1) 46:4
196:7	63:7 73:25 75:15	openings (8) 46:14	170:18,23,24 172:21	78:19 93:25 124:23	plans (2) 51:25 122:12	press (1) 57:14
neil (41) 2:17,20 3:1	77:20 80:11 87:25	48:1,7,13 67:21	177:1,3,20 178:11,15	140:22 181:19	plastic (2) 19:10,12	pressurebond (1) 182:2
4:10,11 5:1,3,5,6,9,21	90:5 136:3 140:17	106:22 137:22 158:20	185:12 187:12	particularly (1) 188:15	please (38) 1:6 2:21 3:4	pressurebonded (1)
6:12,24 8:16 10:15	171:20	operate (2) 59:1 144:17	pack (6) 87:25 88:7	parties (3) 30:9 90:12	5:10 8:17 10:3,16	184:4
34:8 71:14 77:19,25		opinion (5) 71:21 87:7	108:15,19,22 153:19	129:23	11:16 26:15,16	presumably (1) 34:12
78:5,10 80:8 81:3		105:10 126:17,18	pages (2) 186:1,19	parts (2) 86:1 175:3	62:17,22 71:18 72:12	presume (1) 21:10
87:12 89:21,21		opportunity (1) 165:17	paid (3) 51:17 52:12	party (7) 57:16 66:16	78:12 80:25 87:17	pretty (3) 43:13 52:9
91:20,21 96:10 115:11		opposed (3) 44:17	73:14	96:21 97:3 117:21	89:23 94:5 95:3,21	190:15
121:4,5,8,22 128:24		129:12 130:8	pale (1) 24:4	129:5 156:9	96:15,18 119:11,14	prevent (3) 80:12
129:13 130:3	objective (1) 50:19	option (1) 105:3	paler (1) 181:6	pass (1) 5:12	121:22 123:4,6,10	101:12 106:22
132:16,16 133:21	obtain (2) 64:11 79:9	options (1) 105:2	pan (7) 24:2 28:1 53:11	passing (1) 41:2	128:7 131:15 132:7,22	preventing (1) 58:12
134:3	obtaining (1) 26:23	orange (4) 140:22	68:18 75:23,25 101:2	past (3) 16:17,20 26:4	133:22 135:8 137:17	previous (10) 4:6 5:14
neither (2) 28:21,21	obvious (6) 46:5	141:17 144:10 147:14	panel (56) 19:6 26:13	pasted (1) 119:15	193:19,23	18:14 40:15 43:9 95:2
net (1) 41:18	63:9,12 65:8 134:13	order (7) 13:1 26:8	27:13 29:5,18 55:8	paths (2) 86:15 87:1	pm (5) 123:11,13	142:12 161:5 186:19
never (28) 19:2 23:19	158:4	39:12,14 80:12 132:8	71:2 101:20 104:2	pattern (1) 42:25	194:3,5 197:6	192:5
24:13 26:5 29:25	obviously (9) 29:14	153:8	167:10,20,22	paul (7) 113:22	pointing (1) 88:20	price (2) 26:17 27:2
41:11,18 78:6 89:10	39:11 41:17 57:8,12	ordered (2) 39:5,20	168:9,16,21,23	115:12,17 121:5,6	points (4) 63:7 72:1	prices (1) 12:23
91:12,14 93:9 128:20	58:1 91:7 94:8 143:5	orders (1) 39:5	169:7,8 170:10,20,22	130:10 152:23	87:7 123:19	prime (1) 194:19
139:24 140:4 141:8	occasion (2) 13:14	orientation (1) 64:25	171:14 173:5,20,22,25	pause (5) 62:21 123:9	polyethylene (1) 18:23	printed (1) 163:12
152:6,9 160:5,6	39:21	original (4) 34:4	174:13,16 175:7,9,14	180:10,17 194:1	polyisocyanurate (1)	prior (7) 17:21 21:11
163:10 165:9,10,13	occasions (1) 14:23	172:11,13 178:23	176:5,22,23,25,25	pe (2) 18:23 25:17	183:7	48:9 90:4 100:14
173:9 182:11 187:9	occur (2) 183:25 184:19	originally (1) 18:11	177:1,19,20 178:11,16	penetrate (1) 94:2	polystyrene (6) 186:12	179:13 181:9
192:14	occurred (4) 70:16	others (5) 2:18 91:22	183:24 185:12,20	penthouse (1) 166:5	188:12 189:20,22	priority (1) 79:8
nevertheless (1) 166:17	76:18 87:11 152:9	96:9 115:13 128:25	186:6 187:3	people (3) 125:24 157:2	190:11 192:12	proactive (1) 12:22
next (17) 2:9 15:3	oclock (3) 123:6,10	otherwise (2) 127:10	188:5,7,11,23 189:14	166:5	polyurethane (2)	probably (5) 56:9
47:22 53:9,10 63:14	197:3	186:13	190:1 191:7 192:7	146:9 155:19 178:13	190:11,12	100:12 117:3,6 164:17
64:4 66:3 80:7 91:2,4	oconnor (1) 71:13	ought (12) 54:25 82:10	194:24,25	perfectly (1) 105:19	position (16) 48:12	problem (3) 14:19
103:7 130:4 131:18	october (4) 8:12 10:1	92:22 126:23 128:2	panelfacing (1) 169:5	perform (1) 31:25	54:24 66:6	62:19 191:1
155:11 189:8 191:6	39:16 194:24	142:8 145:13 151:9	panels (78) 15:16	performance (17) 22:6	86:13,20,25 104:6,23	problems (1) 190:2
nice (2) 16:5 126:4	odd (1) 82:10	155:18 156:16 162:7	16:4,4,19 18:11,14	25:9 37:19 124:3,8,15	118:20 129:19 146:19	proceed (2) 13:4 14:1
nobody (4) 56:14,20	offer (5) 131:24 137:19	184:20	23:2,14,18,22 24:21	154:12,13 169:18	147:2 148:18 153:4,8	process (18) 1:20,22
61:3 156:15	139:4 176:15 194:25	outer (2) 119:6 172:25	25:25 26:15,21,24	171:15 179:11 188:2	154:10	7:21,24 8:8 14:23
nodding (1) 30:23	offered (6) 106:24	outlined (2) 14:24 41:11	27:2 32:24 41:8 44:20	189:14 191:10,21,24	positioning (7) 69:14	15:11 21:11,18 79:14
noncombustible (2)	109:2 168:18 175:16	outside (13) 71:2,4	57:11 62:5 76:25 79:2	192:17	96:1 101:11 125:3	110:24 111:16 149:1
81:18 84:9	183:19 184:23	112:13,16 114:2,8	132:20 150:6 151:17	performed (1) 186:24	143:22 149:11 162:24	165:20,21 175:4
nondomestic (1) 183:9	offering (3) 109:5	129:10 131:23 151:17	152:14 167:4,9,13	perhaps (4) 2:10 22:6	positions (1) 146:20	180:23 186:16
none (3) 17:10 90:14	147:10,12	173:9 177:2 187:15	168:8,15,18 170:17,22	145:21 148:3	positive (1) 180:11	produce (2) 14:9 28:17
184:14	office (5) 38:22 40:2,3	188:9	171:11,12,16	perimeter (4) 50:18,19	possible (16) 44:12	produced (5) 41:17
nonprinting (1) 163:14	officer (9) 71:21 118:25	over (33) 3:20 4:20	172:1,9,10,14,24	54:18 169:9	56:22 69:16 74:23	61:10 111:19 154:25
nor (3) 28:22 126:6	128:1 133:22 135:3,9	18:14 21:15 36:3	173:8 175:25	period (1) 18:14	86:18 103:2 105:19	155:1
163:3	136:7 137:4 144:24	37:12 51:24 66:3	177:1,3,8 179:14		106:13 107:1,2 108:13	producing (3) 8:4 9:11
	officers (1) 32:12		183:18 184:8,15,16			

98:10	proposing (1) 170:1	37:3,6,11,14,24	114:4,9,11 115:16,25	194:20,23	rating (29) 30:20 49:15	reduced (1) 130:11
product (77)	protect (2) 106:3,17	38:2,4,8,16,20	116:2,13,21,25	195:3,6,13,16,21	74:3 76:7 77:9 84:2,8	refer (3) 47:1 98:19
18:17,18,20,21 20:14	protected (1) 106:6	39:1,7,10,13,18,24	117:7,10	quality (3) 16:24 165:20	99:4 106:1 107:21	157:23
22:7,10 23:19 24:17	protecting (1) 153:24	40:4,7,11,13,17,25	118:2,11,14,18,23	177:10	115:20,25 116:8,15,17	reference (7) 33:20
25:17,18,19 30:3	protection (5) 106:1	41:3,19,25	119:18,20,23	quantities (1) 190:6	117:8,19,22 118:12	53:2 63:25 83:25
32:23 33:1,2,5,20	137:14,15 139:5	42:8,14,16,23	120:1,4,7,11,14,19,22,25	quantity (1) 150:12	120:14 122:5,13 132:2	91:11 124:12 131:22
34:4,5,15,16,22,23	153:20	43:1,6,12,16,20,25	121:16,18 122:7,17,20	quarters (2) 42:23 94:3	138:1 141:8 143:13	referred (5) 73:24 95:12
35:3,5,11,17 40:14,18	provide (12) 19:5 26:16	44:3,6,18,24	124:5,8,10,15,17,19,22	queries (1) 94:5	149:8 181:16,21	108:23 121:16 167:15
42:11 70:5,8 82:17,23	29:13 38:24 58:24	45:3,12,16,23	125:6,12,20,24	query (6) 51:5 54:24	ratings (1) 76:3	referring (15) 53:1
85:13 94:18 95:18	61:21 80:11 137:15	46:1,8,16,19,25	126:3,8,11,15,18	72:11 73:13 74:19	raw (1) 183:12	100:9 109:15
106:1 107:14,21	139:9 154:19 189:13	47:3,6,15,17,21	127:1,5,8,10,15,18,21,23	82:12	ray (20) 15:18 16:20	116:6,11,19 121:7
108:18,20 117:24	190:1	48:4,9,12,15,18,23	128:12,14,22	question (20) 19:6	21:3 30:15 34:19 56:1	122:7 125:24 164:21
119:23 135:11 137:11	provided (13) 12:7	49:5,7,11,17,19,25	129:18,25	29:16 31:19 35:22	90:6 97:22 110:6,9	165:4 172:8,10 174:14
173:12,19 174:14,22	47:25 48:6,13 62:2	50:7,12,14,19,23	130:15,17,24	54:5 56:19 65:13	126:15,19,21 128:24	181:23
176:16	80:6 89:5 122:13,14	51:4,11,21,24	131:5,7,18 132:12,15	71:25 73:18 74:19	129:15,23 130:21	reflect (1) 27:4
179:1,4,5,8,17,23	155:18 158:18	52:4,9,12,15,23	133:2,9,19,21	82:21 86:12 103:24	143:3 164:13 171:21	reflected (2) 15:9 186:9
180:9 181:1,13,15,18	159:16,20	53:4,7,10,20,24	134:8,13,16,20,25	118:14 126:11 153:22	rbk00048734 (1) 121:3	refurbishment (2)
182:6,17	provides (2) 37:16,18	54:3,5,9,13,15,20	135:16,19	156:20 179:25 184:18	rbkc (5) 32:4,9,11	104:14 137:20
183:2,14,16,17,19,22	providing (1) 110:22	55:15,20,25	136:3,6,11,18,23	194:14	reach (1) 141:8	regarding (3) 86:14
184:20 186:15,18	provisions (1) 46:9	56:3,7,11,14,19,25	137:6 138:8,15,21,24	questions (11) 1:14,19	read (21) 15:4 25:15	93:24 121:2
187:5 193:1 194:22	pull (2) 23:25 37:6	58:10,14,16,19	139:1,10,12,16	136:24 185:23 186:1	31:15,17 37:8 43:4	regards (4) 81:9,19
production (1) 190:6	pulling (1) 30:1	59:2,5,16,22	140:1,4,8,11,15,17	193:6,11 194:9,10	46:20 52:21 73:14	129:14 131:1
products (14) 20:1	purchase (3) 39:4,14	60:4,8,14,23	141:3,6,10,13,17,21,24	195:22 198:3	81:16 82:25 135:23	register (1) 91:10
22:21 26:4 83:1 84:10	177:11	61:2,12,20,23,25	142:2,5,13,16,21,25	quick (1) 5:12	136:9,13 138:9	regoing (1) 21:15
95:18 139:5	purchasing (2) 30:6	63:22,25 64:11,15,24	143:3,12,16,20,24	quickly (2) 31:5,13	139:23,24 140:4	regulation (1) 45:6
167:10,19,22 168:5	168:4	65:2 66:25	144:2,6,15,22	quite (24) 12:10 30:5	144:22 171:8 190:23	regulations (13) 19:17
179:21 180:2,15	purely (1) 16:14	67:14,18,24	145:6,10,12,15,19	38:22 44:11 47:11	reading (9) 36:15,20,25	21:9 22:23 35:25,25
professional (2) 109:5	purpose (2) 70:21 99:7	68:6,15,18,22	146:2,12,14,16,19,24	50:24 58:22 62:11	37:25 81:5 114:13	48:21 64:1 121:8
159:6	purposes (2) 28:19	69:2,6,9,13,17	147:1,4,9,18,22,24	63:17 82:25 104:16	115:3 129:2 169:13	124:12 131:16 161:25
professionals (2) 77:21	189:11	70:5,10,16,18,21	148:3,7,16,19,22,24	114:23 115:3 120:12	reads (1) 73:11	187:3 196:6
133:13	pushed (1) 55:7	71:1,7,13,17,24	149:4,7,17,25	143:7 144:16 149:3	ready (3) 1:10 63:1	regulatory (1) 154:14
profile (3) 104:17,20	putting (12) 25:24 51:6	72:4,7,9,22	150:8,11,16,20,23	161:18 174:12,17	123:14	reissue (1) 5:13
169:9	65:2 84:25 106:19	73:1,6,12,18,22	151:7,18,20	185:23 192:3 196:4,15	real (1) 49:23	reissued (2) 99:10
programme (1) 14:20	108:16 146:6,9 148:24	74:5,9,12,17	152:1,6,9,13,19,23	quotation (1) 128:19	realised (1) 178:10	165:14
progress (2) 132:8	150:24 152:10 155:5	75:1,4,6,9,11,15,21,25	153:7,11,14,22	quotations (1) 18:15	really (12) 24:13 34:13	relate (1) 85:7
171:20	pvc (1) 189:11	76:5,9,12,14,18,23	154:7,20,23,25	quotes (1) 26:23	39:25 47:5 57:20 61:8	related (1) 89:23
project (67) 2:11 7:21		77:5,11,13,17,23	155:2,4,9,17,22		142:15 147:24 148:10	relates (2) 71:18 183:5
13:3,15 14:17 17:9,22	Q	78:2,10,20	156:2,5,10,20	R	151:18 190:17 196:7	relating (2) 10:20 80:25
19:2 24:6 25:24	q (912) 1:18,22	79:4,6,11,14,17,19,22,25	157:9,13,17,22		realms (2) 127:14,16	relation (11) 23:1 25:10
31:9,25 32:12,18,21	2:1,5,8,13,25	80:6,17,19,22,25	158:8,15,23,25	rail (17)	rear (1) 107:9	78:24 86:13 98:25
33:5,8 34:18 38:17	3:12,16,18,20,22	81:13,16,23	159:4,9,13,19,23	112:10,12,12,22,24	reason (8) 19:6 41:14	134:10 159:20 167:9
39:2 40:9,19 41:5	4:1,3,6,9,11,14,17,19,23	82:3,6,9,12,16,21	160:1,6,8,17,21,23	113:3,16,19,24 114:5	159:7 163:25 164:1	168:1 181:12 191:24
43:9,10 45:5,24 47:18	5:5,8,23 6:5,9,21,24	83:2,6,9,13,15,18,22,25	161:5,9,11,14,20,23	150:6,12	165:13 169:25 194:17	relatively (3) 40:3 78:18
48:9,23 50:10 56:4	7:7,9,12,15,17,20	84:3,14,18,23	162:3,7,18,21	151:3,4,21,21,25	reasonably (1) 18:18	98:3
58:8 70:6 71:8 72:1	8:2,7,10,21,25	85:2,5,9,16,24	163:6,18	164:6,9,12,14,18,23	reasons (1) 152:17	relevant (10) 6:21
79:12 84:15 89:1	9:6,10,16,19,23	86:4,6,10,24	164:6,9,12,14,18,23	165:1,4,7,15,17,20,25	rebates (1) 184:5	21:20 22:11 35:24
92:16 98:21 121:22	10:8,12,20,23	87:4,7,9,15,24	166:7,10,13,17,23,25	167:3,12,18,24	recall (28) 1:22 12:18	58:17 73:23 74:10
126:4 128:21 133:13	11:2,4,6,12,14,19,21,25	88:4,7,10,13,16,20,23	167:3,12,18,24	168:1,12,14,17,20,23	20:17 28:19 33:25	82:16,22 154:14
134:23 137:19	12:4,12,14,16,19,24	89:4,8,13,16,18	168:1,12,14,17,20,23	169:1,5,13,17,21,23	34:24 36:15 40:2	reliant (2) 158:6 162:3
138:5,10,22 141:25	13:2,8,10,14,17,21	90:2,13,19,23,25	169:1,5,13,17,21,23	170:3,6,8,10,14,16,24	47:9,13 62:5 68:22	relied (1) 106:2
144:4	14:4,6,17,19,23	91:4,9,18	171:1,3,9,15,18,25	171:1,3,9,15,18,25	70:13 80:10 95:4,21	rely (1) 125:4
159:2,10,11,16,17,19,21	15:2,25	92:5,8,12,16,20,25	172:5,8,11,15,18,24	172:5,8,11,15,18,24	106:23 112:15 114:9	remain (1) 137:21
161:6 163:6 164:15	16:2,9,13,15,25	93:5,10,17	173:5,7,11,14,19,22,24	173:5,7,11,14,19,22,24	116:14 117:17 119:22	remember (15) 28:16
179:4,13 181:8,10	17:5,8,11,14,25	94:8,14,20,23	174:2,6,17,23	174:2,6,17,23	131:22 132:21	37:12 52:11 73:22
195:23	18:2,7,12,16,21	95:2,7,10,16,20,24	175:2,8,13,18,20,24	175:2,8,13,18,20,24	157:1,4,11,15,18,25	84:14 85:24 87:1
projects (5) 29:20 31:10	19:2,7,11,14,20,23	96:1,5,13,25	176:3,7,9,12,19,21	176:3,7,9,12,19,21	181:14 187:21 171:9	97:6,19 110:4 123:4
40:15 156:23 193:2	20:6,10,14,19,23,25	97:3,5,13,15,19,23	177:3,5,7,13,19,22	177:3,5,7,13,19,22	receipt (1) 11:25	143:3 167:24 168:7
prominence (1) 23:20	21:2,4,7,12,17	98:3,6,9,14,19,23,25	178:4,6,10,13,15,18,20	178:4,6,10,13,15,18,20	recent (1) 117:16	169:13
prompted (8) 67:10	22:3,13,17,19,25	99:3,7,9,15,20,25	179:3,7,10,13,16,19,25	179:3,7,10,13,16,19,25	recently (1) 125:21	remind (3) 163:9,21
71:24 72:3 95:14	23:9,12,17,21,25	100:2,5,8,11,13,19,21	180:5,7,13	180:5,7,13	recipient (2) 26:10	166:19
97:5,8 115:11 117:1	24:6,9,12,15,19	101:1,5,7,11,15,20,22	181:12,20,23	181:12,20,23	30:17	reminded (1) 115:19
propagate (1) 77:3	25:7,15,21,23	102:4,9,11,15,19,24	182:5,8,10,13,15,21,23	182:5,8,10,13,15,21,23	recognise (1) 160:4	reminds (2) 116:7,22
proper (2) 85:15 145:23	26:2,6,8,20	103:5,7,9,12,15,17,20,23	183:2,12,17,25	183:2,12,17,25	recollection (1) 164:14	remit (5) 158:2
properly (2) 37:5 108:2	27:3,20,22,24	104:1,5,8,24	184:7,10,12,18	184:7,10,12,18	recommendation (1)	185:8,13,17 188:9
properties (4) 19:1	28:6,9,13,15,20	105:4,10,17,19,24	185:2,5,12	185:2,5,12	158:4	remove (1) 15:19
107:24 182:3 188:6	29:3,12,15,22	106:3,10,12,19,25	186:9,11,15,20,25	186:9,11,15,20,25	recommendations (2)	repeat (1) 179:25
proposal (6) 132:22	30:1,12,23	107:3,6,10,17,20,22	187:6,11,13,15,18,22,24	187:6,11,13,15,18,22,24	recommended (1) 171:6	replicate (1) 151:4
133:23 137:2,10,20	31:1,8,12,17	108:1,5,12,20,25	188:4,7,10,14,18,20	188:4,7,10,14,18,20	record (1) 23:9	replicated (1) 53:7
145:25	32:2,7,14,16,21	109:3,6,8,12,25	189:2,5,23 190:15	189:2,5,23 190:15	rectangle (3) 53:4,20	replies (1) 9:23
propose (1) 117:24	33:4,11,17,23	110:4,7,9,12,15,21	191:14,19	191:14,19	54:3	reply (1) 80:2
proposed (8) 51:25	34:3,9,22	111:1,6,13,16,18	192:4,9,11,16,19,21	192:4,9,11,16,19,21	red (7) 4:17 9:2 92:3	report (13) 67:2 105:4
52:18,19 53:11	35:2,6,8,10,14,16,19	112:1,8,14,18,22			153:3,7 155:12 176:9	113:22 115:5 146:17
64:16,17 105:3 146:13	36:8,18,20,24	113:2,6,11,16,21,24				152:23 153:2,14

155:11 160:1,3,8,18 representative (3) 2:2 7:20 16:15 representing (1) 163:7 request (6) 71:11 72:23,23 85:25 135:1 155:7 requested (1) 30:4 requests (1) 78:3 require (2) 157:14 185:17 required (31) 46:23 59:9,11,16 61:6 63:21 64:8 68:3 72:12,15 73:3 108:25 117:19 125:16 126:7 129:4,7 131:21 134:19 139:11,13 141:9 145:10 149:15 157:10,18,25 162:13 166:1,18 195:8 requirement (17) 30:19,21 45:6 50:16 58:7 66:12 81:21 84:21 96:17 102:8,9 125:2 134:11 149:5 163:9,22 164:5 requirements (20) 21:8,20 22:11,22 26:13,16 27:14,15 28:11,18 48:21 71:19 93:6 119:4 132:1,19 134:2 143:17 154:14 158:7 requires (5) 4:19 67:21 137:10 154:2 158:17 research (2) 49:13,23 resintype (1) 19:12 resist (2) 106:8,11 resistances (1) 108:11 resolution (2) 131:5 136:16 resolving (2) 56:22 138:4 resource (2) 196:1,2 respect (1) 171:10 respond (4) 10:12,13 85:25 119:11 responding (2) 6:24 118:8 responds (3) 5:23 78:3 118:25 response (7) 3:24 81:1,4 84:7 86:24 133:2 135:10 responsibility (3) 8:3 41:25 42:3 rest (4) 44:22 49:22 123:2 178:5 resubmit (1) 4:15 result (1) 117:1 resume (2) 123:6 197:2 retardant (2) 25:18,25 return (5) 12:20 15:19 17:16 101:20 104:2 returned (4) 12:10 16:4 161:1,6 returning (2) 11:22 79:25 returns (1) 76:24 rev (1) 4:1 reverse (1) 84:9 reviewed (3) 9:3 93:20	137:1 revise (3) 4:15 99:12 163:10 revised (8) 5:10 6:4 10:17 11:22 19:24 41:7 91:12 99:16 revision (12) 7:5,13 11:4 14:2,24 15:14 19:23 52:6 75:17,22 76:2 144:6 revisions (10) 12:1 13:11 14:15 15:7,8,10 41:9 75:15 90:11 144:7 revisit (1) 165:8 revisited (2) 163:10 165:9 reynobond (12) 17:12 18:17,19 23:7,13,14,18 24:21 28:3,23 44:20 150:6 rfi (7) 71:10 72:9,10 75:7 77:21,24 79:19 rf001 (1) 71:18 rh259030 (1) 131:24 rh25g (3) 69:25 95:4 137:10 ricky (6) 131:10 132:10 133:9 135:5,13,22 righthand (14) 9:3 10:25 17:19 27:16 52:19 59:18 65:19 68:12 76:10 92:10 140:21 147:13 171:22 189:23 rigid (7) 34:25 38:10 40:23 43:17 173:2 183:6 192:15 risk (2) 16:21 74:12 rob (1) 171:21 robust (2) 109:2,4 rockwool (7) 40:13,17,21 43:17 153:19 160:25 161:6 role (7) 19:15 23:15 24:14,15 25:13 154:10 195:23 roof (3) 4:19 183:6,23 roofing (2) 183:14,15 roofs (1) 183:8 room (3) 1:6 62:18 123:5 round (13) 54:17 55:1,2 58:24 59:11 60:19 65:9 90:9 97:16 98:16 127:13 136:15 154:18 roundrobin (1) 98:18 roundthetable (1) 178:1 route (5) 37:18 48:14,15 133:14 134:14 routes (5) 48:17 67:23 125:17 157:21 159:5 rs (1) 33:9 rs5000 (6) 34:16 35:14 38:10 44:21 81:13 150:14 rules (1) 62:17 run (5) 1:19 5:16 16:17,20 91:4 running (1) 136:20 rv (1) 95:5 rvg (1) 69:23	rvg3030 (1) 93:25 ryd00000220 (2) 103:9 111:18 ryd00000431 (1) 87:25 ryd00027692 (1) 89:19 ryd00027697 (1) 90:16 ryd00037117 (1) 128:23 ryd000371172 (1) 130:2 ryd000435474 (1) 3:8 ryd00046822 (2) 19:21 41:5 ryd000468224 (1) 42:19 ryd00065622 (1) 91:11 rydon (7) 2:6 9:8 14:12 15:12 39:15 57:13 71:14 rydons (2) 73:17 128:19 S safest (1) 104:23 safety (3) 58:17 61:13 171:10 same (22) 3:1 5:24,24 6:3 10:6 11:7,14,14 40:2 42:17 53:14 57:9 64:22 84:5 90:12 96:7 107:24 116:23 130:18 135:5 173:5 176:25 sample (3) 25:16,17,19 sandwich (6) 172:1 182:3 183:23 188:5 192:2 193:3 sandwiched (1) 189:10 satin (1) 28:4 satisfied (1) 22:20 saw (12) 33:7,23 40:13 41:6 102:15 120:19 154:5,23 173:24 181:9 186:19 187:15 saying (57) 6:25 30:25 39:13,25 44:18 49:5,7 61:3 62:3 74:20 75:1,4,6 82:4 85:16 91:18 106:12 107:1,12 113:25 121:24 122:1 126:4,6,23 127:5 128:5 130:15,24 133:21 134:1,22 136:12 138:16 139:2,5 140:1,6 142:17 143:4 147:12,18 151:23 154:9 155:17 162:3 163:18 165:7 174:23 180:11 181:20,21 182:5,24 184:7 188:19 191:17 scale (2) 63:19 114:21 scan (2) 88:1,7 scanned (1) 138:11 scanning (1) 138:14 scenario (1) 130:9 scene (1) 21:23 scheme (1) 92:14 scope (4) 149:2 155:25 156:5 183:2 screen (5) 5:20 63:4 65:16 91:2 163:13 screenshot (1) 163:6 screwed (2) 16:11 174:15 scroll (2) 5:20 54:11 sea00000169145 (1) 169:2	sea0000016973 (1) 33:12 sea00000252 (1) 115:9 sea00002499 (1) 52:16 sea00002678 (1) 43:7 sea00003040 (1) 92:2 sea00003060 (1) 185:21 sea00003156 (1) 99:21 sea000033103 (1) 7:4 sea00003316 (1) 9:1 sea00011703 (1) 71:9 sea00011759 (1) 87:9 sea00012531 (1) 91:21 sea00012850 (1) 96:8 sea00013001 (1) 128:3 sea00013221 (1) 2:15 sea00013262 (1) 4:24 sea00013263 (1) 6:1 sea0002499 (1) 63:6 seal (2) 50:19 68:22 sealing (4) 50:18 104:22 112:11 126:24 searching (1) 143:17 second (16) 8:21 10:24 11:21 31:2 33:17 104:14 135:20 137:6 138:17 141:10,13 147:6 148:4,24 169:5 185:6 section (27) 25:8,10 33:14,14 45:18,19,20 46:20 50:9 51:21,25 52:18,19 53:8 59:15,20,22,23,24 75:25 103:15 105:13 146:9 153:2,9 155:19 174:6 sections (3) 59:15 78:12 122:10 sectionelevations (1) 78:8 see (262) 2:25 3:12 4:11,11,17,24 5:1,2,23 6:19 7:4,9 8:23 9:1,4,25 10:3,8 11:2,16,19 12:16 16:13,22 17:25 19:23 22:13 23:3,9 24:2,4 25:21 26:11,19 27:3,16,25 28:2 31:1,6,7 33:17 34:9 36:6,18 37:15,22 38:14 40:25 41:6,19 42:8 43:20,21 44:6,6,7,18 45:19 46:1,22 47:6 48:2 49:5 50:7 51:21 52:23 53:4,7,15,25 54:15 56:7,11 60:23 62:6 65:18 66:21 68:12,15,18,25 69:3,6,17 70:3 71:22 72:10,20 75:15,16,17,25 76:9,24 77:25 78:4,10,12 79:4 80:3,17,25 81:1,11 84:12 85:2,22 86:6,22 87:22 90:14 91:10 92:9 94:6,20,23 95:16 96:13 99:3,10,15,16,21,22 100:5,6 101:1,1,2,7	102:22 103:12 106:10,19 108:25 109:6,12,23 111:1,23 114:25 115:9,13,21,23 116:13,25 117:11 118:2,9 119:14,15,21 120:12,25 122:17 126:3,5,9 127:1,5 128:10,24 129:16 130:10,13,24 131:10,19 132:13,16,22,25 133:22 134:20 135:17 136:3,18,23 137:24 138:6,7 139:1 140:11,17,20,24,25 141:17,21,24 143:16 147:9 150:8,14,17,18 151:16,20 152:1,14,14 153:9,11 155:1,11,20,21 156:18 157:7,24 158:4,21 159:9 160:9,15,18,24 161:3 162:18 163:16 164:23 165:15,17 166:23,25 167:3 168:20 169:3,11 170:8,20 171:5,18,21,25 172:5 173:3,5 176:10 177:13,22 178:4 181:5,17,20 182:21,23 183:10 185:10 186:25 188:25 189:20,21 191:7,12 192:1,21 195:13,21 196:10 seeing (7) 33:25 67:6 84:14 89:8 143:1 150:12 182:18 seek (2) 72:3 134:17 seeking (1) 149:7 seem (3) 55:15 94:12 135:14 seemed (1) 158:5 seems (6) 47:7 55:12,16 134:18 149:13 190:24 seen (8) 11:25 15:6 23:22 26:20 34:6 78:6 167:12 179:13 select (1) 173:19 selected (1) 194:16 selecting (1) 21:19 selection (1) 22:7 selfsupporting (1) 192:8 send (8) 4:25 6:11 13:5 111:12 115:11 128:4 135:2 178:2 sending (2) 111:10 118:6 sends (2) 30:15 131:10 sense (5) 20:10 59:2 113:18 153:21 156:20 sent (19) 7:22 9:24 13:6 27:15 42:10 43:9 51:16 77:24 78:10 84:18 89:19 90:11 96:6 135:19 136:12 137:1 140:18 142:3 166:20 sentence (4) 46:2 160:9,11 185:7 separate (2) 77:8 142:14	september (11) 1:1 26:22 71:10 72:10 74:6 77:14,24 78:17 87:13 90:19 197:8 sequence (1) 178:6 set (10) 6:17 11:15 22:13 37:20 50:20 63:5 78:13 87:15 89:23 148:25 setting (1) 133:25 several (2) 86:15 99:9 sfs (1) 122:15 shall (4) 5:13 45:7 62:13 87:20 shape (5) 50:17 54:3 153:11,12,19 shearwallsic (1) 137:24 sheet (1) 51:21 sheets (1) 18:22 shelf (1) 79:1 sheppard (5) 93:14,15 117:11 118:4 131:12 shes (1) 193:10 short (6) 62:24 123:12 136:11 193:11 194:4,10 shorter (1) 5:16 shortly (6) 87:20 101:15 118:8,24 135:17 172:18 should (37) 9:19,19 31:18 44:20 46:14 47:25 48:12 60:21 65:5 76:25 81:22 82:24,25 84:25 89:6 94:4 99:5 105:12,25 106:20,20 116:17 118:8 121:21 125:1 129:3,11,19 136:17 146:22 147:18 148:25 149:9 154:9 166:6 176:4 191:16 shouldnt (4) 67:9 188:19 191:17 192:10 show (14) 50:22 57:10,17 105:4 113:21 122:12 125:4,11 147:25 149:21 162:14 163:1,3,7 showed (5) 18:11 51:11 55:5 129:22 167:1 showing (11) 37:1 52:10 55:6 65:7 88:24 96:15 99:12 120:8,20 147:19 155:8 shown (39) 54:10 55:3,17,22 57:7 59:8 60:20 66:25 67:16 69:11,14 80:11 88:4,6,21 91:1 93:25 101:9 102:12 103:18 104:15 105:18,21,24 106:14 107:2 111:8 118:20 124:23 142:10 146:7 147:22 153:3,7 154:19 160:5,6 176:18 177:4 shows (9) 59:14,20 60:12 62:4 68:15 103:3 104:6 114:15 148:12 side (24) 10:25 17:19 43:8 60:13 64:15	65:6,19,23 67:7 68:12,19 76:10,12 91:15 92:10 140:22 147:13 150:23 171:23 172:20 177:1,19 189:23 190:21 siderise (22) 69:22,23,25 70:2,5,11 93:10,13,16 94:8 95:12 96:1 117:10 118:11,15 124:19 132:14 135:11,19 143:4 144:16 146:6 siderises (3) 118:25 136:7 144:23 sides (9) 33:21 60:25 65:4 101:3 106:11 152:14 153:24 183:7,13 sight (1) 137:18 signed (1) 26:21 significantly (2) 181:7 190:13 silent (1) 22:4 silver (2) 28:3 150:20 similar (3) 31:8 90:17 154:1 simon (17) 1:23 2:17 4:25 8:12 71:13,13 87:11,16 89:20 96:7,9,14 128:4,6,24 129:1 130:5 simple (2) 50:18,25 simpler (1) 184:18 single (4) 44:14,17 76:21 101:9 singlecolour (1) 168:18 sir (63) 1:3,8,10,12 27:8 31:19,21 34:12 55:5 57:1,6,14,19,23 58:3 62:9,11,13,15,20 63:1,3 65:12,15,18,21,25 66:2,5,8,13,17 67:3 74:18 114:12,19 115:1,7 123:1,8,14,16 180:19,25 185:25 186:3 190:16,22 191:5 193:8,15,18,21,25 194:6,8,11 196:11,15,18,22 197:1,5 sit (1) 18:2 site (11) 38:11 39:12 69:24 70:2 97:10 98:7 112:7 132:18 162:2 166:24 177:7 situation (1) 129:10 size (2) 93:23 108:8 sized (1) 55:15 sketch (8) 53:13 137:1 147:10 148:3,4,12,24 149:18 sketches (1) 140:23 skin (2) 168:24 172:25 skins (5) 18:25 46:23 176:17 183:21 184:7 slab (9) 40:13 43:17 104:13 109:22 132:3,6 146:22 160:25 161:6 slabs (2) 38:10 69:24 slant (1) 60:13 slight (1) 16:6
---	---	---	---	---	---	---

slightly (6) 16:7 27:25 102:3 106:15 147:22 188:6 slipped (2) 41:17 84:24 small (2) 114:23 170:22 smaller (2) 64:24 67:8 smoke (5) 28:3 45:8 108:6 181:14 190:7 solely (2) 20:14 95:10 solid (4) 64:19,21 65:5 153:3 solution (23) 48:19 49:21 50:25 51:2,3 67:23 73:15 106:16,24 108:15 109:2,9 125:19 131:4 133:5 138:13 139:4 141:1 142:16 146:5 147:10,13 151:3 somebody (5) 22:9 24:19,22 127:6 135:8 somehow (1) 152:9 someone (5) 11:8 22:2 44:24 120:24 142:18 something (40) 2:10 7:24 14:19 25:16 26:2,3 27:8 28:13 44:25 55:13,16 60:2 67:4 70:16 71:19 76:18 79:20 82:9,10 89:13 92:16 124:8 133:6 142:14 145:20 146:6,13 151:12 152:1 154:1 157:3 161:9 174:10 175:10 177:12 178:25 180:11 181:23 184:21 196:7 sometimes (3) 92:17,18 108:15 sort (9) 14:21 16:10 27:9 57:21 84:24 85:15 93:9 184:25 192:15 sound (1) 99:17 sounds (4) 39:17 57:15 94:10 129:25 sounes (2) 71:14 87:12 source (2) 172:1,12 south (1) 184:14 space (2) 9:12 107:23 spaces (2) 45:9 46:2 span (1) 109:22 spandrel (9) 32:23 55:8 65:4 82:3 102:20 103:15 112:23 114:7 150:16 spandrels (4) 55:18 74:22 99:23 109:18 speak (4) 130:11 137:7 138:18 139:18 speaks (1) 195:11 spec (6) 25:24 33:15 130:11 173:24 178:24 179:11 special (3) 49:20 104:17 192:5 specialist (2) 100:14 129:2 specialists (1) 57:25 specific (17) 14:10 23:1 30:2 72:23 76:23 83:22,25 85:7 112:1 119:10,21 127:22 137:17 156:2 163:4	180:7 186:15 specifically (8) 51:9 73:2 77:7 96:4 99:7 101:7 174:5 183:15 specification (47) 19:20,21 20:7,11 22:4,6,13 23:9,12 24:17 28:1 32:25 33:1,12 41:4,12,21 42:1 44:1,7,19 53:2 63:22 123:23,25 124:3,6,8,15,24,25 135:11 154:11,12,13 169:1,13,15,18,19 171:4 172:20 177:14,23 185:21 186:5 191:8 specifications (2) 29:6 185:9 specifics (1) 130:9 specified (19) 22:6 29:20,25 34:4 46:10 70:5 121:12 124:20 168:14 169:14 173:8 178:6,20,21 181:20 185:17 186:15,17 187:21 specifies (1) 185:15 specify (4) 29:4,18 178:15 183:17 specifying (4) 175:24 176:2 185:13 191:7 speculating (1) 127:18 speculation (2) 27:9,10 spelt (1) 172:11 spoke (1) 117:10 spoken (2) 118:7 130:6 spread (15) 45:8 46:4,21 47:5 58:12 61:13,14 72:19 109:4 151:15,15 162:9 190:4,8,12 spreading (5) 80:12 101:12 129:4,7 160:12 square (1) 184:16 stage (22) 6:7 12:22 16:18 27:1,6 63:14 74:5 88:24 89:4 95:13 97:6 98:4,21 105:5 120:10,11 135:14 136:19 143:7,8 171:10 195:19 stages (2) 164:6 181:14 stamp (10) 3:13,14,23 6:6 9:2,15,19 13:4 92:10 177:16 stamped (3) 4:12 12:3 90:23 stamping (1) 12:1 stand (1) 137:13 standard (6) 25:16 47:7 63:23 93:24 132:3 173:12 standing (1) 189:15 stapley (18) 8:14 21:3 26:11 27:12 28:16 93:13 96:11 130:21 131:11 168:10,13 171:21 176:11,13 30:2 72:23 76:23 178:7 186:20,21 192:22 stapleys (1) 188:1 start (8) 5:3 13:6 51:10	80:3 97:9,11 172:22 173:19 started (3) 56:12 89:2 181:25 starting (2) 48:9 179:2 starts (2) 136:14 182:1 stated (2) 32:8 36:14 statement (23) 13:22 14:4 17:17 35:20 36:9 38:9 49:12 51:14 68:8 69:19 73:25 78:21 82:2 98:20 109:14,15 134:9 157:23 158:13 161:15 162:22 167:7 185:5 statements (1) 39:15 states (1) 131:19 stating (2) 163:8,20 status (15) 4:15 6:5 7:17 10:10 12:2,3,7,21 13:5,7,8,25 22:17 165:12,16 statutory (1) 22:22 stayed (1) 178:13 steel (3) 145:21,24 189:11 step (3) 37:18,18 136:20 steps (3) 51:1 179:10 188:7 sticking (1) 30:13 still (21) 6:6 39:18 41:15 48:20 62:4 108:18 110:18 113:2 120:7,10,11,14,16,23 130:25 131:4 136:1,14,15,16 143:15 stock (1) 69:24 stop (7) 8:5 16:19 42:16 129:4,7 151:14 197:2 stopping (4) 31:4 77:11 86:16 130:7 store (1) 73:15 story (6) 4:23 6:9 9:23 65:10 123:21 126:8 straight (1) 104:15 straightforward (1) 129:3 strategy (5) 64:3 103:21 122:12 137:19,23 strictly (1) 14:25 string (3) 84:4,6 116:25 strip (5) 70:19,22,23 107:20 150:21 struck (2) 33:9 82:9 structural (1) 37:4 structure (18) 45:9 53:18 68:24 104:9,11 121:11 122:1,3,4,8,16 126:24 160:10 161:1 189:12,14,16 191:22 structures (3) 188:22,24 189:7 struggle (1) 139:23 studio (31) 4:7 7:22 9:2,7 22:14 32:4 34:9 51:11,16 52:6,10 61:25 63:5 68:2 71:14 77:19 88:21 89:9,11,21 102:12,16 103:18 121:5 146:2 155:5,14 156:6 171:5 177:16 195:7	styrofoam (24) 168:19,24 176:15,16,17,22 177:8,20 178:8,11 186:6,11,17,23,24 187:2,17,25 192:14,22 194:14,15,16,21 subcontractor (2) 24:13 144:13 subject (5) 4:14 45:4 92:9 120:18 138:1 submitted (2) 15:11 17:1 subsequently (2) 42:9 144:11 substrate (3) 105:22 106:2 107:9 substructure (1) 191:23 success (1) 195:18 sue (5) 93:14,15 117:11 118:4 131:12 sufficient (3) 96:18 116:4 182:19 suggest (6) 49:19 134:8 139:1,16 142:13 161:5 suggested (6) 73:15 173:16 178:17 179:3 185:18 192:22 suggesting (5) 176:2,3,5 183:22,23 suggestion (5) 133:12 147:24 173:18 178:13 184:24 suggestions (1) 10:9 suit (4) 38:11 69:24 70:2 123:2 suitable (7) 36:3 63:19 83:17 106:2 119:9,24 188:8 suits (1) 123:1 summary (2) 183:2 191:21 superior (1) 61:17 supersede (1) 57:9 superstructure (1) 191:23 supplied (3) 69:24 93:21 128:19 supplier (9) 38:23 125:25 144:13,15 172:2,11,12,13,16 suppliers (2) 129:2 168:6 supply (6) 38:12,18,25 39:22 79:8 176:25 suppose (2) 22:4 193:21 supposed (1) 196:6 sure (13) 12:25 37:4 84:16 105:2 126:10 138:11 146:18 148:11 149:12 168:2 187:18 191:3 193:2 surely (1) 125:10 surface (1) 182:5 surprised (1) 30:10 surveyed (1) 4:19 suspended (1) 86:19 switch (1) 194:14 symbol (2) 27:18 42:24 system (10) 23:3 70:13 102:7 119:9 141:19 162:19 165:2 167:13 170:12 183:6	systems (16) 157:25 167:10,20,22 168:9,16,21,23 171:14 176:25 188:11,23 189:13 190:1,9 194:24 T table (15) 20:21 24:20 55:2 90:10,21 97:16 98:16 100:5 110:3 117:7 121:13 127:13,20 156:1 177:15 tables (2) 37:1 154:18 taken (7) 51:1 136:20 158:5 186:20,21 192:6 196:15 takes (2) 123:23 183:20 taking (5) 4:23 14:1 56:17 89:9 164:6 talk (7) 15:13 49:12 123:4 168:11,12,13 193:22 talked (3) 17:14 126:12 195:3 talking (15) 62:17 74:14,15 76:23 81:23,24 100:22 116:22 121:13 122:2 130:7 149:22 156:22 162:18 170:18 talks (3) 25:18 74:12 160:9 tall (1) 184:22 taplow (1) 159:23 team (33) 20:9 24:25 25:1 42:4 49:23 61:16 67:13 72:6 89:20 92:18 96:7 109:5,11 126:23 127:6 128:4 154:17 155:24 157:6 159:7 161:12 162:2,4 166:24 175:16 176:2,3 177:11 178:5,17 179:23 184:24 185:18 teams (3) 14:21 126:17,18 technical (9) 67:13 83:22 118:25 135:2,9 136:7 144:24 157:22 158:8 techniques (1) 190:1 technology (1) 23:4 telling (11) 18:9 22:9 25:4 43:2,2 59:25 64:20 124:1 158:6 162:5 170:8 tells (3) 44:19 60:2 63:20 tend (3) 9:11 44:12 88:6 tends (1) 71:21 term (4) 84:2 100:3,10,11 terminology (1) 129:24 terms (33) 25:23 38:6 50:1 51:12,16 52:10 57:4 58:6,12 61:13,20 64:3 76:18 79:8 109:4,17 123:25 124:25 125:12 127:22 131:7 137:7 138:18 139:3,18 144:9 146:3	154:10 155:22 156:20 174:4 179:20 180:2 terry (4) 77:19,25 78:3 86:10 terrys (1) 86:14 test (2) 93:24 94:12 tested (4) 70:12 137:15 144:18 181:15 testing (2) 37:20 95:11 tests (1) 83:25 text (1) 172:21 thank (31) 1:12,15 8:2 13:10 58:3 62:14,20,22 81:4 86:11 115:1,7 118:6 123:2,8,10,16,18 181:2 193:8,25 194:2,13 196:10,11,14,19,20 197:1,4,5 thanks (3) 123:7 132:9 135:12 thats (171) 1:25 2:7,24 3:11,13,15,17,24 4:2,5 5:7 6:3,3,15 7:8,19 8:2,9 9:5 11:4,5 12:9 13:16,20 14:3 17:7,24 21:1 23:10,11 27:5 28:6,8,25 31:19 37:7 41:13 43:1,8,19 44:5,6,22,23 45:11 48:8,20 52:11,17 53:6,23 54:10,14 55:24 58:9,25 59:19,22,22,25 61:12 65:20 66:14 69:4 70:20 75:24 76:3 82:5 83:5 84:2 88:13,15,22 90:16 91:16 95:9 96:22 100:1,3,3 101:19 103:11,14,19,20 105:18 107:6,19,23 108:5,6,16,25 109:10 111:5,17 113:1 114:1 116:11,18 122:22,24 123:25 124:21 126:1,4 128:17 129:21 130:15 131:3,6 132:14 133:16 134:2 138:12 139:9,23 141:5 144:10,22 147:9,16 148:2,8 150:10,10,22 151:6,7 152:1,3 155:15 156:7 157:12 159:12,18 161:9,22 162:6 164:22,25 165:3,11,19 167:2,17 168:25 169:5 170:7,8,25 171:13 172:10 173:6,14 176:1,20 178:14 180:19 184:10 186:3 187:24 189:2 190:15,17,18,25 193:3 195:13 129:9 151:3,10 themselves (3) 15:6 87:24 101:8 therefore (8) 32:17 72:18 81:5 129:11 131:25 137:13 187:7 190:1 theres (45) 3:25 16:5 18:8 25:10 28:10 46:1	55:6 60:9 61:4 63:25 66:22,25 73:9 75:1 87:25 88:4,8,16 90:5 92:5 94:21 99:22 101:17,20 107:12 111:8 113:4 124:12 134:17 136:3,15 142:17 146:1 151:3 154:15 155:12 160:24 162:10 166:2,9 168:9 171:7 174:12,17 196:5 thermal (4) 35:4,6 40:20 41:15 thermally (1) 23:4 thermapitch (1) 183:5 thermopitch (1) 181:4 thermoplastic (2) 19:8 190:5 thesic (1) 119:11 theyd (6) 21:11,24 25:5,6 58:1 193:1 theyre (18) 11:12 18:9 21:13,14,15 58:14,16 59:11 63:11 101:5 102:1 106:8,11 129:18 144:18 151:5 187:20 190:25 theyve (7) 21:15 30:18 84:24 102:3 107:8 150:20,20 thick (1) 182:2 thickness (4) 41:16 107:21,24,25 thicknesses (2) 76:4 108:10 thin (1) 18:22 thing (5) 14:21 58:22 104:14 105:20 184:25 thinking (9) 67:1 78:17 85:10 145:2,2,3,5 148:9 175:25 thinks (1) 193:10 thinner (1) 176:17 third (1) 66:14 thirds (1) 94:2 though (6) 57:23 58:5 88:24 120:19 126:11 182:16 thought (18) 27:6 49:2 77:1 109:19,25 110:9 134:3,14 142:18 143:20 144:1 151:1,7 157:2 166:17 175:3 176:6 178:21 thoughts (1) 81:19 thread (1) 127:24 three (6) 36:1 59:13 60:21 94:3 117:5 190:10 through (25) 4:7,23 7:21,23,24 9:24 37:19,20 39:4 72:1 75:15 86:19 88:1 112:24 113:13,16,18 122:23 129:9 151:3,10 152:14 175:4 180:23 195:22 throughout (1) 149:14 throw (1) 102:21 throws (1) 16:6 thursday (1) 1:1 tidy (1) 5:17 tight (5) 104:7 113:1,14
---	--	---	---	--	--	---

114:1,17	transcript (3) 91:11	unseen (3) 45:8 58:12	wall (28) 8:17 10:16	53:20 61:9 65:15	73:25 78:21 98:20	youll (4) 102:22 120:12
tighter (1) 64:24	156:10 159:13	151:15	37:17 46:22 48:20	67:15 68:19 74:21	109:13 123:7,15 134:9	128:18 193:21
tightly (4) 52:25	translated (2) 62:4	until (4) 26:24 124:19	49:1 53:17 63:11	75:22 92:2 101:9,16	157:23 161:15 162:22	youre (52) 5:5 26:9
60:9,10,16	143:19	161:18 197:7	66:16,19,23 85:13	108:22 110:17,18	185:5 193:14,20,24	30:16,17,23,23,25
time (67) 18:21 21:18	translating (2) 57:2	upgrade (1) 128:19	95:15 97:3 115:21	125:17,20,21 127:11	194:7	42:14 44:18 62:18
25:2 33:4,24 38:16	111:3	upgraded (1) 128:8	116:9 119:6 124:10	128:22 133:4 140:22	196:14,17,20,21,25	71:15 75:1 78:6 82:4
39:3,8 40:2,20,25	transpose (1) 47:11	upgrading (1) 128:14	132:3,20 156:9	143:9,21 146:19	wonder (3) 74:18	89:9,13 99:3 106:3
45:5,23 47:17 59:4	transposed (1) 20:11	upon (4) 5:14 87:18	174:4,8,15 175:21	149:25 152:23 170:21	117:18 122:22	107:10 111:16 112:12
64:7 67:18 73:13 74:2	transposing (1) 69:10	90:12 162:17	180:16 184:22 192:19	171:7 177:16 195:22	wont (1) 53:2	113:25 115:13
78:16 79:9 81:13	travel (1) 70:25	upper (1) 89:24	walling (1) 100:14	whatever (2) 76:7	wool (12) 40:14,19	116:22,25 118:11
82:9,16,21 83:6,9	tried (1) 178:7	upstand (2) 139:8 141:4	walls (12) 78:7 96:21	165:13	42:24 43:3,5 55:10	120:14 121:6 123:5,24
84:14 85:6,10,11,11	trim (1) 16:1	used (42) 17:23 18:4,19	117:21 122:14,14	whats (7) 55:17 73:6	104:24 107:17	127:5 135:24 136:6,12
89:18 90:12 95:17	trimmed (1) 70:2	20:18 22:5 23:10	129:5 157:1,3,18,20	114:19 126:4 149:13	108:14,19 145:21	140:1 144:22
97:15 117:4,6 121:10	true (1) 84:10	25:4,5 26:4 29:2,5,18	158:17 190:18	169:23 190:19	153:18	147:12,18 152:20
130:18 133:12	try (4) 2:9 106:4 129:23	32:23 34:2,16	walltype (1) 47:8	whilst (1) 18:15	work (16) 24:10 27:3,24	154:8 163:18 164:21
134:13,20	151:24	38:12,18 40:14,18,22	wanting (1) 74:2	whoever (2) 21:25	45:2 47:17,19 52:13	165:4 168:1 171:22
138:15,19,20 140:5,13	trying (14) 39:12 85:3	41:24 42:7,8,20	warm (1) 183:6	169:22	71:1 98:6 123:24	174:23 180:11
141:24 142:21 145:8	89:2 98:14 106:3	104:24 167:13 168:6	warning (2) 46:1 190:15	whole (12) 5:13 20:3	143:15 146:3 149:2	181:21,23 185:14,23
149:25 157:13 159:1	135:16 139:3,12,13,21	169:24 170:13 172:14	warnings (2) 188:10	25:10 75:25 110:22	153:23 159:15,19	196:18
161:11,23 166:13	140:10 147:25 173:14	173:12,20 174:21	191:14	111:10 120:18 122:9	worked (3) 2:3 71:6	yourself (13) 4:7 20:10
168:4 175:4 179:19	185:18	175:12 176:23 178:21	warns (1) 188:14	155:25 156:8	159:11	57:6 138:9 153:23
180:1,20 185:2	turn (29) 2:14 3:7 4:24	182:20 188:22,23	wasnt (60) 14:19	190:19,23	working (11) 13:7	163:19,21 165:25
186:11,23 193:11	5:25 6:10 8:10,25 9:24	189:7 192:2 193:1	16:16,18 18:25 25:12	whose (1) 41:25	18:6,15 25:1,23 33:4	166:1,13 171:15
196:16	11:6 17:11 19:20 26:9	useful (2) 134:5 196:12	29:8 36:25 38:1 39:8	wiconia (1) 170:6	38:17 141:24 154:4	180:21 185:14
timecritical (1) 97:13	27:12 30:13 52:15	ushape (1) 114:5	40:1,5 42:1 44:3 49:20	width (1) 60:6	163:14,19	youve (38) 2:18 8:12
times (8) 14:10 19:24	68:7 71:8 75:12 77:18	using (15) 33:9 37:12	50:17,25 52:9 56:19	window (101) 1:19,20	workshops (1) 32:8	10:18 13:22,24 14:24
26:18 41:7 52:2 79:1	84:3 87:24 92:1 93:10	44:15,16 70:9 76:7	58:1 64:9,11 67:4,25	6:1 14:13 15:20	world (1) 114:8	26:20 35:21 42:20,20
73:21 193:2	96:6 115:8 156:10	83:1 95:4	71:4 75:6 76:18 77:16	16:5,11 41:8 46:14	worried (3) 107:10	52:7 57:15 58:5,10
tiny (1) 184:16	159:13 160:1 161:16	167:10,19,21 180:15	82:9,14,19 83:8 84:16	47:10,12 48:13	108:12 146:6	60:8 73:24 76:1,9
today (2) 1:4 121:9	turning (4) 28:10 68:9	181:18 183:6 189:2	86:3 90:9 94:17 97:3	53:5,9,10,12,14,24,25	worry (3) 6:15 50:3	79:19 94:8 95:11 99:4
today's (1) 1:4	89:13 130:1	usual (1) 62:17	102:17 112:21 122:17	54:7,11,18,18,24	175:2	103:12 105:14
together (7) 23:12	type (9) 16:16 19:7	usually (2) 189:13,15	125:6,8 127:4 128:16	55:2,4,22 59:6,24	worsening (1) 103:20	109:1,14 111:22
25:24 27:22 28:13,15	23:10 43:16 55:6	uvalue (1) 169:10	130:6 139:11 144:13	60:5,17 64:17 67:7,21	worth (1) 16:21	113:2,6 116:3,21
134:8 184:5	64:19 83:20 85:20		154:11 162:13,13	68:16 69:7 88:10,18	wouldnt (35) 14:22	133:3 153:19 154:13
told (37) 20:18,19,23	169:5	V	165:18 169:17 172:17	91:15 98:6	16:22 27:6 31:16	156:14 159:10 178:20
24:20 25:5,6 26:2 28:6	types (5) 37:1 95:7	vague (2) 84:2 85:15	174:10,24 176:2,24	101:17,18,23	37:24 40:10,22 42:11	186:20
33:8 34:22,25 38:23	188:15 189:25 191:15	vaguely (1) 127:22	182:20 189:2 191:16	102:2,3,6,12,16,17,21,22	56:23 60:24 61:15	
39:23 42:11 44:21	typical (7) 51:25 52:20	variations (1) 111:9	195:2	103:2,4,10 104:7,9,18	73:14 74:11,11 76:20	Z
50:1,3,5 57:9,15 64:13	95:25 98:16 162:25	varied (1) 90:3	way (24) 2:3 29:19 30:9	105:1,14 106:23	77:4 82:18 96:3 98:3	zinc (1) 62:5
67:14 68:5 70:8 156:5	167:14 177:25	various (1) 51:10	48:20 50:1,11,18	109:19 111:7 113:7	104:10 105:23 106:4	zone (9) 40:22 61:1
159:10,23 167:9,19,21	typically (1) 189:9	vary (2) 71:21 98:18	56:22 58:23,25 64:5	114:16 126:13 129:6,9	107:4 114:4 126:21	81:22,23 112:5 114:23
168:3,20 175:5		vast (1) 49:2	101:6 102:19 105:20	137:12,16 139:6	127:10 134:6 136:9,13	122:5 151:16 161:21
182:12,13 187:5	U	ventilated (1) 70:1	106:14 133:17	140:23 141:3,6,14,18	144:16 147:2 152:16	zones (2) 59:21 82:3
191:19	ultimate (1) 8:3	verbally (2) 20:19,21	134:6,17 136:9 139:24	142:9,11 143:13	157:20 176:5 195:10	zoom (4) 52:20 63:20
tolerance (1) 16:6	ultimately (1) 1:22	version (11) 4:6 25:25	143:7 180:18 184:18	145:12 146:20 147:15	wrapped (1) 174:23	64:16 111:21
tolerancing (1) 16:3	unclear (2) 39:18 41:23	52:16 63:6 164:23	195:13	148:14 152:24,25	wriggly (1) 42:21	zsection (1) 146:10
too (4) 105:21,24	underneath (1) 112:14	177:13,15,23 178:23	ways (1) 45:2	153:8,20 155:12	write (1) 8:15	
143:21,24	understand (15) 18:3	194:25 195:1	weak (17) 137:7 138:17	158:20 160:14,18	writing (1) 11:14	0
took (1) 58:10	22:19 28:25 31:23	versus (2) 77:11 156:2	139:3,17,19 140:7,9	161:1,7 167:4,13	written (2) 20:20 37:13	
topic (9) 13:11 17:11	57:6 64:2 65:7,21	vertical (21) 52:24	141:21	170:12,19 171:10,16	wrong (6) 3:9 5:2 44:9	
62:7 93:1 122:24	71:10 135:16 139:12	59:14 60:8,10,15	142:5,6,7,17,22 143:4	172:9 184:5 192:8	133:3 170:3 172:11	
130:19 167:4,5 185:24	147:17 173:11 176:21	67:5,15 69:23 72:16	148:4,10,25	windows (55) 16:7 23:5		
torch (1) 86:18	177:9	73:4 74:22 94:2 95:8	weakness (1) 46:5	50:12,16,20 51:7	X	
total (1) 196:5	understanding (16) 8:8	96:16,20,25 117:17,23	wed (6) 59:12 70:8	58:7,21,24		
totally (2) 8:1 16:12	39:20 45:12 48:10	118:15 151:10 156:8	76:21 96:4 127:25	59:10,12,17 60:19	x (1) 189:7	
touch (1) 132:7	64:9,11 66:8 70:21	vertically (1) 66:25	148:13	61:6,21 64:8 65:5,9	xmas (1) 90:4	
touched (2) 13:12 17:14	71:1 73:12 82:13	via (2) 62:2 179:9	week (2) 89:1 98:17	68:3 72:17 73:9,19,20	xps (1) 186:13	
towards (1) 14:6	83:19 128:14 148:9	virtually (1) 44:11	weeks (1) 86:16	74:15 89:3,24		
tower (7) 11:17	168:14 175:2	virtue (3) 12:9 61:9	welcome (1) 1:3	99:9,13,19	Y	
26:13,16 30:20 34:17	understood (7) 18:24	148:17	went (11) 12:14 20:6	101:3,5,8,13		
121:11 122:18	24:23 35:7 48:11	visual (1) 102:2	75:15 112:24 113:12	108:13,17 120:5	yeah (6) 41:22 42:15	
toxic (2) 181:14 190:6	112:4 129:24 133:12	void (5) 93:22	125:5 154:20 168:23	125:12,16 129:11	56:9 100:3 119:21	
tp10 (19) 173:2,8,15,19	undertake (1) 179:3	94:13,15,18 95:11	171:12 175:4 179:2	145:10 153:24 154:3	131:3	
176:19 177:5	undeveloped (1) 78:18	voids (2) 59:13 60:20	werent (20) 17:3 42:9	155:6 156:17,24	year (2) 21:23 39:16	
178:7,15,20,23	unhappy (3) 16:23	vu (1) 156:20	59:8,9 62:4 66:9 74:9	157:10,15 158:1	years (9) 24:7 173:13,21	
179:4,11 181:4,20,23	38:22 39:25		77:13 83:22 84:19	163:2,3 169:3	175:5 179:6,8 182:14	
182:17,24 183:6	unimportant (1) 34:1	W	88:24 91:8 112:5	170:6,7,20,24	183:20 193:2	
194:15	uninhabited (1) 166:11	wait (3) 12:19 27:3	124:23 149:10 181:18	wish (1) 121:21	yesterday (8) 1:18 3:14	
trading (1) 186:11	unique (1) 190:2	180:21	185:16 188:14,18	withdrew (1) 196:21	12:6 13:12 79:6	
trail (4) 84:17 120:12	unit (1) 169:3	waiting (6) 73:15	192:12	witness (33) 1:9,11	83:2,18 128:7	
129:22 138:12	unless (3) 82:14 96:4	136:16,21 143:8,12,14	weve (41) 6:1,5,6 7:12	13:21 14:4 17:17	yet (1) 9:2	
trails (2) 51:10 56:13	unsatisfactory (1) 151:8	walkway (1) 69:4	8:7 11:25 17:14 27:17	35:19 36:8 38:8 51:14	youd (7) 7:23 13:18	
train (1) 148:25			32:25 39:13 50:2 52:1	62:19 63:2 68:8 69:19	20:14 94:23 99:9	
					120:19 178:21	

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