## OPUS 2 INTERNATIONAL

Grenfell Tower Inquiry

Day 27

July 27, 2020

Opus 2 International - Official Court Reporters

Phone: +44 (0)20 3008 5900

Email: transcripts@opus2.com

Website: https://www.opus2.com

1	Monday, 27 July 2020	1	A.	That is, yes.
2	(10.00 am)	2	Q.	Great. Are the contents true to the best of your
3	SIR MARTIN MOORE-BICK: Good morning, everyone. Welcome to	3		knowledge?
4	today's hearing.	4	A.	Yes, they are.
5	Today we're going to hear evidence from another	5	Q.	If we just pick up that error now, so going back to your
6	former employee of Rydon who was engaged on the	6		first statement, {RYD00094213/14}, the error you're
7	Grenfell Tower refurbishment.	7		correcting, I think, is at 61.7 of that paragraph. The
8	I think that's right, isn't it, Ms Grange?	8		date there, 5 May 2018, you say should read 5 May 2016;
9	MS GRANGE: Yes. Mr Hughes.	9		is that correct?
10	SIR MARTIN MOORE-BICK: Could you see if Mr Hughes is there,	10	A.	That is correct, yes.
11	please.	11	Q.	Great, thank you for that.
12	MR DAVID HUGHES (affirmed)	12		I want to start with some questions about your
13	SIR MARTIN MOORE-BICK: Thank you very much, Mr Hughes. Sit	13		background and experience.
14	down, make yourself comfortable. All right?	14		At paragraph 2 of your main statement
15	THE WITNESS: Yes, thank you.	15		{RYD00094213/1} you say you started work for the Rydon
16	SIR MARTIN MOORE-BICK: Good.	16		Group over 20 years ago as a site engineer's assistant.
17	Yes, Ms Grange.	17		Is that right?
18	Questions from COUNSEL TO THE INQUIRY	18	A.	Yes, that's correct.
19	MS GRANGE: Good morning, Mr Hughes. Thank you very much	19	Q.	You also say you started working full-time at Rydon in
20	for coming to give evidence today, it's very much	20		November 2001 after getting a degree in civil
21	appreciated.	21		engineering from Plymouth University. Is that correct?
22	Can you give the Inquiry your full name.	22	A.	Yes.
23	A. David Alan Hughes.	23	Q.	Great.
24	Q. So I'm going to be asking you the questions today. If	24	•	Did that degree include any aspects of fire safety?
25	you have any difficulty understanding anything I'm	25	A.	Not to my recollection, no.
	1			3
1		4		
1	asking you, please either ask me to repeat the question	1	Q.	Okay.
2	or put it in a different way.	2		Then at paragraph 5 of your main statement, if we
3	Also, if you feel that you need a break at any	3		can pull that up, you list out there a number of
4	point, please just let us know.	4		relevant training courses and relevant certifications
5	Also, can you try and keep your voice up, because	5		that you hold relating to your site-based role.
6	the transcriber is there to your right, and she is	6		If we can look over the page {RYD00094213/2} at
7	taking down all your transcript.	7		those, we have a list of those; so, for example, site
8	A. Okay.	8		management safety training scheme, temporary works
9	Q. You have made two witness statements to the Inquiry.	9		co-ordinator, construction plant competence scheme, we
10	They're in a folder on the desk in front of you, and I'm	10		see those set out there.
11	going to bring them up on the screen. This is	11		Yes.
12	[RYD00094213]. So this is your first witness statement.	12	Q.	Just thinking back, would any of those courses have
13	It's dated, if we go to page 27 {RYD00094213/27}, we can	13		covered the functional requirements of the
14	see there, 26 September 2018.	14		Building Regulations?
15	Is that your signature there?	15		No.
16	A. That is, yes.	16	Q.	•
17	Q. Are the contents true to the best of your knowledge?	17		Now, if we can go to paragraph 4 of your witness
18	A. Yes, they are.	18		statement, just back a page {RYD00094213/1}, we see
19	Q. Thank you.	19		there that you say:
20	You have made a second statement, if we can pull	20		"I ran my first project from pre-commencement stage
21	that up now, that's at {RYD00094349}. We see it's	21		through to handover as a site manager in 2009. I have
22	a short second statement dated 5 September 2019. You	22		worked on a number of occupied refurbishment projects as
23	submitted this in order to correct an error in your	23		either the main site manager or managing a section of
24	first statement.	24		works reporting to a project manager. I have worked on
25	Again, is that your signature there?	25		projects with cladding before, albeit not of the size of

- 1 Grenfell Tower. I have managed an occupied
- 2 refurbishment project of an 11 storey tower in Worthing,
- 3 but this did not have any aluminium cladding."
- 4 Do you see that there?
- 5 A. Yes.
- 6 Q. Just to ask you a few more questions about this: was the
- 7 Grenfell Tower project the biggest project you had
- 8 worked on at that time in terms of a refurbishment
- 9 project?
- 10 A. No, I worked on one -- one of the early ones I worked on
- 11 was about a £20 million refurbishment of a huge estate
- 12 where I did a lot of work on externals of blocks, but
- 13 they were generally brick-clad blocks, masonry blocks.
- 14
- 15 You talk there about some projects with cladding
- 16 which you worked on before.
- 17 A. Yeah.
- 18 Approximately how many projects had you worked on
- 19 involving overcladding?
- 20 A. One really where I came in contact with aluminium
- 21 cladding would be one in Clapham, but I didn't do the
- 22 outside of the building. So I was aware of it, but
- 23 I was doing the internals, so I worked on the internals
- 24 of a number of flats there.
- 25 Was that the Chalcots Estate?

- 1 A. No, I never worked on Chalcots.
- 2 Q. No, okay.
- 3 Sorry, carry on, so there was that one --
- 4 A. There was also another one where I did a small bit of
- 5 aluminium cladding on a ground-floor nursery, but I had
- 6 not done anything sort of high-rise cladding.
- 7 Q. So does it follow that you hadn't done any cladding for
- 8 buildings over 18 metres?
- 9 A. That's true.
- 10 Q. Yes.
- 11 You said you had done a low-rise aluminium cladding;
- 12 can you remember what the cladding comprised of?
- 13 A. It was aluminium and behind it was Kooltherm K15
- 14 insulation, but it was for a ground-floor nursery.
- 15 Q. Was it a solid aluminium panel or do you know whether --
- 16 A. I believe it was solid, yes.
- 17 Q. Okay.
- 18 Do you recall whether, on any of the projects you
- 19 worked on previously, fire safety advice was sought in
- 20 relation to the project?
- 21 A. On the ones I managed, no, I don't remember. I couldn't
- 22 tell you on the ones where I wasn't project manager.
- 23 That wouldn't have been my role.
- 24 Q. On any of the projects that had involved cladding, were
- 25 you aware that any cavity barriers had been installed

- 1 for any of those buildings?
- 2 A. I remember cavity barriers being installed on the one
- 3 where I was on the internals, but I don't remember on
- 4 the ground-floor nursery.
- 5 But if you were on internals, that was not something --
- 6 A. Yeah, it wasn't something I was managing at the time, it
- 7 was something I remember seeing on the building, but
- 8 I wouldn't personally be managing the subcontractor
- 9 putting them on.
- 10 Q. So was Grenfell the first project you were involved in
- 11 where you had to be looking at cavity barriers in
- 12 a serious way?
- 13 A. In respect of the cladding, yes.
- 14 Q.
- 15 A. But I'm aware of cavity barriers behind masonry in terms
- 16 of compartmentation behind brickwork.
- 17 Q. You talked there about the 11-storey tower in Worthing
- 18 and you say it didn't have any aluminium cladding. Just
  - to be clear, did the project involve any overcladding at
- 20

3

6

- 21 A. No, no overcladding at all, it was repointing of the
- 22 masonry brickwork.
- 23 Q. Right.
- 24 Just turning to your role on the Grenfell project,
- 25 you describe your role as a site manager. That's at

- 1 paragraph 22 of your witness statement. Can we just
- 2 look at that. That's at {RYD00094213/5}. You say
- 4 "My personal involvement in the project was as a
- 5 Site Manager. Stephen Blake (Steve Blake), the
  - refurbishment director, spoke to me on Monday
- 7 19th October 2015 and asked me to help out at the Tower
- 8 from the next day. I was asked to manage the completion
- 9 and handover of the cladding and communal M&E
- 10
- (Mechanical & Electrical ) systems and generally help out 11
  - where I thought it was needed."
- 12 Do you see that there?
- 13 A. Yes.
- 14 Can you help us, just in general terms, what did
- 15 managing the completion and handover of the cladding
- 16 actually involve?
- 17 A. Well, the cladding, when I went up there, was already
- 18 well under progress, so it would have been finishing off
- 19 the insulation -- well, finishing off the works,
- 20 basically, to the satisfaction of the people who needed 21 to see it.
- 22 Q. Yes.
- 23 Then you also say that you were asked to "generally 24 help out where I thought it was needed".
- 25 Again, can you just expand on what that involved.

- 1 A. Well, essentially it ended up being: I looked after the
- 2 ground-floor entrance lobby, so I managed the works
- 3 completing that, and I ended up essentially taking over
- 4 Simon O'Connor's role, but that wasn't what was agreed
- 5 with me at the time. But I saw that one of the things
- 6 that was needed was, well, interaction with the client,
- 7 so I became the main client go-to.
- 8 Q. You say there that wasn't what was agreed with you at
- 9 the time.
- 10 A. No.
- 11 Q. When you talk about "at the time", do you mean at the
- 12 time you first started on the project?
- 13 A. Yes, that's it, yeah.
- 14 Q. So was it up to you to identify where your help was
- 15 needed or was that something you were told?
- $16\,$  A. It was partly up to me. As I say, Steve said to me, "Go
- up there and help out where needed", so it was ... yeah.
- 18 Q. Did anyone at Rydon tell you that there were specific
- issues that required your help, and if so, what were
- 20 those?
- 21 A. I don't remember specifically, no, but as I said,
- I originally got sent up there, Steve told me I would be
- looking after the cladding and I would be helping manage
- the M&E systems as well.
- 25 Q. Did you ever get a written job description?

- $1\,$   $\,$  A. Not for going up there, no, but I know what my job
- 2 entails.
- 3 Q. Yes.
- ${\bf 4} \hspace{1cm} \hbox{On the other projects you have worked for with} \\$
- 5 Rydon, had you ever had a written job description?
- 6 A. No, but it's part of our group procedures, is
- $7 \hspace{1cm} \text{I understand what a site } \text{manager entails or what the job}$
- 8 entails
- $9\,$   $\,$  Q. When you say part of your group procedures, does that
- 10 mean that somewhere there is a written document
- $11 \hspace{1.5cm} \text{explaining exactly what a site manager does and doesn't} \\$
- 12 do?
- 13 A. Yes, yeah, what a site manager does.
- 14 Q. Yes, okay.
- 15 A. So that is my job description as far as I'm concerned.
- $16\,$  Q. And you read that before you started on the Grenfell
- 17 project?
- 18 A. I've read it, yes.
- 19  $\,$  Q.  $\,$  If  $\,$  we can turn to  $\,$  some minutes, this  $\,$  is  $\,$  {RYD00060234},  $\,$
- $20 \hspace{1cm} \text{these are minutes for the progress meeting number } 17 \\$
- 21 that took place on 17 November 2015 which you attended.
- 22 A. Yes.
- 23 Q. Yes, we can see your name five lines down there.
- 24 On page 3 {RYD00060234/3}, at the top of the page,
- at item 2.9, we see there it says:

- 1 "Item 3.4: Rydon Management Team Action ..."
- 2 Then it says "SB" -- is that Steve Blake?
- 3 A. That is, yes.
- 4 Q. "... to publish revised Rydon on-site Management
- 5 Structure. SB noted that David Hughes' role had
  - expanded to pick up anything not covered by the other
- 7 site managers."
- 8 Do you see that there?
- 9 A. Yes, I do.

6

- 10 Q. So at this point on the project -- so this is
- November 2015 -- what was envisaged in terms of the
- 12 expansion of your role?
- 13 A. Essentially you would say that I took over the
- 14 number one site manager role.
- 15 Q. Right, yes.
- 16 A. So I was the head of the team.
- 17 Q. Were you more experienced than the other site managers?
- 18 A. I believe I was, yes.
- 19 Q. And more senior to them within Rydon?
- 20 A. Not in terms of job title, no. They were all site
- 21 managers; I was site manager as well.
- 22 Q. I see.
- 23 A. But I have managed other site managers on jobs
- 24 previously. So the one at Worthing I had a site manager
- and a site assistant reporting to me.

11

- 1 Q. Yes.
- What did you understand when you joined the project
- 3 about Rydon's contractual obligations on the Grenfell
- 4 project? Were you given any information about that?
- 5 A. No, but one of the first things I did when I went up
- 6 there was to read the specification and to try and read
- 7 as much of the paperwork as I could do.
- 8 Q. Okay. So when you say read the specification, was that
- 9 the NBS specification?
- $10 \quad A. \quad Yes. \quad Normally \ on \ most jobs \ I \ 've \ worked \ on \ they're$ 
  - called ERs, or employer's requirements, but on this job
- they were called the NBS spec.
- 13 Q. Yes. Yes.

11

- And did you read any other parts of the contract?
- 15 A. In terms of the actual contract documents, I don't
- remember reading them specifically, but I wouldn't be
- interested in that; I was interested in what the
- 18 specification was.
- 19 Q. But just to be clear, you didn't have a briefing from
- anybody, anyone senior to you, about what the scope of
- 21 the contract was?
- 22 A. Well, the scope of the contract was to deliver the
- 23 specification.
- 24 Q. Right, I see, yes.
- Now, we've been provided with the contract documents

1 by Rydon, and I want to ask you some key questions about 2 in general what you knew.

3 Were you aware of Rydon's responsibility for design 4 on the project --

- 5 A. Yes, I was.
- 6 Q. -- as well as for the construction? You were.

7 Were you aware that it was Rydon's obligation to 8 complete the works in a proper and workmanlike manner

- 9 and in accordance with good building practice?
- 10 A. Yes, it is on all contracts.
- 11 Were you also aware that Rydon was to complete the works
- 12 in compliance with the contract documents and other
- 13 statutory requirements, including the
- 14 **Building Regulations?**
- 15 A. Yes.
- 16 Q. Would you have taken that to have included complying 17 with British and European standards, where appropriate,
- 18 or appropriate codes of practice?
- 19 A. If it's specified in the specification, then yes.
- 20 Q. Now, there is just one clause I want to take you to, and 21 it will become evident later why we want to look at this
- 22 now.
- 23 If we can pull up the contract, this is 24 {RYD00094235/64}. So this is the JCT design and build
- 25 contract. If we could just blow up the top of that,

13

- 1 I want to look at clause 2.2.2, so that's the second 2 paragraph, the one below the one that's struck out. Do
- 3 you see that there?
- 4 A. Yes.

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

5 Q. If we just read that, it says:

> "The Contractor shall not make any substitution for any materials goods or workmanship specified or described in the Employer's Requirements or (if not specified or described in the Employer's Requirements) as set out in the Contractor's Proposals or in the specifications revised and returned to the Contractor by the Employer in accordance with the Contractor's Design Submission Procedure set out in Schedule 1 without the prior consent (not to be unreasonably withheld or delayed) in writing of the Employer."

That's a slightly long clause, but the key point there is: were you aware that the contractor was not to be making any substitution of materials from that showed in the specification in the employer's requirements without the prior consent in writing of the employer?

- 21 A. I've not read the JCT contract, but I am, well, aware of 22 the principle, yes, we are contracted to do what was in 23 the specification.
- 24 Q. But were you aware that if you were going to change 25 anything in that specification, say any materials that

14

- 1 had been specified, were you aware that then there was 2 a need to get the prior consent of the employer?
- 3 A. No.
- 4 Q. No.

5 Were you also aware in general that Rydon was fully 6 responsible for the design of the works, including the 7 co-ordination and integration of the designs and the 8 interface between different design elements?

- 9 A. Yes, because we were the main contractor.
- 10 Q. Yes.
- 11 So I think it does follow from your answers, but do
- 12 you agree that, in order to ensure that the work
- 13 complied with the Building Regulations, someone at Rydon
- 14 would have to analyse the specification, which formed 15
- part of the employer's requirements, together with the
- 16 drawings provided by the architect?
- 17 A. Yes, yeah.

22

- 18 Q. Now, were you aware of someone in Rydon analysing the 19 specification during the project and checking compliance
- 20 with the Building Regulations?
- 21 Not with Rydons, but I always understood -- my
  - experience of design and build is that we then
- 23 subcontract the designs part out to the architect and
- 24 the other specialist designers.
- 25 So take the cladding, who did you think at the time was

15

- 1 responsible for making sure that --
- 2 A. I thought Harleys were responsible for the cladding, but
- 3 I also knew that Studio E were the lead designer, so
- 4 they had a sort of overarching role at the top of the
- 5 design.
- 6 Q. But to your knowledge, nobody else within Rydon was
- 7 checking that the designs were compliant with the
- 8 **Building Regulations?**
- 9 A. Not like that, no.
- 10 Q. No.
- 11 When you were reading the NBS specification -- you
- 12 said that you went to site and you found a copy of it
- 13 and had a look at it -- what was the purpose for which
- 14 you were reading it?
- 15 To understand what we were down to build. My job is to
- 16 understand the plans and specification and deliver that
- 17 to the client.
- 18 Q. Yes. Were you also looking at the standards that --
- 19 A. I don't necessarily read every word of it. I try and
- 20 take out what I need to know. So I was -- I'm aware
- 21 that -- well, aware that every job we're trying to do is
- 22 to a good standard.
- 23 Q. But if there was a specific standard that was specified,
- 24 for example for the external works which you were
- 25 responsible for site managing, would you ever go and

Q. I see. We will come on and look at your interactions 2 2 A. Further documentation, no. with Building Control when they visited the site, but 3 3 Q. Now, as we've just discussed, Rydon was under a duty to just to be clear, you didn't think it was part of your 4 4 ensure that the works were carried out in compliance role to be providing construction stage information to 5 with the contract documents, which included the 5 6 6 employer's requirements. I just want to look at some of A. No, that's not true. If they asked for stuff, I would 7 7 the other project particulars which form part of the provide it. But generally, to start with, it's the 8 8 contract. architect who provide the drawings. But if I'm asked 9 9 Can we go to {TMO10041791/86}. So these were the for something, I will try and provide -- do my best to 10 10 project particulars which formed part of the contract provide it for them. 11 between Rydon and the TMO. Do you ever remember looking 11 Q. Yes. 12 at these during the time you were the site manager? 12 Now, if we go on to page 135 {TMO10041791/135} 13 A. As I said, I read it, but I would be looking for things 13 within this document, in the bottom half of the page 14 14 specific to my job, so more the materials and everything there you see a clause 170A, which is headed 15 else. Particulars is -- as I say, they are general 15 "Manufacturer's recommendations/instructions". Do you 16 16 stuff, so it wouldn't be something I would particularly see that there? 17 be looking at in detail. 17 A. Yes, I do. 18 Q. Yes, I understand. 18 Q. It says: 19 19 Can I just take you to, I think, three references "General: Comply with manufacturer's printed 20 within this, just to ask you about whether you were 20 recommendations and instructions current on the date of 21 aware of the general points that were being made in 21 the invitation to tender." 22 22 these documents. Do you see that there? 23 23 Can we go on and look at page 128 {TMO10041791/128}. A. Yes, I do. 24 This is under "A32 Management of the Works", and we see 24 Q. You can see at the end it says: 25 25 at the top of the page under clause 110 it says "Agreement certified products: Comply with 17 1 1 "Supervision" and it says there: limitations recommendations and requirements of relevant 2 2 "General: Accept responsibility for coordination, valid certificates." 3 supervision and administration of the Works, including 3 Do you see that there --4 subcontracts." 4 A. Yes 5 Do you see that there? 5 Q. -- as well? 6 6 A. Yes. Now, in general, was it part of your role to check 7 7 Q. Was that your understanding when you worked on the whether the manufacturer's recommendations and 8 8 project, that that was Rydon's responsibility? instructions had been complied with on site? 9 A. Yes, that pretty much sums up my sort of job title as 9 A. Yes, in some respects, yes, it is. 10 well, that's -- the site manager, that's what I do. 10 Q. Yes. So you might see it as part of your role to check 11 11 Q. Yes, thanks, that's helpful. what the manufacturer's recommendations were, say for 12 Moving down the page, towards the bottom, we see 12 the installation of a particular product? 13 a heading there, "Building Control". It says there: 13 A. Yes. Sometimes, if necessary, I will look at 14 "The Contractor will be responsible for providing 14 manufacturer's recommendations, yes, to make sure we're 15 additional Construction Stage information to Building 15 installing it correctly. 16 Control." 16 Q. Yes, and make sure it was installed as per those 17 Do you see that there? 17 recommendations. 18 A. Yes, I do. 18 A. Yes. 19 19 Was it in fact part of your role to be providing that Q. Yes. 20 construction stage information to Building Control in 20 Was that role something you also expected the clerk 21 21 practice? of works to be checking --22 A. In practice, no. Generally, from my experience, 22 A. Yes

> 18 20

23

24

25

later .

architects co-ordinate with Building Control, so they

of their package or design, that's what they do.

provide the drawings, that sort of -- we sort of -- part

23

24

25

1

have a look at that standard?

-- on this project? Yes. Again, I'm going to ask you

a little more about their role on the Grenfell project

- 1 So taking the cladding system as an example, did you 2 check the instructions, for example, for the
- 3 installation of the Celotex insulation?
- 4 A. I don't remember specifically checking it, but I do
- 5 remember reading the brochure at one point because one
- 6 of the first questions I asked was about whether or not
- 7 it needed silver tape, and I remember checking the sort
- 8 of product literature for that.
- 9 Q. Ah, okay. Great, yes. I'm going to come back and ask
- 10 you about that specific thing in due course.
- 11 A. Yes, I'm sorry.
- 12 So you did have recourse to look at the Celotex brochure
- 13 at that point?
- 14 A. I don't think it was the brochure, I don't remember
- 15 specifically looking -- there was a couple of bits on
- 16 our system or in our file folder and I went through
- 17 them.
- 18 Q. Yes.
- 19 What about the Siderise cavity barriers? Do you
- 20 remember ever checking the instructions for the
- 21 installation of those cavity barriers?
- 22 A. No, I don't remember that.
- 23 Q. Now, staying with this document, these project
- 24 particulars, if we go on to page 141 {TMO10041791/141}
- 25 of this document, about halfway down, we see at

- 1 paragraph 630 a heading "Quality control" and it states 2 there:
- 3 ·" Procedures: Establish and maintain to ensure that 4 the Works, including the work of subcontractors, comply 5 with specified requirements.
- 6 " Records: Maintain full records, keep copies on
- 7 site for inspection, and submit copies on request."
- 8 Do you see that there?
- 9 A. Yes.
- 10 Q. Then there is various items identified for then contents
- 11 of records below it, including, for example, the "Nature
- 12 and extent of nonconforming work found"; do you see that
- 13 there?
- 14 A. Yes.
- 15 Q. Was it any part of your role to ensure that records were
- 16 kept including the matters set out in this clause,
- 17 quality control records?
- 18 A. It would be part of that, but yeah, we have a quality
- 19 control sort of inspection regime at Rydons, essentially
- 20 called snagging.
- 21 Q. So the snagging process was the quality control process?
- 22 A. Yes.
- 23 Q. And it was just that, was it?
- 24 A. Yes
- 25 Q. Did Rydon have any written procedures in place to ensure

- 1 that these quality control obligations were complied
- 2
- 3 A. As I said, the -- well, it's in -- part of the
- 4 procedures is snagging procedures.
- 5 Q. Right.

- Can you help us as to how records were actually kept
- 7 on site where there had been quality control
- 8 inspections?
- 9 A. As I say, the snags I took were recorded and kept in,
- 10 well, the snagging folder on -- in the job folder.
- 11 Q. And hard copies kept on site?
- 12 A. I don't remember hard copies. As I say, I generally
- 13 scan a snag sheet and then will email it out to the
- 14 subcontractors as required.
- 15 Q. Yes.
- 16 Just touching on the point about maintaining and
- 17 ensuring that the works, including the work of
- 18 subcontractors, comply with specified requirements: who
- 19 within Rydon had responsibility for ensuring that the
- 20 roles and responsibilities of subcontractors were clear
- 21 and adhered to?
- 22 I would say we all have a role in doing that. That's
- 23 what we do: we manage subcontractors --
- 24 Q. Yes.
- 25 -- to do the work for us.

23

- 1 Q. Yes.
- 2 A. They have a responsibility for themselves to do the 3 works accordingly as well.
- 4 Q. So you saw that as part of your role as site manager?
- 5 A.
- 6 Q. I just want to ask you a couple of questions about what
- 7 others in Rydon have said about the role of site
- 8 manager.
- 9 A. Okay.
- 10 Q. So Gary Martin has said -- if we pull this up, this is 11
- {RYD00094216/2}. At paragraph 8 he says there:
- 12 "During my time on the project Simon O'Connor was
- 13 senior site manager and Simon Lawrence was contracts 14 manager. Both left during the project and Steve Blake
- 15 assumed the roles; Steve also brought in David Hughes as
- 16 site manager to oversee the project."
- 17 Do you see that there?
- 18 A. Yes, I do.
- 19 I think that chimes with an answer you gave earlier, but
- 20 was that how you saw your role, that you were overseeing
- 21 the project?
- 22 A. That's what my role became; it wasn't what I was told
- 23 when I went up there. So, as I said, possibly you could
- 24 say that one of the biggest holes that needed to be
- 25 filled was the number one role, and I assumed that role.

22

- $1\,$  Q. Did you feel when you got on to site that that number
- 2 one role hadn't been filled properly?
- 3 A. It became clear within a week or so. As I say, part of
- 4 what I've always done when I go on to a new site, I look
- 5 for drawings, documents, look at the programme and see
- 6 what the job entails, essentially.
- 7 O. Yes.
- 8 A. And, yeah, from sort of chatting to the other site
- 9 managers, they all had their roles and responsibilities ,
- and it also -- I don't know whether if it's just the way
- I am, but very soon I became the client go-between or go
- 12 to. Claire very quickly started coming to me and
- I guess that became my role.
- 14 O. Yes.
- Just a couple of points. Claire, that was Claire
- 16 Williams, was it?
- 17 A. Claire Williams, yes, sorry.
- 18 Q. From the TMO.
- 19 A. The client, yes. Claire, the client.
- $20\,$  Q. When you say it became clear -- I think you said within
- a couple of weeks or within a week or so it became
- 22 clear --
- 23 A. Yeah.
- 24 Q. -- precisely what was it that became clear to you?
- 25 A. Well, just that, yeah, there was a space to be filled or

- an overarching role at the top, so -- and I had
- 2 fulfilled that role before at Rydon's.
- 3 Q. So did you feel that the site managers that were on site
- 4 needed more direction and supervision?
- 5 A. No, they were aware of what they were doing, but they
  - had never been told to sort of run the site, and to
- 7 my -- I know Gary had run a site previously with another
- 8 manager underneath him. I wasn't sure that Jason had
- 9 done so. Also, although I had left Rydons and I said in
- $10 \hspace{1cm} \text{my thing I had come back to them, I had fulfilled} \hspace{0.2cm} \text{that}$
- 11 role previously.
- $12\,$   $\,$  Q.  $\,$  Yes. So you felt that someone was needed to "manage the
- 13 site "?
- 14 A. Yes.

6

- $15\,$  Q. Simon Lawrence has said in his witness statement -- if
- we can look at this, this is  $\{RYD00094220/8\}$ .
- Paragraph 44 starts at the bottom there, and he says:
- 18 "My role included regular visits to site to guide
- and support the Site delivery team (Project Manager,
- 20 Site Managers, etc). The Site Delivery Team is based on
- site and ensures the day-to-day works are managed safely

26

- and correctly to the design."
- Do you see that there?
- 24 A. Yes
- $25\,$  Q. So, again, would you agree that your role included

- 1 ensuring that the works were managed correctly to the
- design?
- 3 A. Yes.
- 4 Q. Yes.
- 5 A. Always does, as a site manager.
- 6 Q. You have confirmed it was part of your role to manage
- 7 the subcontractors.
- 8 A. Yes.
- $9\,$   $\,$  Q. We know that your remit included the  $\,$  exterior  $\,$  and the
- 10 cladding; that's correct, isn't it?
- 11 A. Yes.
- 12 Q. Does that mean it was your responsibility to be managing
- Harley once you got to site?
- 14 A. Depends what you consider managing. I don't manage
- Harleys; I supervise them on site and I help manage sort
- of the interaction they have with the other
- subcontractors, the residents as well, but I don't
- 18 manage Harleys.
- 19 Q. I see, yes.
- 20 Did you consider it any part of your supervision of
- Harley to ensure that the works that they were carrying
- 22 out complied with the Building Regulations?
- 23 A. Specifically I would say that they should know the
- 24 regulations, as specialist subcontractor, they should
- know them as well. I don't know them as well as they

2

- do, so I was making sure that their work was to a good
- 2 standard and the standard that had been, well,
- 3 accepted -- will be accepted by the client .
- 4 Q. I see.
- 5 A. Well, the client and Building Control and the clerk of
- 6 works.
- 7 Q. Yes.
- 8 So just coming on, then, to your knowledge of the
- 9 Building Regulations and associated guidance, we know
- that the contractual obligations of Rydon included
- ensuring compliance with the Building Regulations, and
- we know that your role included dealing with
- Building Control officers on site; that's correct, isn't
- 14 it?
- 15 A. Yes, and so did the other site managers' roles include
- 16 this.
- 17 Q. Yes, yes.
- 18 A. They would show the Building Control officer round their
- part of the works, or sometimes, if they're not around,
- I would show them around as well, but ...
- Q. How would you describe your knowledge at the time of theBuilding Regulations?
- 23 A. It comes from experience. It's something I've never
- been taught, so it comes from experience.
- 25 Q. Would you have known what the functional requirements

- were in the Building Regulations in schedule 1?
- 2 A. No.
- 3 Q. No. Do you know what --
- 4 A. Well, the functional requirements is to create a safe
- 5 building, is my understanding, so ...
- 6 Q. So if anyone had asked you broadly what the functional
- 7 requirements were that you had to comply with for the
- 8 Building Regulations, would you have been able to give
- 9 them an outline?
- 10 A. No, in terms of outline, no.
- 11 Q. At the time you were working on the project?
- 12 A. No. Yeah
- 13 Q. So does it follow that, within Rydon, you have not ever
- 14 attended any courses or training on the
- 15 Building Regulations?
- 16 A. No, not that I remember. They would always come up in
- certain sort of safety modules, but not in any great
- 18 detail.
- 19 Q. So you weren't familiar, for example, with part B4,
- 20 "External fire spread", of the Building Regulations?
- 21 A. No.
- 22 Q. Were you aware in general that there was a requirement
- 23 that the walls should adequately resist the spread of
- 24 fire?
- 25 A. In that terms, no, I was not aware. I would say nobody

- $1 \hspace{1cm} \text{should build an unsafe building, but in terms of} \\$
- 2 specifics, no, I wouldn't be able to give you the words.
- 3 Q. Yes.
- 4 Now, there's practical guidance which is issued to
- 5 help in the interpretation of the --
- 6 A. Yeah.
- 7 Q. -- Building Regulations by way of approved documents.
- 8 A. Yeah.
- 9 Q. Have you ever heard of the approved documents?
- 10 A. I have heard of --
- 11 Q. Have you ever read any of the approved documents?
- $12\,$   $\,$  A. The only one I remember reading is -- I think it's
- part M to do with disabled --
- 14 Q. Yes.
- 15 A. -- things. So, as I said, the first project I managed
- was eight disabled flats , so I was looking for some
- information to do with them at the time, so I read it .
- 18 Q. Yes.
- 19 A. But they wouldn't be the first documents I would go to.
- I would go to an NHBC book, which I think is a more
- 21 practical -- for my job is a more practical document,
- far more sort of descriptions and more measurements,
- descends into a bit more detail, which is what I'm
- 24 after
- 25 Q. So does it follow from your answers that you hadn't read

- and you weren't familiar with Approved Document B on
- 2 fire safety at the time you worked on the Grenfell
- 3 project?
- 4 A. At the time, no, I was not aware.
- 5 Q. Were you aware that there was, just in general terms,
- 6 special guidance for buildings above 18 metres?
- 7 A. At the time, no.
- 8 Q. So you weren't aware, for example, about guidance
- 9 surrounding the insulation and --
- 10 A. No, at the time I was not aware.
- 11 Q. So you weren't aware that there was particular fire
- performance that insulation over 18 metres was
- 13 recommended to achieve?
- 14 A. No.
- 15 Q. Had you ever heard of the phrase "class 0"?
- 16 A. Yes
- 17 Q. What did you think that meant?
- 18 A. I had heard of it in terms of paint finishes in communal
- 19 areas. I knew it was -- as I say, as far as I was
- 20 concerned it was fire resistance.
- 21 Q. Had you ever heard of class 0 in connection with
- a cladding system or a cladding panel?
- 23 A. No, but going back to reading the specification, I noted
- in it that the fire resistance, it said class 0, so  $\dots$
- 25 Q. When you say reading the specification --

31

- 1 A. Yeah.
- Q. -- do you mean the NBS specification?
- 3 A. The NBS, sorry, yes.
- 4 Q. Do you remember which part you were reading --
- 5 A. Specifically I think that was in the cladding section.
- 6 Q. Right, okay.
- Were you familiar at all or did you have any
- 8 knowledge about firestopping and cavity barriers?
- $9\,$  A. From my experience previously on site as and when it's
- 10 shown on the drawings.
- 11 Q. Had you ever looked at any specific guidance that helped
- you about, for example, where cavity barriers should be
- placed in an external wall?
- 14 A. Specifically, no, I don't remember looking at it, but to
- me they would always be shown on drawings.
- 16 Q. Yes. So you would rely on the drawings to show you
- where the barriers needed to be?
- 18 A. Where the cavity barriers should be.
- 19 Q. Were you aware that the guidance in ADB required cavity
- barriers to be provided around window openings?
- 21 A. No, I wasn't.
- 22 Q. Had you ever worked on a project before which had
- 23 involved cavity barriers around windows?
- 24 A. In masonry things, where you have a cavity construction
- with an outside or inside skin of brick, yes, cavity

30

barriers go round windows, and on timber frames, as 2 2 I said before, where they're shown on the drawings, I'll 3 3 4 4 Q. But if they're not shown on the drawings? 5 A. I didn't know, no. 5 6 6 Q. Okay. We'll come back to that in a moment. 7 7 So you weren't aware of the guidance in Approved 8 8 Document B or, for example, diagram 33 about cavity 9 9 barriers? 10 A. Not specifically, no, I was not aware. 10 11 Q. Were you aware of guidance suggesting that cavity 11 12 barriers had to be tightly fitted to a rigid 12 13 construction and mechanically fixed in position? 13 14 14 A. I would expect them always to be properly fixed. 15 15 Q. Yes. 16 So during your time on the project, were you aware 16 17 of any other industry guidance that provided commentary 17 18 on external wall constructions, including for buildings 18 19 19 above 18 metres? You said earlier that you might --20 20 A. As I said, NHBC guidelines. That's more of the document 21 I would go to, to fulfil my role and look at if there 21 22 22 was any sort of details or queries, that would be my 23 23 first port of call. 24 24 Q. Yes. 25 25 Do you have any recollection of reading any specific 33 1 guidance documents, industry guidance documents, about 1 2 2 the cladding when you worked on the Grenfell project? 3 3 A. No. 4 4 So, for example, would BR 135 mean anything to you? 0. 5 No, I never read that. 5 6 6 Q. No. Any BCA, Building Control Alliance, guidance? 7 7 A. No. 8 8 Q. Or what about the CWCT? 9 9 A. No. 10 Q. No. So nothing about cladding, curtain walling? 10 11 11 A. No, I didn't read any of those documents. 12 Had you heard of the phrase "limited combustibility" --12 13 A. No. 13 14 Q. -- at the time you worked on the project? 14 15 15 A. No. 16 16 Q. No, so that wouldn't mean anything to you? 17 A. No. 17 18 Q. Were you aware that industry guidance made it clear that 18 19 19 cavity barriers are required around windows? 20 A. No, I wasn't aware. 20

So just finishing this topic, you talk about this in

your statement, about what you would expect in terms of

compliance. Can we look at paragraph 21 of your

34

statement, {RYD00094213/5}. You say there:

"In terms of compliance with the building regulations from a site manager's point of view, when a drawing is issued to us through any of the design team, if it is a 'construction issue' drawing, then the works shown on the drawing should be compliant with the building regulations. The ongoing and completed works were the subject of inspection by the Royal Borough of Kensington and Chelsea Council ... Building Control surveyors, the two Clerks of Work employed by KCTMO ..."

A. Yes.

Q. We've got that there, yes.

Does that mean that you expect that any construction issue drawing would be compliant with all the relevant **Building Regulations?** 

A. Yes, that would ...

Q. You talked about the drawings that were approved for construction. In the case of the external wall was that Harley's drawings which had been stamped "Approved for construction"?

A. Yes, they were the drawings I was using for the cladding or I was looking at.

Q. Yes.

So did you ever think it was part of your role or anyone else's role within Rydon to be checking if a drawing was in fact compliant with the

35

**Building Regulations?** 

A. No, I would expect the designers to ensure that a drawing is correct and compliant. So, as I say, as I said at Grenfell, it was Harleys and it was the architect.

O. Yes.

A. Because Harley's drawings also came out of the sections or the big sections that the architects had.

Q. Yes.

Now, Simon Lawrence has said in his witness statement -- if we can just look at that, this is {RYD00094220/10}. I just want to look at paragraph 51. I just want to look at the very last sentence. It starts five lines up in that paragraph 51. He says:

"Although I have no expertise or qualifications as a designer, my experience as a construction manager meant that if I saw something that was obviously wrong then I would challenge that and I would have expected the rest of the Rydon team, and indeed all of those involved in managing the project, to do the same."

So I just want to check: was that your understanding, in terms of your role, that if you saw something obviously wrong, you were expected to challenge that?

25 Yes. If my knowledge said that it was wrong and my

36

21

22

23

24

O. Okav.

21

22

23

24

25

- experience sort of in the past, I had come across it and I thought it was wrong, then I would challenge it, yes.
- 3 Q. Okay.
- 4 Now, just in terms of your introduction to the project, if we could go back and look at paragraph 22 of
- 6 your witness statement, {RYD00094213/5}. We read this
- 7 earlier. You made it clear you were being told on
- 8 Monday, 19 October that you needed to help out at the
- $9 \hspace{1.5cm} \text{tower from the next day, and you also say a little bit} \\$
- further on that you were made aware that Simon Lawrence,
- the Rydon contracts manager, was leaving Rydon.
- So it looks like you were asked to join the project
- at very short notice, literally one day's notice; is
- 14 that correct?
- 15 A. Yes, that is correct.
- 16 Q. Do you know why that was? Was it that Mr Lawrence was
- leaving unexpectedly, or do you think the suddenness of
- your appointment was just due to maybe a lack of
- 19 forethought?
- 20 A. I don't know in that respect, you would have to ask
- Steve, but it's not -- it has happened to me in the past
- where I had one day's notice, so ...
- 23 Q. So that didn't seem surprising to you?
- 24 A. No, it's happened before.
- 25 Q. Yes.

- $1\,$   $\,$  A. Or sometimes you get a call saying, "I need you
- $2 \hspace{1cm} \text{somewhere else tomorrow", and it's } \hspace{0.1cm} \text{like: okay } \hspace{0.1cm} ...$
- 3 Q. Now, at paragraph 26 of your witness statement, if we could look on at that, page 6 {RYD00094213/6}, you say
- 5 in that first sentence:
- 6 "By the time I first attended site the cladding was
- 7 well-progressed and I would estimate 75% to 80%
- 8 complete."
- 9 Do you see that there?
- 10 A. Yes.
- 11 Q. Can you help us as to what you mean by complete?
- 12 A. As in when I got there, a lot of the cladding panels
- were already in the building, so the majority of
- insulation was there, there was a lot done.
- 15 Q. Yes. When you say the cladding panels, you mean the
- 16 column cladding panels on the exterior?
- 17 A. On the exterior, yes.
- 18 Q. That was already done?
- 19 A. Yeah.
- $20\,$   $\,$  Q.  $\,$  How did you estimate the percentage you came up with
- 21 there, 75 to 80%?
- $22\,$   $\,$  A.  $\,$  I  $\,$  must admit, I  $\,$  estimated on the time process, but
- probably, looking back on what other people have said,
- 24 possibly that was an overestimation, but I would say

38

25 certainly over two-thirds was done. It was well

- 1 under way.
- $2\,$  Q. Yes. Yes, that's what I was about to ask you.
- 3 So if we just look at a couple of contemporaneous
- $4\,$   $\,$   $\,$  progress reports, I think what we might see is  $\,$  it  $\,$  was
- 5 more like somewhere between 60 and 70% complete.
- $\boldsymbol{6}$   $\,$  A. Yes. So it was well over two-thirds. Two-thirds to
- 7 three-quarters is ...
- 8 Q. Let me just show you those. If we go to {RYD00056956},
- 9 this is the site progress report, and it's dated
- October 15. If we look at the very bottom of that page,
- 11 there is a table. Do you see that there?
- 12 A. Yeah.
- 13 Q. And it's got "External façade works", and planned
- progress: 100%, actual progress: 60%, and it looks like
- it's around ten weeks behind schedule. Do you see that?
- 16 A. Yes, I do.
- 17 Q. Again, was that your understanding when you got to site,
- that the cladding was progressing slower than had been
- 19 planned?
- 20 A. I was aware it was behind schedule, yes.
- $21\,$   $\,$  Q. We can see it says in the first bullet point below that
- 22 table:
- 23 "External cladding progressing slower than needed
- due to insolvency."
- Do you see that there?

- 1 A. Yes.
- 2 Q. Was that Harley's insolvency?
- 3 A. Yes. it was.
- 4 O. Yes.
- 5 Then there is just another report I was going to
- 6 take you to, {RYD00057623/11}. This is progress report
- 7 number 16 which reports on progress from
- 8 12 September 2015 to 16 October 2015. If we can go on
- 9 to page 14 {RYD00057623/14} we see a table, and you can
- 10 see there we've got "External works", and it says,
- "Façade Grid work, insulation and windows", that's 90%
- complete, I think; is that correct? Can you see that?
- 13 A. Yes.
- 14 Q. Then "Façade Cladding panels", it seems to be saying
- 15 70% out of 100, do you see that there?
- 16 A. Yes.
- 17 Q. And 16 weeks behind, do you see that?
- 18 A. Yes, I do.
- 19 Q. So I think you have agreed that, based on these reports,
- 20 perhaps the cladding was not quite as advanced as you
- 21 said in your witness statement.
- 22 A. Yes. I would certainly say it was definitely around
- two-thirds. So, as I said, it was well under way.
- 24 Q. Yes
- 25 A. In places it was finished, with the finished panels on

- 1 the building.
- 2 Q. Yes, I understand.
- 3 Now, in terms of previous fires in residential
- 4 buildings, when you started work on the project, did you
- 5 have in mind that there had been previous fires in
- 6 high-rise buildings in the cladding?
- 7 A. When I started on the project, the only one I was aware
- 8 of was Lakanal House, but I must admit, I did not know
- 9 that as a cladding fire . I was aware it was
- a compartmentation failure, that there was failures in
- basically the voids above the ceilings .
- 12 Q. Yes.
- 13 A. So that I think had come across in a fire safety
- 14 training.
- 15 Q. Yes.
- 16 A. So I did not know it was a cladding fire.
- 17 Q. Yes, that's helpful, yes.
- So had you heard of any other domestic fires in the
- 19 UK in high-rise buildings --
- 20 A. No.
- 21 Q. -- in the cladding?
- 22 A. No.
- 23 Q. Or any international high-rise fires?
- 24 A. At the time when I started there, no.
- 25 Q. No.

- Were you aware that in January 2012 a fire had occurred at Taplow House on the Chalcots Estate project?
- 3 A. Yes, I was aware of that, because I had spoken to Steve
- a couple of times about it, so I was aware there was
- 5 a bad fire there, and also he told me that cladding
- 6 panels had worked fine there, there was no issue with
- 7 them.
- 8 Q. Right. He specifically said that to you, did he?
- 9 A. Yes.
- 10 Q. Can you remember when he said that to you?
- 11 A. I used to catch a train home with Steve sometimes and we
- $12 \hspace{1cm} \text{had conversations afterwards, and yeah, he said that} \\$
- $13 \qquad \quad \text{they had warped but they certainly \ hadn't \ caught \ fire} \ .$
- 14 Q. Yes.
- Were you ever made aware of an incident report
- prepared following the fire which had emphasised the
- importance of cavity barriers around the windows?
- 18 A. No, I wasn't.
- $19\,$  Q. Now, if we look at paragraph 24 of your witness
- $20\,$  statement, if we can go back to that on page  $6\,$
- 21 {RYD00094213/6}, you say this:
- 22 "In my first week on site I spoke to Simon Lawrence
- a number of times, who was the Rydon contracts manager
- for the project, about the cladding and the M&E systems.

42

25 Simon also showed me around the project. Simon left

- 1 Rydon on the Friday of the week that I became involved."
- 2 Do you see that there?
- 3 A. Yes, I do.
- $4\,$   $\,$  Q. Can you recall  $\,$  what your discussions about the cladding
- 5 involved?
- 6 A. It was to do with, as I say, the progress of it more.
- 7 I know I went up the mast climber, I don't know which
- 8 one, but with Simon to have a look. He introduced me to
- 9 the installers and I think he also introduced me to
- Ben Bailey, the supervisor for them. But specifically ,
- $11 \hspace{1cm} \text{no, I don't remember exactly what those conversations} \\$
- were. Obviously I was new to the job at the time and
- trying to take an awful lot in.
- 14 Q. Yes
- Was there anything particular you remember him
- emphasising about the cladding other than the progress
- 17 that had been made?
- $18\,$  A. More the fact that nobody had any issues with it , that's
- $19 \hspace{1cm} \text{what I \ remember, that everyone was happy and, as I \ say,}$
- 20 the standard had been set, so keep to that standard and
- it would be fine.
- 22 Q. When you say no one had any issues, do you mean --
- 23 A. I mean Building Control -- I knew Building Control had
- been up the mast climbers with them, and I knew that the
- clerk of works made regular trips up the mast climbers
  - 43
- 1 as well to look.
- $2\,$   $\,$  Q. Was your understanding that he was talking about the
- 3 quality of the installation?
- 4 A. Yeah, I would say the quality.
- 5 Q. Did you ask him any questions about the cladding at this
- 6 time?
- 7 A. I would hope I did, but I don't remember specific
- 8 questions.
- 9 Q. Fair enough.
- 10 A. I'm trying to glean his knowledge at the time, so, yeah,
- I wouldn't be able to do that unless I asked questions,
- but I don't remember specifically what questions they
- 13 were.
- 14 Q. Do you remember him telling you about what products were
  - being used in the construction of the cladding?
  - 16 A. Talking about the cladding panels, I knew -- I was told
- they were ACMs, and I knew -- I could see that the
- insulation was solid insulation.
- 19 Q. What did you understand the ACM to mean?
- $20\,$  A. Well, whatever it -- I can't remember off the top of  $\,my$
- head now, but yeah, it was a sandwich panel, aluminium
- on the outside and plastic on the inside.
- 23 Q. Right, yes, and --
- 24 A. Basically it was aluminium composite material.
- 25 Q. What did you know about the insulation at that point?

- A. That it was solid insulation, that it was Celotex.
- 2 Q. Yes.
- 3 A. As I say, I know it was solid insulation, Celotex.
- 4 Did you have any discussions with him about compliance
- 5 with the Building Regulations, anything along those
- 6
- 7 A. Specifically, no, I don't remember any specific
- 8 conversations, as I say, but I would have asked him
- 9 about Building Control and sort of his visits and his
- 10 name and sort of contact details.
- 11 Q. Yes.
- 12 Now, at paragraph 26, just below that, of your
- 13 witness statement, in the last five lines, I just want
- 14 to pick up what you say there. You say:
- 15 "In order to better understand how the cladding
- 16 system worked and so that I could form a view as to
- 17 where we were relative to the programme, I reviewed the 18 drawings, considered the programme of works and I spoke
- 19 to the cladding installers, Taff (Mark Osbourne(sic))
- 20 and Bez (Graham Berry), and Ben Bailey, the project
- 21 manager from Harley Facades."
- 22 Do you see that there?
- 23 A. Yes, I do.
- 24 Q. Now, can you recall what kind of drawings you considered
- 25 concerning the cladding at this stage?

- 1 A. Well, it would have been the Harleys drawings.
- 2 Q. Yes.
- 3 A. So they would have looked there, but I would also look
- Δ at the architectural drawings as well, so the section
- 5 drawings -- I would look at all the drawings relevant to
- 6 the work that I was doing.
- 7 Q. Where did you physically find those?
- 8 A. They generally were on drawing clips in the site office,
- or they also are on -- saved on our system as well. 9
- 10 Q. Right.
- 11 A. Our sort of management system.
- 12 Was it your practice to look at them in hard copy or
- 13 electronically?
- A. Both, like I say.
- 15 Q. Yes.
- 16 A. Both.
- 17 Q. Yes.
- 18 Did you ever look at Harley's subcontract and the 19 specification that they had been asked to achieve?
- 20 A. No, but I was aware, and, as I say,  $\,$  my understanding was
- 21 always on previous sites that designers sort of go
- 22 back -- what I considered back-to-back with us on design
- 23 and build contracts. So we would pass on the design
- 24 responsibilities and everything we were contracted to do

25 on to them. Q. Yes.

- 2 I just want to show you one document that formed
- 3 part of Harley's subcontract, {ART00000914}. This is
- 4 part of the specification. It's Curtins Consulting, so
- 5 it's the structural engineers that put this together.
- 6 A. Yes.
- 7 O. 1 March 2013.
- 8 Do you have any recollection of ever looking at this
- 9
- 10 A. I believe I did, but I don't remember any specifics from 11
  - it. It's sort of quite a high technical document.
- 12 0.

14

- 13 Just within that, if we can look on page 11
  - {ART00000914/11} of the document, and at
- 15 paragraph 7.1.13 it says there:
- 16 "The system should comply fully with the
- 17 recommendations of the BRE [report] ..."
- 18 Then there is a BRE report there.
- 19 Do you remember noticing that the system they were
- 20 installing had to comply with certain BRE guidance?
- 21 A. No, I don't remember that specific clause.
- 22 Q. No.
- 23 Then on page 13 {ART00000914/13}, 7.2.4, we can see
- 24 there it says:
- 25 "The cladding system shall meet the requirements of

47

- 1 rainscreen cladding as specified in ..."
- 2 And then it's got the standard for walls with
- 3 ventilated rainscreens and various other key --
- 4 A. Yes. So the section H92 was the section in the NBS
- 5 specification.
- 6 Q. Yes, correct. But did you note that they had to meet
- 7 the requirements of the standard for walls with
- 8 ventilated rainscreens, the CWCT 1998 standard?
- 10 bit in the NBS specification. So I don't remember it in

A. I don't remember seeing that, but I do remember the CWCT

- 11 this document, but I do remember it in the NBS.
- 12 Q. Yes.

9

- 13 So obviously you were there to supervise Harley's
- 14 work.
- 15 A. Mm-hm.
- 16 Q. What documents did you think you needed to read in order
- 17 to be able to do that effectively?
- 18 A. To do my job effectively, it is the plans and
  - specifications. That's what I work to.
- 20 Q. Now, we saw earlier that you also said in paragraph 26
- 21 that you spoke with employees of Osborne Berry and
- 22 Harley.
- 23 A. Yes.

19

- 24 Q. Can you recall what you discussed with Osborne Berry?
- 25 That's Taff, Mark Osborne, and Bez, Grahame Berry. Do

- 1 you recall what you discussed with them?
- $2\,$  A. Specifically , no, but it would have been in general
- $3\,$  terms, as in the process they're going to -- as I say,
- 4 a lot of this -- or sometimes it's: what do they need
- from me to be able to do their work, ensuring that,
- 6 yeah, the bits that Rydons managed -- the access, the
- 7 towers, things like that -- that they were -- all the
- 8 things. So it was in specific terms -- no, sorry,
- 9 non-specific terms.
- 10 Q. I understand, yes.
- 11 A. Sorry.
- 12 Q. What about with Ben Bailey of Harley?
- 13 A. Very, very similar conversations. As I say, when I went
- up there, I knew my role was to finish it off, so what
- did they need from me to finish it off? As I say, then
- it would be sort of programming, how long do they think
- 17 it's going to take them to finish, when can I start
- offering up the façades to the people who needed to see
- it, so Building Control and the clerk of works.
- 20 Q. Yes.
- You said in that paragraph of your witness
- 22 statement -- the phrase you used was that you had these
- conversations in order to better understand how the
- 24 cladding system worked.
- 25 A. Yes.

- $1\,$   $\,$  Q. What were you particularly interested in in terms of how
- 2 it worked?
- 3 A. The building process. So there is a process you go
- 4 through. So, as I say, in that respect, putting the
- 5 rails on, fitting the insulation, putting the cladding
- 6 panels on.
- 7 Q. Yes.
- 8 A. That's in very simplistic terms, but to me it was
- $9 \hspace{1cm} a \hspace{1cm} process \hspace{1cm} that \hspace{1cm} they \hspace{1cm} had \hspace{1cm} to \hspace{1cm} \hspace{1cm} go \hspace{1cm} through \hspace{1cm} to \hspace{1cm} \hspace{1cm} get \hspace{1cm} -- \hspace{1cm} finish$
- 10 the product, so --
- 11 Q. So the layering process of each product.
- $12\,$   $\,$  A. Yes, the layering process, if you want to describe it
- like that, yes.
- 14 Q. Yes.
- Can we just look at an email from Ben Bailey to you.
- This is at  $\{RYD00060605\}$ . So this is Ben Bailey to you,
- 8 December 2015, so a couple of months after you started
- on site .
- 19 A. Yeah
- $20\,$   $\,$  Q.  $\,$  And it's headed, "Scratches in Cladding", and he says:
- 21 "Dave
- 22 "As per our conversation, I can confirm that light
- 23 surface scratches will not adversely affect the
- 24 performance or longevity of the cladding panels where
- 25 the scratch has not penetrated through to the core."

- 1 Do you see that there?
- 2 A. Yes, I do.
- 3 Q. Can you recall the conversation that you had? Because
- 4 he says, "As per our conversation".
- 5 A. That came about after one of our inspections up the
- 6 towers, and I believe it was the first one we did with
- 7 Building Control and the clerk of works, so it might
- 8 have been the first time I took them up there.
- 9 Q. Yes.
- 10 A. They noticed scratches on there and they were right at
- 11 the top of the building. But they were asking for us to
- 12 change the panels, and I said, "Well, could we repair
- them, they're not going to be visible sort of 24 storeys
- up, a little scratch like that", and Building Control
- and the clerks would rather they were swapped, so this
- was Ben sort of saying to me, "Look, we could repair
- them and it's not going to affect their performance in
- any way, shape or form".
- 19 Q. Yes.
- 20 A. It was, as I say, what I saw, little scratches.
- 21 Q. During that conversation did you enquire or were you
- made aware that the cladding was made of ACM containing
- a combustible polyethylene core?
- 24 A. I did not know it was combustible.
- 25 Q. So you just thought it was plastic; is that right?

51

- 1 A. In general terms, yes, it was, yeah, two sheets of
- 2 aluminium held together -- sort of glued together with
- 3 a plastic inside, or -- what was it? -- PE.
- 4 Q. Had you heard the phrase "PE" at the time? Was that
- 5 talked about?
- 6 A. I don't believe I knew it was PE, no.
- 7 Q. No.
- 8 A. More just, yeah, plastic inside.
- 9 Q. So you didn't know the middle was polyethylene?
- 10 A. I don't remember specifically. I might have been told
- 11 that was the material, but it didn't sort of register in
- 12 that respect.
- 13 Q. When Mr Bailey mentions the performance here, and he
- 14 says it won't adversely effect the performance, what did
- you understand him to mean by performance?
- 16 A. That a scratch on the outside is not going to affect its
- performance, so ...
- 18 Q. But performance in terms of what?
- 19 A. Well, just more in terms of longevity, but it wouldn't,
- $20\,$  as I say, get in there, possibly -- I don't know whether
- aluminium rusts, or -- so, yeah, it would still last as
- long as it was supposed to, which I believe is around
- 23 25 years.
- 24 Q. So do you think there was any part of the discussion
- 25 that focused on fire performance?

- 1 A. No, certainly there wasn't any discussing fire
- 2 performance at that time.
- 3 Q. Now, at the time you started work on the project, were
- 4 you aware of different kinds of cladding panels
- 5 available in the UK market?
- 6 A. My -- well, my -- I remember the one -- I talked about
- 7 the nursery, that was just a solid aluminium panel, but
- 8 no, specifically in terms of, like, all the products out
- 9 there, no, I wasn't aware. But I was aware that it was
- 10 the same panel being used that was used at Chalcots and
- Ferrier. So I was aware that this was the same panel
- that had been fitted to all the other six towers or
- high-rises that Rydons had done.
- Q. How did you know that? Who made you aware of that?
- 15 A. I think that came through Steve, and it might also have
- been through Harleys, because I know also Harleys did
- the Chalcots Estate.
- 18 Q. So prior to this project, had you ever come across metal
- composite materials with different layers and
- 20 a different core?
- 21 A. I don't remember using them on any jobs previously.
- 22 Q. Yes.
- 23 A. So ...
- 24 Q. Were you aware that panels were also available with fire
- 25 retardant cores, which were less combustible?

- 1 A. No, I wasn't aware at all.
- Q. Were you aware at any stage that the rainscreen cladding
- 3 being installed at the tower included combustible
- 4 materials?
- 5 A. Not at all.
- 6 Q. No.
- Were you aware at the time of working on the project
- 8 that if a fire occurred in the building which led to
- 9 significant flames being ejected from the window, the
- 10 cladding panels would likely fail because they would
- melt and fall off the building? Was that something that
- you were ever made aware of?
- 13 A. I had one conversation with Taff about it, but my
- understanding or what I got in my head was the actual
- fixings, the lug system where you hooked the panel on,
- that little bit there would fail just through heat, in
- the same way that I was told at Chalcots, they warped.
- So I think it was more of a warping that I expected or
- 19 the plastic might lose a little bit of strength.
- 20 Q. When you say you had one conversation with Taff about
- 21 it --
- 22 A. Yes.
- 23 Q. -- were you then just describing the conversation you

54

- 24 had with Taff?
- 25 A. Yes, that's it, sorry, yes.

- 1 Q. So that was about the fixings and whether they would
- 2 stay on --
- 3 A. Yes. It was my understanding, as I say, yeah. But the
- 4 way it was held on, it kind of hooked over the rail --
- 5 sorry, I'm doing motions.
- 6 Q. Yeah, no, it's fine.
- 7 A. It hooked over the rails, but those little bits of metal
- 8 would possibly fail or warp and that might make them
- 9 fall off.
- 10 Q. Did you ever discuss the fire performance of the
- cladding panels themselves --
- 12 A. No
- 13 Q. -- with anybody?
- 14 Kingspan Kooltherm K15, I want to ask you some
- 15 questions about that now.
- 16 A. Okay.
- 17 Q. So as part of your role as site manager, were you aware
- of what materials were being stored on site at any
- 19 particular time?
- 20 A. Yes.
- 21 Q. Yes. And at any one time, were quantities of insulation
- board stored on site for use behind the rainscreen
- 23 panels?
- 24 A. Yes.
- 25 O. Yes.

55

- Did you have any knowledge at the time, were you
- 2 aware, of what the lead time was for ordering that
- 3 insulation?
- 4 A. It wouldn't -- as I say, that was Harleys, they were
- 5 a supply and fit -- or design, supply and fit
- 6 contractor, so it would be their responsibility to make
- sure that it was there in a timely manner, so I wasn't,
- 8 no, really aware of how long it took them to get there,
- 9 or if I had been told, I don't remember it.
- 9 or ii I had been told, I don't remember ii
- 10 Q. Yes.
- Now, we know that Celotex FR5000 was specified for
- $12 \hspace{1cm} \text{use on the tower in the NBS specification} \, . \hspace{1cm} \text{Do you} \\$
- $13 \hspace{1cm} \textbf{remember noticing that when you read the NBS spec?} \\$
- 14 A. Yes.
- 15 Q. But we know that what was actually installed was
- 16 Celotex RS5000.
- 17 A. Yes.
- 18 Q. Were you aware of that when you worked on the project?
- 19 A. Yes, because on our system we had the datasheet for the
- $2\,0\,$   $\,$  RS5000 and was told that -- I think I was told that it
- $21\,$  was a wrong note in the specification . I think it's
- $22\,$  something like "FR" stands for "flat roofs" or something

what we were fitting was what it was designed -- well,

- and "RS" stands for "rainscreen", so I was aware that
- it was being used for what it was designed to do.

56

- 1 Q. When you say you were aware of that, who made you aware
- 2 of that?
- 3 A. I don't remember that, I'm afraid.
- 4 Q. But you do recall ---
- $5\,$  A. It was one of the conversations I would have had, or one
- 6 of the many conversations I would have had during the
- 7 time on the project. But I think it was quite early on,
- 8 I don't remember ...
- $9\,$   $\,$  Q.  $\,$  So you noticed that the insulation was different and the
- 20 explanation you were given was that was just a --
- 11 A. Yes.
- 12 Q. -- mistake --
- 13 A. Yes.
- 14 Q. -- in the NBS?
- 15 A. That's it. So -- yeah, specifications or little ...
- 16 O. Yes.
- Let's just look at paragraph 55 of your witness
- 18 statement now on this topic,  $\{RYD00094213/10\}$ . You say
- 19 there
- 20 "In December 2015 or January 2016 I discussed with
- Ben Bailey and agreed the use of Kingspan, as Harleys
- 22 had difficulty obtaining Celotex from their supplier.
- As far as I was concerned Kingspan and Celotex are
- similar products with similar insulation properties. As
- 25 far as Ben and I were concerned it was a like for like
  - 57
- $1 \hspace{1cm} \text{swap of insulating material.} \hspace{0.2cm} I \hspace{0.2cm} \text{told Steve Blake and the} \\$
- 2 Clerk of Works, Jon White, of this use of Kingspan
- 3 insulation material."
- $4\,$  So you say that, and I just want to ask you some
- 5 questions about this.
- 6 So was this Kingspan insulation material Kingspan
- 7 Kooltherm K15 --
- 8 A. I think it was, yes.
- 9 Q. -- is that what you're talking about? Yes.
- 10 A. Yeah, because I'm pretty sure Ben gave me a datasheet 11 for it.
- $12\,$   $\,$  Q. Right, okay, yes. Did you read the datasheet he gave
- 13 you?
- $14\,$  A. Yes, but what I was specifically looking for was the
- insulating value. I knew why the Celotex was there,
- 16 I knew it was to try and achieve 50% better than the
- Building Regulations in terms of insulating properties,
- so I was asking Ben: were Celotex and Kingspan similar
- insulating properties, ie have a very similar U-value.
- 20 Q. I see, yes.
- 21 What exactly did Ben Bailey say to you about this
- 22 swap?
- $23\,$  A. That it was like-for-like . I'm pretty certain he gave
- me a datasheet which said the U-value was the same or
- very, very similar.

- 1 Q. Did you ever discuss fire performance of the K15 --
- 2 A. No.
- 3 Q. -- with Ben Bailey?
- 4 A. No.
- 5 Q. Or with anybody else about the K15?
- $6\,$  A. Never discussed fire performance of the insulation, no.
- 7 O. Do you remember what quantity of insulation was said to
- 8 be involved in this swap at the time?
- 9 A. No, but I thought it would be kind of carrying on to
- finish it off, because I knew, as he said, he was having
- 11 supply issues, so ...
- 12 Q. Do you remember who Harley ordered that insulation from?
- 13 A. No, I don't.
- 14 Q. No.
- 15 A. That wouldn't be something I would be aware of or need
- 16 to know.
- 17 Q. Now, was that K15 already on site when you had this
- discussion, or was he saying --
- 19 A. No, I believe he was asking my permission to use it
- 20 going forward.
- 21 Q. So that would be to order it --
- 22 A. Yes.
- 23 Q. -- and then bring it on to site in the future?
- 24 A. Yes.
- 25 Q. Were you aware that quantities of Kingspan K15 had

- 1 previously been ordered before you arrived at site?
- 2 A. Not aware at all, no. And I never saw it on the
- 3 building before in my sort of time going up the mast
- 4 climbers
- 5 Q. When Mr Bailey had that discussion with you, did he give
- 6 you the impression that this was the first time this
- 7 swap had occurred?
- 8 A. Certainly, that's why I thought he was asking
- 9 permission.
- 10 Q. Can we just look at some of those purchase orders
- previously just to make this point good. So this is at
- 12 {SIG00000012}, this is a Harley purchase order. It's
- dated 26 May 2015, we can see that on the top right-hand
- side. Do you see that there?
- 15 A. Yeah
- 16 Q. It's to SIG, the company, SIG Insulation, Maidstone, and
- then we can see in the main description it says:
- 18 "Kingspan K15 Insulation Board 1200x2400x80mm
- 19 (96 Sheets )."
- You can see that. Then underneath it says:
- 21 "Delivery by vehicle with Moffet 04/06/15.
- 22 "Site has restricted entrance ..."
- Do you see that there?
- 24 A. Yes, I do.
- 25 Q. We can see it's in the context of Grenfell Tower,

58

1 because on page 3 {SIG00000012/3} of this purchase 2 order, if you just scan --3 A. It says here at the bottom, it says "Ship to". 4 Q. Yes, it does, and to be clear, there is a site plan 5 given of Grenfell Tower just a few pages later. 6 So that's the first purchase order we've seen, which 7 was some time before you arrived on site in May 2015. 8 If we can look at another one, this is 9 {SIG00000013/2}, and if we look at the bottom of the 10 page -- sorry, actually this is the email chain that 11 leads to this, that's right. So if we look at the 12 bottom of page 2, this is Gill Walker to Ben Bailey, 13 26 May 2015, and she says, "Hi Ben". She is at SIG, we 14 can see that from the bottom: 15 "The delivery we arranged for the 3rd will now go on 16 the 10th, Celotex have pushed out the lead time on this 17 product!!"

Then if we go up to the top of page 2 we see 19 Ben Bailey's response. He says:

"Are you joking?! Is K15 held in stock at the same thickness? Is the delivery for this week still on?"

Do you see that there?

23 A. Yes, I do.

20

21

25

3

6

7

8

9

24 Q. Then bottom of page 1  $\{SIG00000013/1\}$ , she says:

"Yes delivery for this week is okay, they have

61

production problems apparently!!! K15 80mm is notstocked but has a 3-5 day lead time."

Do you see that there?

4 A. Yes, I do.

5 Q. Then at the top of page 1, he says:

"As discussed please see [purchase order] attached for the K15 order (this quantity should be taken off the total [purchase order] on the Cellotex(sic) order issued on 25/03/15)."

Do you see that there?

11 A. Yes.

12 Q. That was the purchase that we looked at.

So I take it from your answers before you had no knowledge of any of this happening before you were on site?

16 A. No knowledge at all, and I do not remember seeing it on the building at all.

Q. That was my next question: do you remember ever seeingKingspan --

20 A. No.

21 O. -- Kooltherm K15?

22 A. No, but a lot of the boards up on the thing were

 $23 \qquad \quad \text{unbranded as well, so yeah, I didn't notice it} \, .$ 

Q. Ah, right. What percentage of the boards would you saywere unbranded?

1 A. I don't know, off the top of my head.

2 Q. But you remember --

3 A. Yeah.

4 Q. -- some of them being unbranded?

5 A. Yeah.

6 Q. But presumably when you got to site, I think you said earlier, a lot of the cladding panels were on there.

8 A. Yes, so there was a good chance it was already behind panels which had already been fitted.

10 Q. Yes.

 $11 \hspace{1.5cm} \textbf{There is another order of K15I just want to take} \\$ 

you to. This is at {CCF00000019}. This is on

13 10 September 2015. We can see this is an order to

 $14\,$  a different company, CCF, and it appears to be 49 units

of Kingspan K15 rainscreen board. Do you see that

16 there?

17 A. Yes.

 $18\,$  Q. Harley Façades, and deliver to Grenfell Tower in the

19 middle.

20 A. Yeah.

 $21\,$  Q. Again, you didn't have any knowledge of this order when

22 you started?

23 A. No, as I said, prior to that conversation I had with

Ben, I thought everything on that building was Celotex.

25 Q. Now, I think you have made clear that the basis on which

63

1 you considered them to be like-for-like products,

 $2 \hspace{1cm} \text{similar products, was because of their $U$-value} \\$ 

3 properties.

4 A. Yes.

5 Q. Is that right?

 $\boldsymbol{6}$   $\,$  A. Yes, and also from experiences. I've done lots of sort

7 of this board in masonry cavities and it's always either

8 Kingspan or Celotex. As far as I'm concerned, they were

9 very -- I know them as solid insulation boards and they

are very, very similar, as I said, and proved almost by

 $11 \hspace{1.5cm} \text{the same thickness was the same U-value, so it does the} \\$ 

12 same job.

13 Q. Did you look at any K15 literature at this time?

14 A. I remember Ben giving me the datasheet to basically

prove that the U-value was the same. That's what I was

16 after.

17 Q. Do you recall looking at the fire performance--

18 A. No, I don't.

 $19\,$  Q. -- on that datasheet? That wasn't something you looked

20 at?

21 A. No

 $22\,$   $\,$  Q.  $\,$  Did you know that Kingspan is a phenolic foam whereas

23 the RS5000 is a poly --

 $24\,$  A. No, as I said, I knew it was solid insulation .

25 Q. Yes.

62

- 1 Did you ever consider the fire safety performance of
- 2
- 3 A. Specifically, no. But every job I've ever done has had
- 4 that product, be it Celotex or Kingspan, in some
- 5 quantity, be it in the walls, be it in roofs, be it
- 6 under screeds.
- 7 Q. Did you consult any of those who had specified the
- 8 Celotex in the first place? For example, did you
- 9 consult Studio E over the swap?
- 10 A. No, I did not.
- 11 Q. Exova, did you talk to Exova?
- 12
- 13 Q. Did you talk directly or anybody you know of talk
- 14 directly to Kingspan themselves about it?
- 15 A. Not that I know of, unless Ben spoke to them.
- 16 Q. Did you ever request a copy of the BBA certificate for
- 17 the Kingspan material?
- 18 A. I don't know.
- 19 Q. So you don't remember ever seeing a BBA certificate?
- 20 A. No.
- 21 Q. I think it follows from your answers, but I want to ask
- 22 you nevertheless: did you ever ask yourself whether the
- 23 K15 product was of limited combustibility at any point
- 24 in the project?
- 25 A. I've never ever heard insulation described in terms of

- 1 combustible or non-combustible, it's always just been
- 2 solid or quilt insulation, that's how I know them.
- 3 Q. Do you remember looking at an LABC certificate --
- 4 A. No, I don't.
- 5 Q. -- for Kingspan? No.
- 6 Now, going back to paragraph 55 of your statement,
- 7 on page 10 {RYD00094213/10}, you say in the last
- 8 sentence that you told Steve Blake and Jon White of the
- 9 use of this Kingspan insulation material. Can you
- 10 remember when you told them that?
- 11 A. I believe it was soon afterwards, after I had had the
- 12 conversation with Ben.
- 13 O. Yes.
- 14 A. Just to let them know that, yeah, there would be
- 15 a different material on there, and I explained to Steve
- 16 the reasons why, to do with supply issues, and I might
- 17 have said the same to Jon. I remember having
- 18 a conversation; I don't remember the specifics of it.
- 19 Q. And you don't remember them saying to you, "Well,
- 20 actually, it's already been used, we know that"? 21 A. No, as I said, I wasn't aware it was on the building
- 22 before I essentially said yes or agreed with Ben.
- 23 Q. Did they ever ask to see any information about the K15?
- 24 A. Not that I remember, no.
- 25 Q. We've already discussed, and I showed you that specific

- 1 clause, do you remember, 2.2.2 of the contract, that
- 2 said that Rydon shouldn't substitute any materials
  - without the prior written consent of the --
- 4 A.

3

- 5 -- employer, the TMO. Was the TMO ever consulted about
- 6 the intention to use the K15?
- 7 A. No, unless Jon told them, but Jon was working for the
- 8 TMO
- 9 Q. I see.
- 10 I think it follows, but did you ever submit reasons
- 11 for the proposed substitution?
- 12 No, I did nothing in writing on this, no.
- 13 Q. Did you provide Jon White with any documentation about
- 14
- 15 A. I don't remember doing so, no.
- 16 Q. Yes.
- 17 Did you ever tell Building Control at any time that
- 18 some of the insulation was K15?
- 19 I don't remember, no.
- 20 Q. So you don't remember whether Building Control ever were
- 21 provided with any specification or written material
- 22 about K15 on the project?
- 23 Certainly I never gave them, so I would presume that,
- 24 no, they never did get any.
- 25 We will come back to look at Building Control later.

67

- 1 Why did you not think to tell Building Control that you
- 2 were going to be using a different insulation product?
- 3 A. Because, like I said, going back to my knowledge at the
- 4 time, it was very, very similar. It's almost whoever --
- 5 whichever -- Celotex or Kingspan, whichever one gets
- 6 specified by the designer is what goes on the building.
- 7 As I say, they are so similar to me from my knowledge
- 8 and experience that I didn't see it as an issue.
- 9 MS GRANGE: Mr Chairman, I just have one or two questions on 10 this topic. If I could finish this topic and then we 11
- 12 SIR MARTIN MOORE-BICK: Yes, that's all right, thank you.
- 13 MS GRANGE: Thank you.

could break.

- 14 If we could go to paragraph 57 of your witness
- 15 statement and look at {RYD00094213/11}. So at
- 16 paragraph 57 you say there:
- 17 "I was involved in the choice of plasterboard to the
- 18 walls of the entrance atrium. I discussed this with
- 19 Mark Dixon of SDP who suggested Duraline instead of 20 Fireline plasterboard as Duraline was more resistant to
- 21 impact, but still had the same fire rating. This change
- 22 of plasterboard was approved by the architect."
- 23 Do you see that there?
- 24 A. Yes.
- 25 Q. We can see that from an email. If we go to the email,

1		this is {SEA00013533}. If we look at the bottom of	1	тц	E WITNESS: Yes, I am.
2		page 1, there is an email from you to Neil Crawford of	2		R MARTIN MOORE-BICK: Thank you, Ms Grange.
3		9 November at 9.40. You say:	3		GRANGE: Thank you.
4		"Hi Neil	4	1410	Just a couple of follow-up questions on the K15
5		"Thanks for visiting site on Friday, it was good to	5		before I move to a different topic.
6		[meet] you."	6	Α.	Okay.
7		Then if we go over {SEA00013533/2}, you confirm with	7		I think you said in your evidence that you believed
8		him then:	8		"Mr Bailey was asking my permission to use it "; do you
9		"Following walkround, I'd like to confirm the	9		remember
10		following agreements"	10	Α.	Or permission to change it.
11		If we look at point 4 we can see it says there:	11		Yes, yes.
12		"Duraline board to communal entrance lobby with	12		Who actually gave that permission? Did you
13		a skim finish ."	13		understand that to be part of your role as site manager
14		Do you see that there?	14		or did you ask
15	A.	Yes.	15	A.	I wouldn't say "permission" is the right word; more
16	Q.	We can see that, in this case, you did seek approval	16		agreement to use it , but
17		from the architect before changing the materials	17	Q.	But you talked about speaking to Mr Blake about this .
18		installed on site.	18		Yes.
19		Can you explain why, if you did that for this	19	Q.	Steve Blake. Were you asking him if he was content for
20		material, you didn't do it in relation to the K15 swap	20		the change and for his permission, or did you understand
21		for the Celotex?	21		that you could give that permission, you were just
22	A.	Because specifically I was discussing with Neil at the	22		informing Steve Blake of what had happened?
23		time and it was part of the walk-round, the	23	A.	I guess in that respect, I would say that I am taking
24		conversations we had about the finish to the lobby area.	24		I was giving permission, yes. He was asking if he could
25		No, I can't explain why I didn't.	25		use it and I was saying yes, as long as it complied with
		69			71
1	0		1		
1	Q.	Okay.	1	0	the U-values and it was a similar product.
2	A.	Okay. Sorry, I can't explain in relation to the K15 why	2	Q.	the U-values and it was a similar product. Yes, that's helpful.
2	A. Q.	Okay. Sorry, I can't explain in relation to the K15 why Yes, thank you.	2	Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you
2 3 4	A.	Okay.  Sorry, I can't explain in relation to the K15 why  Yes, thank you.  It just goes back to experience that they were very	2 3 4		the U-values and it was a similar product. Yes, that's helpful. Turning to a different topic now, I want to ask you about the window infill panels.
2 3 4 5	A. Q. A.	Okay.  Sorry, I can't explain in relation to the K15 why  Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved.	2 3 4 5	A.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.
2 3 4 5 6	A. Q. A.	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved.  GRANGE: Thank you.	2 3 4		the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window
2 3 4 5 6 7	A. Q. A.	Okay.  Sorry, I can't explain in relation to the K15 why  Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved.  GRANGE: Thank you.  Mr Chairman, I think that's a good moment.	2 3 4 5 6 7	A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember
2 3 4 5 6	A. Q. A.	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment.	2 3 4 5 6	A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.
2 3 4 5 6 7 8	A. Q. A.	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break	2 3 4 5 6 7 8	A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.
2 3 4 5 6 7 8 9	A. Q. A.	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment.	2 3 4 5 6 7 8 9	A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.
2 3 4 5 6 7 8 9	A. Q. A.	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and	2 3 4 5 6 7 8 9	A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame
2 3 4 5 6 7 8 9 10	A. Q. A.	Okay.  Sorry, I can't explain in relation to the K15 why  Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved.  GRANGE: Thank you.  Mr Chairman, I think that's a good moment.  MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.	2 3 4 5 6 7 8 9 10	A. Q. A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and
2 3 4 5 6 7 8 9 10 11	A. Q. A.	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.  While you are out of the room, please don't talk to	2 3 4 5 6 7 8 9 10 11	A. Q. A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and Osborne Berry?
2 3 4 5 6 7 8 9 10 11 12 13	A. Q. A. MS	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.  While you are out of the room, please don't talk to anyone about your evidence or anything related to it,	2 3 4 5 6 7 8 9 10 11 12 13	A. Q. A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and Osborne Berry?  That's correct, yes.
2 3 4 5 6 7 8 9 10 11 12 13 14	A. Q. A. MS	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.  While you are out of the room, please don't talk to anyone about your evidence or anything related to it, and we will come back at 11.35, please.	2 3 4 5 6 7 8 9 10 11 12 13 14	A. Q. A. Q. A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and  Osborne Berry?  That's correct, yes.  Yes, and this included the aluminium window panel
2 3 4 5 6 7 8 9 10 11 12 13 14 15	A. Q. A. MS	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.  While you are out of the room, please don't talk to anyone about your evidence or anything related to it, and we will come back at 11.35, please. E WITNESS: Okay.	2 3 4 5 6 7 8 9 10 11 12 13 14 15	A. Q. A. Q. A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and  Osborne Berry?  That's correct, yes.  Yes, and this included the aluminium window panel system, including those window infill panels, didn't it?  Yes.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	A. Q. A. MS	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.  While you are out of the room, please don't talk to anyone about your evidence or anything related to it, and we will come back at 11.35, please. E WITNESS: Okay.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	A. Q. A. Q. A. A.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and Osborne Berry?  That's correct, yes.  Yes, and this included the aluminium window panel system, including those window infill panels, didn't it?  Yes.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	A. Q. A. MS	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.  While you are out of the room, please don't talk to anyone about your evidence or anything related to it, and we will come back at 11.35, please. E WITNESS: Okay. MARTIN MOORE-BICK: If you would like to go with the usher, she will look after you.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	A. Q. A. Q. A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and  Osborne Berry?  That's correct, yes.  Yes, and this included the aluminium window panel system, including those window infill panels, didn't it?  Yes.  And it also included the section of the windows which
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. Q. A. MS	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.  While you are out of the room, please don't talk to anyone about your evidence or anything related to it, and we will come back at 11.35, please. E WITNESS: Okay. MARTIN MOORE-BICK: If you would like to go with the usher, she will look after you.  (Pause)	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. Q. A. Q. A. Q.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and  Osborne Berry?  That's correct, yes.  Yes, and this included the aluminium window panel system, including those window infill panels, didn't it?  Yes.  And it also included the section of the windows which housed the extractor fan for the kitchens?  Yes.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. Q. A. MS	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.  While you are out of the room, please don't talk to anyone about your evidence or anything related to it, and we will come back at 11.35, please. E WITNESS: Okay. MARTIN MOORE-BICK: If you would like to go with the usher, she will look after you.  (Pause) Right, 11.35, please. Thank you.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Q. A. Q. A. A. Q. A.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and  Osborne Berry?  That's correct, yes.  Yes, and this included the aluminium window panel system, including those window infill panels, didn't it?  Yes.  And it also included the section of the windows which housed the extractor fan for the kitchens?  Yes.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Q. A. MS SIF	Okay.  Sorry, I can't explain in relation to the K15 why Yes, thank you.  It just goes back to experience that they were very similar, in my mind. It was almost a similar, approved. GRANGE: Thank you.  Mr Chairman, I think that's a good moment. MARTIN MOORE-BICK: Right.  Well, Mr Hughes, we are going to have a short break now and give everyone a chance to stretch their legs and so on.  While you are out of the room, please don't talk to anyone about your evidence or anything related to it, and we will come back at 11.35, please. E WITNESS: Okay. MARTIN MOORE-BICK: If you would like to go with the usher, she will look after you.  (Pause)  Right, 11.35, please. Thank you.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Q. A. Q. A. A. Q. A.	the U-values and it was a similar product.  Yes, that's helpful.  Turning to a different topic now, I want to ask you about the window infill panels.  Okay.  Principally I want to ask you about the white window infill panels, do you remember  Yes.  between the main windows on the tower.  Now, can you confirm that the window frame installations were carried out by Harley and Osborne Berry?  That's correct, yes.  Yes, and this included the aluminium window panel system, including those window infill panels, didn't it?  Yes.  And it also included the section of the windows which housed the extractor fan for the kitchens?  Yes.  Can we just look at a Harley drawing on this topic,

it's had various revisions, we can see at the bottom

there. I just want to ask you: what we see -- it 's not

very clear, but I think we can find it -- is that those

23

24

25

SIR MARTIN MOORE-BICK: All right, Mr Hughes?

SIR MARTIN MOORE-BICK: Are you ready to carry on?

70

THE WITNESS: Yes, thank you.

23

24

- 1 two panels we were just talking about are marked P1 and
- 2 P2 on this drawing. If we zoom into the middle hatched
- 3 section in the top left -hand corner, we see P1 for the
- 4 main big infill panel, and then P2 for the little panel.
- 5 Can you see that there?
- 6 A. Yes, I do.
- 7 Q. Would you have understood what you were looking at this
- 8 drawing that that was referring you to the Harley
- 9 specification, to their own specification notes?
- 10 A. Yeah, all the little notes on there would refer you back
- 11 to a specification or part of a specification.
- 12 Did you yourself ever make any investigations as to
- 13 which materials made up the P1 and P2 panels?
- 14 A. No, I did not.
- 15 Q. So you didn't review Harley's specification notes for
- 16 these two panels?
- 17 A. No, but I would like to state, when I took over or when
- 18 I went up to Grenfell, as far as I'm concerned pretty
- 19 much all of the windows had been fitted.
- 20 Q. Yes.
- 21 Can we just look at those specification notes. This
- 22 is {HAR00017762}. If we look on the left -hand side of
- 23 that page, we can see, six items down, we get the
- 24 "Glazing - P1 - panels", and below that we see the
- 25 "Glazing - P2 - panels". Can you see those?

- 1 A. Yes, I do.
- 2 Q. Yes, in the middle of the page. For P1 panels we can
- 3 see that the outer is a 1.5-millimetre aluminium skin,
- Δ and the core is a 25-millimetre styrofoam; do you see
- 5 that there?
- 6 A. I do.
- 7 Q. Then for the P2 panel, we can see it's got
- 8 a 25-millimetre Kingspan TP10 rigid insulation, do you
- 9 see that there, in the core?
- 10
- 11 Q. Looking at this now, is your recollection that you
- 12 didn't see this at the time of the project?
- 13 A. I would have read this, but I don't remember noting
- 14 that, and as I said before, I would expect it, by the
- 15 time it got to me, to be compliant with
- 16 Building Regulations.
- 17 Q. Yes.
- 18 Did you know what styrofoam was at the time?
- 19 A. I had heard of it, sort of like egg cup kind of thing,
- 20 I guess. But, yeah, I had heard of it.
- 21 Q. Did you know that it was a trading name for extruded
- 22 polystyrene insulation?
- 23 A. No, I did not.
- 24 Q. Does that mean that you didn't know when you were on
- 25 site that those window infill panels had extruded

- 1 polystyrene inside?
- 2 A. Specifically like that, no.
- 3 Q. So you didn't ever raise any concerns about the use of
- 4 styrofoam or extruded polystyrene in these locations?
- 5 No, because, as I said, by the time it got to me, I was 6
  - sure it was compliant with Building Regulations.
- 7 O. Had someone said to you, "In those panels, by the way,
- 8 we've got extruded polystyrene", maybe someone,
- 9 you know, chatting on site says it to you, what would
- 10 you have made of that? Would it have concerned you?
- 11 A. If it complied with this and they were telling me it
- 12 complied with what's on that piece of paper, I would
- 13 have made nothing of it.
- 14 Q. Yes.
- 15 Now, the P2 panel, we just saw that the
- 16 specification is for the Kingspan TP10 rigid insulation.
- 17 Now, if we can look at a purchase order, just before you
- 18 came on to site. If we look at {HAR00002477}, this is
- 19 Ben Bailey on 11 September 2015 to ACP Panel Systems,
- 20 and he attaches a purchase order. He says:
- 21 "Please see [purchase order] attached to replace the
- 22 one placed under Harley Curtain Wall Ltd (now in 23 administration)."
- 24 I just want to look at the purchase order which was
- 25 attached to that, {HAR00000445}, dated 10 September. So

- 1 that's the purchase order, and if we look at -- so it 2 savs:
- 3 "Please supply panels as per the attached schedule."
- 4 Do you see that in the middle? If we look at page 6
- 5 {HAR00000445/6}, we can see a schedule, and at the top
- 6 we see "Panel Spec: (P2)", that it's got a core of
- 7 25-millimetre Kingspan TP10 rigid insulation; do you see
- 8 that there?
- 9 A. Yes.
- 10 Q. Do you know -- I know you came on site in October, so
- a month or so after this -- whether TP10 rigid 11
- 12 insulation was ever delivered to site and present
- 13 on site?
- 14 A. I don't remember seeing it, no, specifically noting it,
- 15
- 16 Q. So the Inquiry's experts found from their site
- 17 inspections after the fire that the panels used at the 18
- P2 location, where the extract fan is, didn't have 19 a Kingspan TP10 core but had a styrofoam core and were
- 20 extruded polystyrene.
- 21 Okay.
- 22 Q. Were you aware of that --
- 23 Α.
- 24 -- on the project?
- 25 A. As I said, they had all been fitted by the time I

74

11

- 1 started on the project.
- 2 Q. I see. So you can't help us as to how --
- 3 A. No.
- $4\,$  Q.  $\,$  -- we go from Kingspan TP10 to the styrofoam in that
- 5 location?
- 6 A. No, I can't.
- 7 Q. And you didn't ever check the fire performance of the P1
- 8 or the P2 panels?
- 9 A. No.
- 10 Q. No.
- I want to move on now to a new, a longer topic which
- is about site inspections.
- 13 A. Okay.
- 14 Q. Would you agree that there is a difference between
- 15 supervising works and periodically inspecting works?
- 16 A. Yes, I would.
- 17 Q. Would you agree that in the case of the cladding
- elements of the construction, they're quickly concealed
- as work progresses on site?
- 20 A. Yes.
- 21 Q. So would you agree that it was important to have regular
- supervision of such works to ensure that the works were
- 23 being conducted properly?
- $24\,$   $\,$  A. Not always, no, because it's about a process that we
- 25 can't watch at all times. So you watch them at the

77

- start, and then you have to, at a certain point, start
- 2 to have an element of trust that people are going to do
  - what they are contracted to do.
- 4 Q. Yes.

3

- 5 A. So if they've started off well and you're happy with
- 6 that standard, and all you can see you sort of -- during
- 7 supervision, you see they're maintaining that standard,
- 8 I don't see that regular supervision, in terms of me
- 9 seeing every single bit of insulation or firebreak
- 10 behind there, is absolutely necessary.
- $11\,$  Q. How did it work out on the Grenfell project? What was
- $12 \hspace{1cm} \text{the distinction , or was there a distinction between --} \\$
- 13 A. Well, to me a periodic inspection would on a weekly
- 14 thing, would be like a regular clerk of works, I would
- call that a periodic inspection because it's on a weekly
- or two-weekly basis.
- 17 Q. Yes.
- 18 A. Supervision is on a day to day and just managing or --
- as I say, supervising the works, managing the works,
- $20\,$  very similar. But to me also, periodic inspection would
- $21\,$   $\,\,$  probably come under snagging; it  $\,$  is  $\,$  done after a certain  $\,$
- 22 period when something is ready.
- 23 Q. Yes.
- Did you yourself have a period of time on site where
- you would say you were supervising, like when you

- 1 initially got to site, and then you went to more of
- 2 a periodic inspection regime?
- 3 A. Sorry, in which respect are you talking about here?
- 4 Q. The cladding in particular.
- 5 A. Cladding. As I say, I was always supervising Harley's
  - work. They're managing it, they're putting it on the
- 7 building; I'm kind of supervising ... it's very
- $8 \hspace{1cm} \text{similar} \hspace{0.1cm} \text{--} \hspace{0.1cm} \text{sort} \hspace{0.1cm} \text{of managing, supervising, to me} \hspace{0.1cm} \text{are} \hspace{0.1cm}$
- $9\,$  very, very similar terms. To me, it would be the same
- $10 \hspace{1cm} \text{thing.} \hspace{0.25cm} \text{If somebody says, "I'm supervising" or "I'm} \\$ 
  - managing", very similar terms.
- $12\,$   $\,$  Q.  $\,$  Do you agree that a design and build contractor needs to
- 13 have in place a rigid site supervision regime to ensure
- 14 that all construction carried out by itself or its
- subcontractors is compliant with the relevant designs,
- drawings, specifications, et cetera?
- 17 A. It would certainly help, yes.
- 18 Q. Can we look at something that's said in the Rydon
- company witness statement. So we have had a witness
- 20 statement on behalf of the Rydon company itself. If we
- can look at {RYD00094236/23}. If we could look at
- 22 paragraph 35 under (g) there, which is under the heading
- 23 "Monitoring during the Works". It says:
- $24\,$  "[Rydon]'s role in refurbishment projects is that of
- 25 main contractor. Typically this means it is also

79

- 1 appointed as Principal Contractor for the purposes of
- 2 the CDM Regulations. This means that it has significant
- 3 experience of discharging its duties in respect of the
- 4 planning, managing and monitoring of the construction
- 5 phase, liaising with its subcontractors. This expertise
- 6 and experience is encapsulated in the systems and
- 7 procedures which [Rydon] used and continues to use to
- 8 monitor the work of its subcontractors, which are in
- 9 turn built on [Rydon]'s ISO 9001 accredited project
- 10 management system ..."
- Do you see that there?
- 12 A. Yes, I do

14

- 13 Q. Now, were you familiar yourself when you worked on the
  - project with Rydon's ISO 9001 project management system?
- 15 A. I know they got 9001, and, yes, I would say I was
- familiar with it. Didn't know every bit of detail of
- it, but I'm certainly familiar with it.
- 18 Q. What practical effect did that have for you on site?
- $19 \hspace{1.5cm} \text{What were you aware of in terms of procedures that you} \\$
- 20 had to comply with?
- 21 A. As I said before, snagging inspections.
- 22 Q. Snagging inspections?
- 23 A. Yes.
- 24 Q. Yes
- 25 A. As I say, it's also parties -- as I say, call it

78

- 1 supervision/managing, but if I see anything wrong, then
- 2 I would note it and tell them not to do it --
- 3 Q. Yes.
- 4 A. -- or make them change it.
- Q. Were you aware of any written policies or procedures
   which reflected these 9001 project management systems?
- 7 A. Sorry, I don't understand how you mean or what you mean.
- 8 Q. Were you given any written policies or procedures about
- 9 project management systems?
- 10 A. A lot of it is on the RMS, so that is almost like our
- project management system, I think, as you say. I do
- 12 know my way round that. So I would go through it and
- that would give us the processes and the various forms
- that I would need to use to fulfil my duties.
- $15\,$   $\,$  Q. So you would have specifically looked at policies and
- procedures on that RMS, would you?
- 17 A. Not all of them, no, not all the words, but I knew how
- to operate within the RMS or how the RMS system worked.
- But a lot of the time, as I say, looking for a snag
- sheet, we have a standard snagging inspection sheet.
- 21 O. Yes.
- 22 A. I know where to find that.
- 23 Q. Yes. I understand about the snagging process and the
- inspection sheet, we will look at that.
- 25 A. Okay.

- $1\,$   $\,$  Q. Were you aware of anything else that you had to be doing
- on site to comply with that project management system?
- 3 A. Sorry, I don't -- in what respect?
- 4 Q. I understand you're --
- 5 A. Okay, I am familiar with our RMS system, yes.
- 6 Q. Okay.
- 7 Can we look at paragraph 86 of your statement now,
- $8 \quad \{RYD00094213/19\}.$  I just want to look at the first
- 9 sentence. You say:
- 10 "I was involved in the snagging, inspection and
- 11 handover of all of the exterior of the building."
- Do you see that there?
- 13 A. Yeah.
- $14\,$  Q. Now, by the time you came on board, Grenfell was between
- 15 60 and 70% complete.
- 16 A. Yeah.
- 17 Q. We've seen that.
- Who was responsible for doing the snagging,
- inspection and handover of the exterior of the building
- prior to you coming on to site?
- 21 A. I'm not sure who was -- I knew -- I think it was
- 22 Danny Osgood was -- or looked after it for a while, but
- I don't know all the people who --
- 24 Q. So you didn't take over from somebody performing that

82

25 role?

- 1 A. Not specifically, no.
- $2\,$   $\,$  Q. So did you feel at the time that it was a new role that
- 3 you were performing to be carrying out the snagging?
- $4\,$   $\,$  A. No, I saw it more as managing the Harley, so managing --
- 5 as I say, external manager, I would class it as.
- 6 Q. Yes.
- Now, in the paragraphs that follow, you have
- $8 \hspace{1cm} \text{explained stage by stage what the snagging inspection} \\$
- 9 and handover of the exterior would look like.
- 10 A. Yeah.
- 11 Q. You have explained the process. And what I'm going to
- do is take you through that step by step and ask you
- some questions about it over the course of quite a few
- 14 questions. So we will keep coming back to look at this
- part of your statement --
- 16 A. Okay.
- 17 Q. -- as we go through the process that you followed.
- $18\,$   $\,$   $\,$   $\,$  Just focusing, then, on step 1 to start with at
- paragraph 86.1, you say there:
- 20 "I initially took John Hoban, Jon White and Ben
- Bailey up the mast climbers on the 11th November 2015 to
- discuss what they required to see. We went up the west
- and north elevations. At the time we went up, the works
- were nearing completion but there were a number of
- panels not fitted yet, giving them an opportunity to
  - 83
  - look at the fitting of the rails, insulation and fire
  - 2 breaks. They had a couple of minor concerns about
  - 3 scratches and scuffs to the cladding panels. We also
- discussed the process of striking the mast climbers and
- 5 making good the cladding where the mast climber struts
- 6 were fixed to the building."
- 7 A. Yes.

9

- 8 Q. Do you see that there?
  - So I just want to ask you a few questions.
- So this was, if we go back to the previous page, on
- 11 11 November 2015 where you took them up.
- Now, was that the first occasion since you had
- $13 \hspace{1cm} {\rm commenced\ working\ on\ site\ that\ you\ had\ inspected\ the}$
- 14 cladding yourself?
- $15\,$  A. No, it wasn't the first time I had been up the mast
- 16 climbers.
- 17 Q. Were you aware that there had been a Building Control
- inspection in May 2015 prior to this?
- 19 A. Yes, I had been told that Building Control had been up
- $20\,$  the mast climbers prior to my starting on the project.
- Q. Were you told anything about what had occurred on thatBuilding Control visit?

- 23 A. Only that there were no issues, he had flagged no
- 24 concerns.
- 25 Q. Right.

- 1 So how much previous inspection had you done prior
- 2 to this 11 November 2015 visit?
- 3 A. I had been up and looked at it a lot and, as I say, it
- 4 was me getting to know what was on the building as well,
- 5 and essentially, as I said, it had already been started,
- 6 so we say two-thirds of it was already up there.
- 7 O. Yes.
- 8 A. But what I understood my role was to make sure that
- 9 a similar standard was done.
- 10 Q. Yes.
- 11 A. If the client, if the clerk of works and
- $12 \qquad \quad \text{Building Control were happy with the standard that was} \\$
- up there, to hand over the building and to get it sort
- of passed at the end, I would need to maintain that
- 15 standard.
- 16 Q. Yes.
- 17 Can you remember which areas you inspected? Did you
- 18 go up all four façades?
- 19 A. I inspect -- I wouldn't say I was inspecting it; I was
- 20 going up there, I was talking to the things, I was also
- 21 just familiarising myself. Sometimes it was
- specifically you would go up there with -- to sort of
- answer a query from Taff or Bez about -- yeah, and it
- 24 was just, as I say, it was for me understanding the
- processes and everything else and just know what they
  - 85
  - 1 needed off me as well.
  - 2 Q. Yes.
  - 3 A. And if there had been any issues that I thought -- or
  - 4 areas that I thought were issues.
- 5 Q. You said it's not an inspection, but did you go and look
- from the outside and the inside?
- 7 A. No.
- 8 Q. No.
- $9\,$  A. At the time I never went into the flats , until sort of
- 10 quite late in the project.
- $11\,$  Q. Yes, so you were just going up on the --
- 12 A. Yeah, I was, as I said --
- 13 Q. -- exterior?
- $14\,$  A. As I said, my role at the start was to do the cladding,
- 15 so ...
- 16 Q. Did you identify any defects or issues with the cladding
- prior to this Building Control visit?
- $18\,$  A. No, not with the cladding, but I go back to what I told
- 19 you earlier: one thing I did notice, that the gaps --
- the joins on the insulation boards weren't taped.
- 21 I asked Taff and Bez this question and they said that
- they didn't need to, and that's when I went back and
- 23 referred to the Celotex -- or had a look at the Celotex
- brochure to see if I could see anywhere specifically it
- said that the joins had to be taped. And I'm talking

- 1 about the joins between insulation boards.
- 2 O. Yes.
- 3 A. It was noticeable that the join from where the
- 4 insulation board went to the cavity barrier, that wasn't
- 5 taped.
- 6 Q. Right.
- 7 A. So I asked why sort of the joins in the insulation --
- 8 Q. What did you -- sorry, carry on.
- 9 A. I asked why the joins in the insulation board weren't
- 10 taped, and they said they didn't need to be.
- 11 Q. When you went and looked at the Celotex --
- 12 A. Yeah.
- 13 Q. -- datasheet, what did that tell you about whether joins
- 14 needed to be taped?
- 15 A. I could see nothing on there anywhere that said it
- needed to be taped. So where I taped -- I mean,
- a silver foil tape, so it would look similar to -- it's
- 18 like a silver -- adhesive silver foil tape.
- 19 Q. Did you notice that the edges weren't ever taped?
- 20 A. I did notice that, yes.
- 21 Q. Was that something you checked as well?
- 22 A. Yes, I did check that.
- 23 Q. And what did you conclude from checking?
- $24\,$  A. I concluded that there was no need to do it .
- 25 O. Right.

- 1 Now, had you identified any issues with the cavity
- 2 barriers prior to that visit on 11 November 2015?
- 3 A. No
- 4 Q. Did you keep any record of what you had seen on site up
- 5 to that point?
- 6 A. No.
- 7 Q. Now, you say at paragraph 61.2 of your statement, if we
- 8 just look at that, this is on page 13 {RYD00094213/13},
- 9 you say there:
- "I requested that John Hoban visit site to inspect
  - the cladding on 11th November 2015 to discuss what he
- required to see to sign it off."
- Do you see that there?
- 14 A. Yes.

11

- 15 Q. So this was a visit at your request --
- 16 A. Yes
- 17 Q. -- is that right, not at theirs?
- 18 A. Yeah.
- 19 Q. Was that the pattern that was then followed with
- Building Control visits? Were they at your request or
- 21 their request?
- 22 A. Mostly at my request.
- 23 Q. In your experience, was it usual for you to have to take
- the initiative of arranging the site visits by
- 25 Building Control?

- A. Yes, because I would be telling him that it was ready to
- 2 inspect. It was finished and I needed him to go up
- 3 there and say essentially, "Yes, I'm happy". Because,
- 4 at the height of it, I needed to know that he was happy
- 5 with it so I could start to strike the mast climbers.
  - Because the worst thing would be that he said he wasn't
- 7 happy with it and we had to start putting them back up.
- 8 Q. Yes.

- 9 Now, just looking at a document, if we can go to
- 10 {RYD00056059}, this is an email that you send to
- 11 John Hoban on 30 October 2015, so not long after your
- 12 arrival, about ten days after you started work on site, 13
- and you say: 14 "Hi John
- 15 "Thanks for calling me back today.
- 16 "As discussed, it would be great if you could make a
- 17 site visit on Tuesday afternoon whilst my director,
- 18 Steve Blake, is on site. I'd like Steve to be involved
- 19 in our chat about the outstanding structural information
- 20 you require off us to satisfy building control, so we
- 21 can achieve final sign off."
- 22 A. Yeah.
- 23 Q. Do you see that there?
- 24 A. Yes, I do.
- 25 Q. So is it right that this email followed a call that you

- 1 had had with John Hoban?
- 2. A. Yes. it did.
- 3 Q. During that call, is it right that you talked about
- 4 outstanding structural information which
- 5 Building Control required?
- 6 A. Yes, because, as I say, it was something Steve asked me
- 7 to do, was to make contact with him, as part of my sort
- 8 of job, and to just ask him if there was anything
- 9 outstanding. Obviously me and Steve were picking up
- 10 from where Simon and Simon had left off, so it was if
- there was any information he needed. This was --11
- 12 Q. And what exactly -- sorry?
- 13 A. -- essentially the start of the process of handing the 14 building over.
- 15 Q. What exactly did he say? What was the outstanding
- 16 structural information?
- 17 A. That he hadn't received the structural calculations and
- 18 he needed them.
- 19 Q. Were you surprised at that, that this is your first
- 20 contact with the Building Control officer and you find
- 21 that he's not yet had all the necessary structural
- 22 information?
- 23 A. No, at the time I didn't feel surprised by it.
- 24 Wasn't this a bit late in the day to be considering
- 25 something so fundamental as the structural calculations?

- A. You could say, but I don't know if he had had it and
- 2 just hadn't reviewed it and didn't know where it was.
- 3 I just -- he -- as I say, very similar to what I always
- 4 do, ask them if there's anything they need off me.
- 5 But this didn't strike you as unusual or --
- 6 A. No.
- 7 O. -- concerning?
- 8 A. Unfortunately it didn't, no.
- 9 Q. Do you agree that Rydon, in its co-ordination role,
- 10 should have sent those calculations to the
- 11 Building Control officer by that time?
- 12 From my understanding, Studio E were the ones sort of
- 13 managing the Building Control process, so it would be
- 14 something that they would have sent to him.
- 15 Q. So you would have expected them to have sent that --
- 16 A. Yes.
- 17 Q. -- by that time?
- 18 A. I knew that Studio E were managing the Building Control
- 19 process or Building Regulations process.
- 20 Q. Did it give you any cause for concern that the project
- 21 might thus far not be being run in an orderly way?
- 22 A. No.
- 23 Q. When you sent this email to John Hoban, asking him to
- 24 make the site visit the following week, did you know
- 25 that Mr Hoban's previous site visit had been on

- 1 15 August 2015, and that that visit was only the second
- 2 visit that he had made since the beginning of the year?
- 3 A. No, I did not know that.
- 4 Q. Was there ever any discussion at any stage on site
- 5 amongst the Rydon team about the lack of attendance by
- 6 Mr Hoban on site?
- 7 A. No, like I said earlier, I had been told that
- 8 Building Control had been to site a number of times as
- 9 and when necessary, and was fine  $% \left( 1\right) =\left( 1\right) \left( 1\right) =\left( 1\right) \left( 1\right)$  with the work so far .
- 10 Q. Yes.
- 11 Was the frequency of site visits by Building Control
- 12 on the project in line with your previous experience on
- 13 other projects?
- 14 A. No, I would expect Building Control to appear at least
- 15 on a monthly basis, I thought they're called frequency
- 16 visits .
- 17 Q. Yes.
- 18 A. Normally if you haven't called them in for something to
- 19 inspect something, then they will turn up on a frequency
- 20 visit.
- 21 Q. Yes.
- 22 Did you ever ask RBKC Building Control about that
- 23 and say, "I would normally expect you to be here
- 24 monthly"?
- 25 A. No, as I said, I wasn't aware that it had been so

- 1 infrequent.
- $2\,$   $\,$  Q. Now, if we can look at Rydon's progress report going
- 3 through to mid-November, {RYD00057876}. This is Rydon's
- 4 progress report 17, and we see at the bottom that it's
- 5 reporting on progress between 17 October 2015 and
- 6 13 November 2015. Do you see that?
- 7 A. Yes.
- 8 Q. Then if we go to page 5 {RYD00057876/5} of the document,
- 9 it shows the progress of the façade works, and what it
- says there is initially grid work, insulation and
- windows is 97% complete. Do you see that there?
- 12 A. Yes.
- 13 Q. Then the façade cladding panels, 85% complete, and it
- says west elevation due to be snagged, you can see that
- for both those, and then it also says the crown detail
- was 100% complete all round in the box below. Do you
- 17 see that there?
- 18 A. Yes, I do.
- 19 Q. Now, during your inspection with John Hoban and
- 20 Jon White on 11 November, you have said in your
- statement that you went up the west and north
- elevations, we looked at that before; can you remember
- which levels on these elevations did you inspect? How
- high up did you go?
- 25 A. We would have gone to the top.

- 1 Q. Yes. And would you systemically inspect every level?
- 2 How would it work?
- 3 A. When we did the inspection with them -- sorry, I'm
- 4 getting confused which one I'm talking about here. Is
- 5 this the first --
- 6 Q. This is the 11 November one.
- 7 A. -- or the second one?
- 8 Q. The first one.
- 9 A. The first one?
- 10 Q. The 11 November --
- 11 A. We went to the top and worked our way down.
- $12\,$   $\,$  Q.  $\,$  Yes.  $\,$  Would you have done that for  $\,$  both the west and the
- north face for all the levels?
- 14 A. Yes.
- 15 Q. Yes.
- 16 A. As far as I remember, we went right to the top of both
- mast climbers.
- 18 Q. You also said in that part of your statement that there
- 19 were a number of panels not fitted yet --
- 20 A. Yes.
- 21 Q. -- at that point. Can you remember where those were?
- Were they in a particular bit of the building?
- 23 A. No, I can't.
- 24 Q. Would you agree that on this occasion John Hoban and
- 25 Jon White would only see a small area of the insulation

- 1 and cavity barriers on this visit --
- 2 A. Yes.
- 3 Q. -- ie those without panels fitted yet?
- 4 A. Yes.
- 5 Q. Was there ever an inspection from the inside as well?
- 6 A. As far as I'm aware, not at that point.
- 7 O. Yes.
- 8 Can you recall whether John Hoban would have seen
- 9 any branding on the insulation to show that it was
- 10 Celotex?
- 11 A. As I said, there was quite a few unbranded boards, but
- 12 I don't remember.
- 13 Q. Yes.
- Do you ever remember discussing the type of
- 15 insulation with --
- 16 A. No, I don't.
- 17 Q. -- John Hoban?
- Was any K15 installed at that point in the area you
- 19 looked at
- 20 A. I don't remember seeing it.
- 21 Q. No.
- 22 A. I would like to say I would have noted it if I did,
- 23 but ...
- 24 Q. Did Mr Hoban inspect the cavity barriers at that time?
- 25 A. That's why I took him up there at that point, because

95

- from my point of view, trying to hand the building over,
- $2 \hspace{1cm} \text{if} \hspace{0.2cm} I \hspace{0.2cm} \text{had} \hspace{0.2cm} \text{presented} \hspace{0.2cm} \text{it} \hspace{0.2cm} \text{to} \hspace{0.2cm} \text{him} \hspace{0.2cm} \text{completely} \hspace{0.2cm} \text{finished} \hspace{0.2cm} \text{and} \hspace{0.2cm} \text{he}$
- 3 had, "I've never seen the cavity barriers", then I'd
- 4 have to stop that inspection, take some off so he could
- 5 see them. So the idea was to take him up there so he
- 6 could see parts of the building which were still in
- 7 progress so he could see the cavity barriers and the
- 8 insulation behind.
- 9 Q. Yes.
- 10 A. That was part of that first inspection to make sure
- that, yeah, we wouldn't have to take any steps
- 12 backwards.
- 13 Q. Can you recall whether he would have seen both vertical
- and horizontal cavity barriers during that inspection?
- 15 A. Certainly horizontal. I can't confirm vertical.
- 16 Q. Yes. What about the area around the windows without
- cladding panels installed? Would he have seen some windows without the ACM panels kind of boxed around the
- 19 windows?
- 20 A. Trying to remember now, I don't know.
- 21 Q. Yes
- 22 A. I think possibly he ... where the windows butted up to
- the columns, that was -- the columns were one of the
- last panels to go on, so they concentrated on the
- 25 bits -- the flat bits between the windows first and the

94

1 columns were one of the last pieces to go on. So

2 I can't confirm, but I would say that possibly.

3 Q. Yes.

4 Did Mr Hoban raise any concerns during his --

- 5 A. No, as I said, from the emails you have seen, the main 6 concern was to do with scratches on the panels and the 7 performance in terms of longevity at the panels.
- 8 Q. I appreciate you say that was the main concern. Were 9 there any others you can recall?
- 10 A. No, otherwise I probably would have noted it and me and 11 Ben would have -- I would have asked Ben for

12 confirmation.

- 13 Q. Let's just go back to your witness statement where you 14 are explaining what the process was that was followed.
- 15 If we can go back to page 20 {RYD00094213/20} of your 16 main statement, and look at the next part of what you

17 say. You say there then:

18 "Harleys would snag their own work prior to offering 19 it to Rydon. Ben Bailey did the snagging and sent the 20 sheets to me. I did one of the pre-handover snags of 21 the finished exterior on the north elevation as 22 Ben Bailey could not make it to site."

23 Do you see that there?

24 A. Yes, I do.

25 Now, I just want to look at what Ben Bailey has said

97

1 about Harley's own process of inspection before the

2 cladding panels were fitted. If we go to

- 3 {HAR00010060/4}, this is paragraph 13 of his statement.
- 4 I'm going to take you to several bits of this, but
- 5 I think it would be helpful, and in fairness to you, for
  - you just to read this paragraph to yourself just for
- 7 a moment.
- 8

6

9 Q. It goes over the page {HAR00010060/5}, so signal when 10 you have got to the end of the page.

11 (Pause)

12 A. Okay, I've got to the bottom.

13 Q. Yes.

19

20

21

22

23

14 (Pause)

15 A. Okay, I've read it.

16 Q. So if we just go back to that first part of the 17 paragraph {HAR00010060/4}, and picking up four lines 18 down, you say:

"I remember that before the panels were installed I went up the mast climber and conducted a visual check of the windows, the insulation, the cavity barriers and the cladding rails in most areas over each level of existing flats in the building ..."

24 Then he says:

25 "I recall doing this on the North, East and West

98

1 elevations (not the South - over the main entrance)

2 before Building Control inspection visits at the request 3 of Rydon to check the work was ready to be inspected."

4 Do you see that there?

5 A. Yes, I do.

6 Q. So he's saying that, at Rydon's request, Harley would

7 inspect the insulation, cavity barriers and cladding 8 rails before the Building Control check. Is that your

9 understanding of what happened?

10 A. Yes, that's what should happen, subcontractors should

11 inspect their own work and they should give us

12 confirmation that it is ready for us to inspect it as

13 well. Q.

14

15 A. So, yeah, first and foremost they have a responsibility

16 to ensure that their own work is up to standard and

17 complies with the plans and specification.

18 Q. Yes. Then over the page  $\{HAR00010060/5\}$ , once he has 19 explained what that check would involve, he says:

20 "I then took Building Control up to see the work."

21 Do you see that there?

22 A. Yes.

2

8

23 In the second-to-last sentence he also talks about

24 Building Control, taking them up to see what was

25 installed.

99

1 Was that your understanding? He talks there about

Building Control going up to see what had been installed

3 prior to the cladding panels being installed; was your

4 understanding that Building Control would be taken up

5 before the panels were inspected?

6 I don't know whether he's getting confused with

7 Building Control and the clerk of works here. From my

statement, from what I remember, we only went up twice

9 with Building Control up the mast climbers, and those

10 are the ones I said in my statement. So I took them up

11 once when there were still some unfinished panels, and

12 I took them up once with the clerk of works at the same

13 time to do what I would consider to be a handover

14 inspection.

15 Q. Yes.

16 A. But the clerk of works went up more often than

17 Building Control did.

18 Q. Yes.

19 Is it right that Rydon itself wouldn't

20 systematically check the insulation, cavity barriers and

21 cladding rails before the Building Control check?

22 A. As I said to you earlier, I wouldn't necessarily check,

23 I have no records of me checking, but it's making sure

24 on visual checks that I was going up there and the

25 standard had been set and maintaining the same standard.

- 1 So nothing, in all my times I went up there, did I see
- 2 anything which dropped below that standard.
- 3 Q. Yes, and how often were you going up there?
- 4~ A. Very hard to say. When I first started up there, I went
- 5 up there quite often, getting to know them, getting to
- 6 know to trust the installers that the standard was being
- 7 maintained
- 8 A little bit towards the end, I started going up
- 9 there less and less. I was taking more
- 10 responsibilities . I also trusted that they were doing
- things correctly. So towards the end, it more came up
- 12 I started to go up there when there were specific issues
- 13 with how to install the panels safely.
- 14 Q. Yes.
- 15 A. So we had a couple of issues with mast climbers stopping
- $16\,$  panels being fitted easily and safely, and I started to
- go up there more often. That was a lot more on the
- south elevation.
- 19 Q. Right, yes.
- $20\,$   $\,$   $\,$  Just to be clear, did you ever see it as part of
- your role to be going up and checking prior to
- Building Control coming on site and satisfying yourself
- 23 that the cladding rails , the cavity barriers and the
- insulation had been installed correctly?
- 25 A. I would satisfy myself that the standard was similar to

- 1 what was already been up there and, as far as I was
- 2 aware, was the standard that Building Control -- or, no,
- 3 not Building Control, more the clerk of works at that
- 4 time, was happy with.
- 5 Q. Yes.
- 6 A. So in terms of formal inspection, no, but every time
- 7 I went up there, I was looking to make sure that it was
- 8 the standard that was acceptable.
- $9\,$  Q. But in terms of formal inspection, was it your
- 10 understanding that Harley was doing that itself --
- 11 A. Yes.
- 12 Q. -- in relation to its own work?
- $13\,$   $\,$  A. Yeah, they have a responsibility to make sure their own
- work is to the plans and specification --
- 15 Q. Yes.
- 16 A. -- and the standard required.
- 17 Q. What about after the Building Control visit? Would you
- or anyone else at Rydon ever do a formal check after
- 19 that?
- 20 A. Well, Building Control, same with any inspection, is --
- 21 if they raise any snags or any concerns, then you have
- 22 to go back up afterwards, or once that work has been
- remedied, rectified, you have to go back up there and

102

- 24 get that work signed off before you could take the
- 25 mast climbers down.

- 1 Q. But that would only be if Building Control flagged
- 2 anything; is that right?
- 3 A. Yeah, Building Control, and very similar process for the
- 4 clerk of works as well.
- 5 Q. Yes.
- 6 A. That to me is what I would call a client inspection, the
- 7 clerk of works. Client inspection, Building Control
- 8 inspection, we pretty much did that the same time on the
- 9 first couple of mast climbers.
- 10 Q. Yes.
- Now, Ben Bailey states -- and we saw that in his
- 12 statement at paragraph 13 {HAR00010060/4} -- that there
- was no checklist or specification to inspect the areas
- against when Harley was checking its own work prior to
- $15 \hspace{1.5cm} \hbox{these Building Control inspections.} \hspace{0.2cm} \hbox{Do you agree with} \\$
- 16 that?
- 17 A. Not that I saw a checklist, but the snag list he gave to
- me to sort of say -- well, his inspection sheet he gave
- 19 to me had things like EPM, cladding rails, so as far as
- I'm concerned, he'd given it to me saying they had done
- everything accordingly.
- Q. But Rydon didn't provide Harley with a checklist or a --
- 23 A. No
- 24 Q. -- list of things that needed to be checked --
- 25 A. No.

103

- 1 Q. -- before Building Control would come on?
- 2 A. No.
- 3 Q. Given that you were relying -- I mean, do you accept you
- 4 were relying to a significant extent on the Harley
- 5 checks, the Harley inspections, before Building Control
- 6 came along?
- 7 A. Yes, I do, because they designed the system as well.
- 8 Q. Yes.
- 9 A. So ...
- 10 Q. Given that you are relying to a significant extent on
- Harley's own inspections of the works, wouldn't it have
- been sensible for you to have provided Harley with some
- criteria for the inspections to carry out?
- 14 A. You could say that, yes, but you could say that the
- drawings are the criteria, plans and specifications are
- the criteria that they have to build to.
- 17 Q. Just check against all of the drawings.
- 18 A. Yeah.

24

- $19\,$  Q. So, for example, for the cavity barriers, you didn't
- 20 think of ever providing a specific list of things that
- it was important to check about the cavity barriers when
- these inspections were being carried out?
- 23 A. No, but visually I was looking that they were in the
- 25 that they were clipped, very much like what Ben says,

right place, so they were horizontally and vertically;

- 1 where they were clipped and the clips were turned out so
- 2 they were held securely in place; and that they were
- 3 taped against the insulation, and then all my checks, in
- 4 all my times I went up there, I never saw anything which
- 5 said that they weren't.
- 6 Q. Were you confident at the time that Harley were
- 7 comprehensively and systematically checking the windows,
- 8 the insulation and the cavity barriers before the --
- 9 A. Yes, I believed they were competent. As I say, in my
- 10 assessment of them, which I get in the first couple of
- 11 weeks sort of dealing with them, and the work I had
- 12 seen, I assessed they were competent and they were doing
- 13 it right.
- 14 Q. We saw in Ben Bailey's witness statement, back on the
- 15 previous part of paragraph 13 {HAR00010060/4}, where he
- 16 says in the middle of that paragraph that he recalls
- 17 doing the checks that he did on the north, east and west
- 18 elevations but not the south before Building Control
- 19 inspection visits at the request of Rydon. Do you see
- 20 that there?
- 21 A. Yes, I do.
- 22 Q. Were you aware that the south elevation had not been
- 23 inspected by Harley?
- 24 A. I think I talk about it in my statement, where Ben
- 25 didn't turn up on time. Very much similar to -- I'm

- 1 trying to explain is -- I would expect Harleys to give
- 2 me some sheets saying that they had done their work
- 3 properly and that they had fitted it in accordance with
- 4 the plans and specifications . I then go up and check
- 5 that I'm happy with that, and I then would say to
- 6 Building Control and the clerk of works, "I'm happy,
- 7 I have gone up there and had a look at it, so please can
- 8 you come up and have a look at it ".
- 9 So I think the one he is talking about on the south
- 10 is the one that I say that I had done essentially you
- 11 could say his job, I went up and checked it before he
- 12 did, because I was -- as I say, I wanted to get the 13
- things done, I wanted to get Building Control and the 14 clerk of works up there so I could start the process of
- 15 striking the mast climbers. So that's what I think he's
- 16 talking about, the same thing I talk about, where I went
- 17 up and did one of their inspections for them.
- 18
- Q. Was that of the whole of the south elevation?
- 19 A. That would be basically a finished elevation, so all the 20 panels up there.
- 21 Q. I know you say finished, what I'm trying to get at is
- 22 the inspections that occur before the panels go on, so
- 23 of the cavity barriers, the insulation, et cetera.
- 2.4 A. Yeah.
- 25 Q. Do you remember doing that for the south elevation?

106

- A. Not -- as I said, specifically not a formal inspection,
- 2 but it was done part of my trips up there, and certainly
- 3 in the south elevation I went up there quite a few times
- 4 because there was an issue where the mast climbers were
- 5 stopping us fitting the panels safely. So we had to do
- 6 some alterations to the mast climbers to be able to fit
- 7 the panels safely.
- 8 Q. Right. Just to be absolutely clear about my question,
- 9 you don't recall doing a formal inspection of the south
- 10 elevation in terms of what was underneath the panels?
- 11
- 12 Q. Now, at paragraph 52 of Mr Bailey's witness statement,
- 13 I want to show you that as well, this is at
- 14 {HAR00010060/15}, he says --
- 15 SIR MARTIN MOORE-BICK: Sorry, Ms Grange. Give me a moment
- 16

19

25

- 17 I think everyone is getting a bit sort of carried
- 18 away and moving quite quickly, and I think the shorthand
  - writer is having trouble keeping up, that's all.
- 20 MS GRANGE: Let's both try and speak more slowly?
- 21 A. Okay, I'll speak slower.
- 22 Q. I'm just as much at fault as you are, but yes.
  - So here it's said:
- 23 24 "I was never provided with the criteria for either
  - Building Control inspections or those of the Clerk of

107

- 1 Works, nor was I issued with any reports they produced."
- 2 Do you see that there?
- 3
- 4 0. Bottom of the page, paragraph 52.
- 5 A. Yeah.
- 6 O. He says:
- 7 "I assumed however that both Building Control and
- 8 the Clerk of Works would be checking cavity barriers,
- 9 both their location and quality of installation."
- 10 Do you see that?
- 11 A. Yes.
- 12 Do you agree that Harley were never provided with any
- 13 criteria for either the Building Control inspections or
- 14 those of the clerk of works?
- 15 A. In terms of criteria, yes, I agree, they weren't
- 16 specifically said we were looking at that, but Harleys 17 had responsibility -- design responsibility, so they
- 18 knew that building and what should have gone on there
- 19 better than anyone. They designed the system which went
- 20 on the building, so ... but, sorry ...

(Pause)

- 22 I don't -- as I say, Building Control never gave us
- 23 any inspection sheet. He went up and it was these
- 24 panels. We went up with Building Control and the clerk
  - at the same time on the first two mast towers that 108

25

1 I explained in my statement, and in that respect the 2 clerk of works basically took the notes, because they 3 were talking to themselves at the same time, so we came 4 up with one list which you could say was a definitive 5 clerk of works/Building Control inspection. And Ben 6 came up at the same time. There wasn't that many issues 7 on there, so I don't -- I don't remember giving them 8 a list, but we then went back up with the clerk and 9 checked the bits which were on the list, and they had 10 all been done. That's why -- as I say, I would never 11 have struck the mast climbers without making sure that 12 Building Control and the clerk of works were happy that 13 everything had been done.

14 Q. Yes.

15 Did you ever raise it as a concern within Rydon that 16 you weren't providing subcontractors with criteria for 17 Building Control inspections or inspections by clerk of 18 works?

19 A. No, because it's not something I've ever done before.

20 Q. Yes. Okay.

21

22

23

2.4

25

1

2

3

7

8

9

10

11

12

13

18

19

20

21

Now, I want to look at this point at an email between two Building Control officers that you wouldn't have seen at the time, but I want to just ask you about it. This is at  $\{RBK00001122\}.$ 

Now, this is an email from John Hoban to John Allen

109

within RBKC Building Control, and what it appears to be is John Hoban reporting back to John Allen about what he has done on 12 January 2016. Do you see that there?

4 A. Yes, I do.

5 Q. So we're moving a little bit forward in time here. 6 Under the heading "Grenfell Tower", he says this:

> "Checking new external cladding to existing tower block, identifying defects (controllable under the building regulations) on new panels, brief introduction on fire breaks/fire cavity barriers, including location of where cavity barriers on cladding panels should be provided for the particular project."

Do you see that there?

14 A. Yes, I do.

15 Q. So I think he's reporting back, and I want to ask you 16 about, in particular, this brief introduction he talks 17 about:

"... brief introduction on fire breaks/fire cavity barriers, including location of where cavity barriers on cladding panels should be provided for the particular project."

22 Do you know who gave Mr Hoban that introduction 23 about that topic?

24 A. No. Is it possible to see my statement around that 25 time? Because I'm getting a bit confused with visits .

110

Q. Yes. I'll find the reference for you in just a moment.

2 Yes, I'll take you back to that.

3 A. As I say, I don't remember -- I remember the ones before 4 Christmas, but without reading my statement again

5 specifically, I need to see what I did after Christmas 6

with John.

7 O. Right, okay.

8 Do you yourself have any memory of giving Mr Hoban 9 an introduction to, for example, the location of where 10 cavity barriers would be?

11 A. I don't understand why he calls it an introduction when 12 we had already been up the tower before Christmas and

looked at it. 13

14 O. Yes.

15 Do you ever remember, even prior to this, talking to 16 Mr Hoban about where cavity barriers were to be placed 17 in the system?

18 Specifically, no, I don't remember a conversation in A. 19 that respect.

20 Q. So, yes, I think you mentioned this visit at 61.5 of 21 your witness statement. Let's go to that. This is 22 page 14 {RYD00094213/14} of your main statement. You 23

24 "I arranged for John Hoban to visit site on 12th 25 January 2016 at 9am to go up the mast climbers again.

111

1 I followed up the meeting with an email confirming a 2 conversation about fire stopping to penetrations through 3 walls and floors. We didn't strike any of the mast 4 climbers until each elevation from the 4th to 23rd floor 5 had been approved by the Clerk of Works, Jon White."

6 Do you see that there?

7 A. Yes. I do.

8 Q. Now, I'm going to come back to that follow-up about 9 firestopping and penetrations, because I want to take 10 you to some documents on that.

11 A. Okay.

12 You don't mention any discussion there about cavity 13 barriers, so, I mean, I think we can take it from your 14 evidence that you don't think you briefed Mr Hoban about

15

16 A. No, but I believe, and I've not stated there, that 17 Ben Bailey would have come up with me, or it might have 18 been -- we would always have gone up with one of the 19 installers as well. We always had to have one of the 20 installers driving the mast climbers. So I wasn't 21 qualified and hadn't been trained to drive the

22 mast climber, so every time I went up, it would be with 23 someone from Harleys or from the installers .

24 Q. Yes.

25

Were you aware at the time of this visit, and indeed

- on your first visit on 11 November 2015, that the design
- 2 didn't provide for cavity barriers around the windows?
- 3 A. No.
- 4 Q. You weren't aware of that?
- 5 A. Well, I was aware that it wasn't on the drawings.
- 6 Q. Yes.
- 7 A. So -- but I didn't -- wasn't aware of a need to put them
- 8 on a cladding system like that. But I knew-- as I say,
- 9 I know from the drawings they weren't shown, so ...
- 10 Q. Did you notice that when you were looking at the
- drawings? Did you say to yourself, "Oh, I note we
- 12 haven't got cavity barriers around the windows", did
- that strike you at all?
- 14 A. No, it did not strike me.
- $15\,$  Q. Did you ever discuss that, the lack of cavity barriers
- round the windows, with anyone else at Rydon?
- 17 A. No.
- 18 Q. Or with anyone else at Harley?
- 19 A. I don't remember any conversations like that.
- 20 O. Or with Studio E?
- 21 A. No.
- 22 Q. What about with Building Control? Did you ever have any
- 23 conversations with Building Control about there being no
- 24 cavity barriers around the windows?
- 25 A. No. As I said before, I never had any conversations

- 1 with anyone about it because, as far as I was concerned,
- 2 it was in accordance with the drawings, so ...
- 3 Q. Did you know that there was a difference between the
- 4 horizontal cavity barriers that had been specified on
- 5 the project and the vertical cavity barriers that had
- 6 been specified?
- 7 A. Yes.
- 8 Q. Can you describe what the difference was for us?
- 9 A. To me the difference was the horizontal ones sat back
- 10 about 25 millimetres from the back of the cladding panel
- 11 to allow for vertical ventilation, the horizontal -- or,
- sorry, the vertical cavity barriers should have butted
- up to the back of the panel, because there was no need
- for horizontal ventilation. It was all about vertical
- ventilation .
- 16 Q. Were you aware that the horizontal had an intumescent
- strip that would activate to close the cavity --
- 18 A. Yes.
- 19 Q. -- but the vertical was a solid block of material which
- 20 wouldn't intumesce?
- 21 A. Yes.
- $22\,$  Q. Did you ever check the vertical cavity barriers on site ,
- do you remember?
- 24 A. Not specifically, no.
- 25 Q. And do you ever remember showing Building Control the

114

- 1 vertical cavity barriers on site?
- $2\,$  A. I -- well, as I said, I don't remember if they were
- 3 visible when I took Building Control up, so no, I don't
- 4 specifically remember.
- 5 Q. Did you ever see any examples of horizontal cavity
- 6 barriers fitted in the vertical position?
- 7 A. No.
- 8 Q. Can we just look at a photograph on this. This is from
- 9 Dr Lane's Phase 1 report, this is {BLAS0000008/48}.
- 10 I want to look -- this is figure 8.52, and we can see
- 11 this is the cavity barrier labelled RH25, and it's
- installed in the vertical orientation, isn't it?
- 13 A. Yes.
- 14 Q. Can you see that? Am I right that the green strip would
- be where the intumescent strip was?
- 16 A. I believe you're right, yes.
- 17 Q. So that's also been installed with the intumescent strip
- facing into the concrete, into the building.
- 19 A. Yes.
- $20\,$   $\,$  Q.  $\,$  Did you ever notice workmanship like that on site , with
- them being installed horizontal in the vertical position
- or indeed with the intumescent strip facing the wrong
- 23 way?
- 24 A. No.
- 25 Q. If you had seen cavity barriers installed in that way,

115

- 1 what would you have done about it?
- A. I would have asked them -- well, I hope I would haveasked them to change it and make it right.
- 4 Q. Yes.
- 5 Can you explain why this might have been found
- 6 on site?
- 7 A. I can't explain, no.
- 8 Q. Could it be, perhaps, because there wasn't a regular and
- 9 systematic inspection of the cavity barrier
- 10 installation?
- 11 A. It could be.
- 12 Q. Now, just sticking generally with the topic of
- inspections, but I want to ask about the insulation.
- Can we go to  $\{RBK00052478\}$ . This is a document which
- records some of the site notes made by RBKC
- Building Control, and what I want to do is go to page 3
- 17 {RBK00052478/3} and look in the middle of the page.
- These are notes from a site visit carried out by
- John Allen of RBKC Building Control on 24 March 2016.
- 20 Do you see that there?
- 21 A. Yes
- 22 Q. Do you remember a visit where you had Mr Allen instead

- 23 of Mr Hoban?
- 24 A. Yes, I do.
- 25 Q. I think you mention it --

- A. I asked for John to come in -- sorry, I asked for 2 John Hoban to attend site and then John Allen turned up.
- 3 Q. Yes. I think it's in your witness statement at
- 4 paragraph 61.6 {RYD00094213/14} for the transcript.
- 5 On the second line down he has put this:
  - "Ensure thermal insulation completely fills voids."
- 7 Do you see that?
- 8 A. Yes.

- 9 Q. We know that you emailed Ben Bailey of Harley the same 10 day, on 24 March 2016, if we can look at that. This is 11 {RYD00072239}. If we look at the top of that page, this 12 is you to Ben Bailey, and you say:
- 13 "I've just had a visit from Building Control and 14 he's flagged a couple of issues with Harleys' work, as 15 follows ..."
- 16 You have got:
- 17 "Ensure thermal insulation completely fills voids -
- 18 mainly gaps insulation around columns."
- 19 Do you see that there?
- 20 A. Yes.
- 21 Q. Can you just explain for us what the problem was?
- 22 A. I think round the columns some of the boards weren't cut
- 23 as neatly as they could do to fill the void or fill
- 24 right back to the building, so he had flagged it up.
- 25 Q. Do you know whether Mr Allen was made aware of the type

117

- 1 of insulation that was used in this visit?
- 2 A. It's not part of the conversation I remember, and this
- 3 would apply only to the bottom four floors at this time,
- 4 because by this time we had struck all the mast climbers
- 5 and we were doing the bottom four floors off
- 6 cherry-pickers.
- 7 Q. Right.
- 8 A. So I didn't take Mr Allen up in a cherry-picker, so it
- 9 would have been what he would have seen from the ground.
- 10 Q. That makes sense.
- 11 We talked about Harley snagging their own work
- 12 earlier, and I just want to take you to an example of a 13
- snagging sheet from Harley that they were using at this 14 time. Can we go to {RYD00059235}. I think this is
- 15
- an example of a snagging sheet. We can see it says,
- 17 bottom we can see it was conducted on 25 November 2015

"Grenfell Tower - External Handover", then towards the

- 18 and it says, "Façade handover ... WEST", do you see
- 19 above that?
- 20 A. Yes.

16

- 21 Q. And checked by Ben Bailey, do you see that there?
- 22 A. Yes.
- 23 If we can go to page 4 {RYD00059235/4} of the document,

118

- 24 we have got a section for the cladding, and we can see
- 25 the snagging comments for the cladding insulation and

- 1 cavity barriers?
- 2 A. Yes.

7

- 3 Q. Now, I think we've established it before, but when
- 4 you -- did you receive these sheets, these snag sheets?
- 5 Yes, this is exactly what I requested off Ben. This is 6
  - proof to me that Harleys are inspecting their work.
- O. On receipt of these sheets, would you ever go and have 8 a look at the snags he has identified to check that they
- 9 had been remedied?
- 10 A. I was aware of the snags because I also told Ben that
- 11 this was not what I needed, I needed a completed snag
- 12 sheet, and he needed to do everything on it and then
- 13 give me one which was completed so it would be ready for
- 14 me to go and do my inspection, and then also then after
- 15 that, following that, take up Building Control and the
- 16 clerk of works.
- 17 Q. I thought you said earlier that you didn't necessarily
- 18 do a formal inspection before Building Control came.
- 19 It wouldn't be necessarily -- sorry, not necessarily
- 20 formal inspection, but if Harleys told me that their
- 21 work was complete, I would go up and make sure that it
- 22 was complete.
- 23 Q. Yes, I see.
- 24 A. As I say, they had a duty to finish their work correctly
- 25 first .

119

- 1 Q. Did you ever find snags that they had overlooked or
- 2 issues that they had overlooked when you went back up?
- 3 A. No, but the best -- no, but as I said, I also did one of
- 4 their snags at the end, the one on the south, and that
- 5 would be an example of things I was looking at and ...
- 6 Q. Did you ever have any cause for concern about the
- 7 thoroughness of the inspections of Ben Bailey for
- 8 Harleys?
- 9 A. In terms of -- I had concern that he gave me a sheet
- 10 saying it was ready and it wasn't, because it still had
- 11 on there two nos, and I'm pretty certain I made this
- 12 clear to him in an email once that he needs to be giving
- 13 me completed snag sheets so it 's ready for me to go up
- 14 and have a look.
- 15 Q. Yes.
- 16 A. In very much the same way that that's what
- 17 Building Control and the clerk of works expected off us,
- 18 so I would hope, and the way I wanted it to run, that
- 19 Harleys would give me a completed snag sheet saying,
- 20 "It's all done, we have inspected it and we have carried
- 21 out our duties and done everything accordingly", I would 22 go up there, and by that time I wouldn't expect to see
- 23 anything, apart from a couple of little bits. I do
- 24 remember pointing out a little bit of black trim or
- 25 mastic which needed to be taken off before I took

- 1 Building Control up. But they were, by that time, very
- 2 minor snags that literally were done with the installer
- 3 at the time, because, as I said, I always went up with
- 4 an installer in the mast climber.
- 5 Q. Yes.
- 6 A. And they nearly always had tools in there that I would
- 7 come down -- as I say, we would almost snag it as we
- 8 came down, just cleaning a little bit here, taking it --
- or finishing off bits there. 9
- Q. Yes. 10
- 11 You referred to an email that you sent, can we look
- 12 at what I think might be that: {HAR00006955}. This is
- 13 an email you sent to Mr Bailey on 24 November 2015.
- 14 Now, do you want to just remind yourself, is this 15 the email you were referring to --
- A. Yes. 16
- 17 Q. -- earlier, where you raised a number of snagging issues
- 18 with Mr Ben Bailey? Some of them appear to include, if
- 19 we look at the second paragraph:
- 20 "Snagsheets have been sent to me with items not
- 21 closed off - I can't present these to the [clerk of
- 22 works] to enable him to start his inspections -
- 23 snagsheets need to be completed and signed off before
- 24 I receive them.
- 25 "Snagsheets need to be amended with references to

- 1 photos which aren't there omitted.
- 2 "Snagsheets need to be given to Bez & Taff onsite or 3 electronically - they're the ones doing the work, not 4 me."
- 5 Do you see that there?
- 6 So at this point, is it fair to say that you were
- 7 not happy with the snagging process that Harley had
- 8 adopted?
- 9 A. Yes, it is fair to say I wasn't happy.
- 10 Q. Were the problems you identified in this email ever 11 rectified? Did it get better?
- 12 Yes, I would say it got better.
- 13 Q. How quickly did it get better?
- 14 A. Well, some of those snags are only sort of half -- well,
- 15 minor work -- I would consider those -- they are snags,
- 16 they are minor bits of works which need to be finished
- 17 off before you can consider that elevation or that part
- 18 of the cladding fully finished. So I remember -- as
- 19 I say, I believe this was the first one we did and it
- 20 was about -- as I say, it was partly me setting the
- 21 standard that I expected from Harleys.
- 22 Q. Yes.
- 23 Now, if we could just look back at paragraph 86.2 of
- 24 your statement at page 20 {RYD00094213/20}, and if we go 25

122

to the third sentence, you say:

1 "I did one of the pre-handover snags of the finished

- 2 exterior on the north elevation as Ben Bailey could not 3
  - make it to site."
  - Do you see that there?
- 5 A. Yes. Yes. I'm trying to think whether --
- 6 Q. Do you think that was the north --
- 7 A. I think actually now, reading this again, that might be
- 8 the south elevation.
- 9 Q. Right.

4

- 10 A. I don't remember -- I don't know whether you have
- 11 a copy. It was -- I took a copy of a drawing, so the
- 12 elevation, and marked on there, I think it was about 15
- 13 to 20 points, bits I wasn't happy. I don't know whether
- 14 you have a copy of that.
- 15 Q. Not instantly, but --
- 16 A. No, we could show on there -- I would hope to show that
- 17 that was the elevation -- it might say on there what
- 18 elevation it was.
- 19 Q. Right.
- 20 A. But I remember it being the last elevation, which was
- 21 the south elevation, so I do believe I might have that
- 22 wrong in my statement.
- 23 Q. Right, okay.
- 24 SIR MARTIN MOORE-BICK: Do you remember whether it was the
- 25 elevation that had the entrance to the tower?

123

- 1 A. Yes, it was that one.
- 2 MS GRANGE: Yes, which would be the south, yes.
- 3 Just moving on to look at the remaining parts of
- 4 your inspection process, so step 3 below that, you said:
- 5 "I went and viewed all of the finished elevations
- 6 before offering those to John Hoban, of RBKC Building
- 7 Control, and Jon White, the Clerk of Works."
- 8 Did you have any form of method statement for those 9 inspections?
- 10 A. No. No method statement.
- 11 Just to be clear, did you have any experience of
- 12 inspecting cladding works before you undertook this
- 13
- 14 A. Only the cladding works that I've stated previously were
- 15 in the jobs that I did, but to me at that stage that's
- 16 my site manager role, is to inspect and finish finished
- 17
- 18 Q. Did you have any training in this aspect of your role?
- 19 Specific training, no, but 20 years of experience of
- 20 what I expected a finished building to look like.
- 21 O. Yes.
- 22 A. And that should be in accordance with the plans and 23 specifications .
- 24 Can you just help us as to exactly how you carried out Q.

124

25 these final finished elevations inspections?

- A. Like I think I explained to you earlier, you could say 2 that I almost, in fairness, was jumping on the back of 3 the Harleys inspections. They were giving me finished 4 products and that's what their inspection sheets were 5 showing, so I would go up the building, but I would do 6 it with an installer, who had a little bucket of tools 7 to finish things off. So by that time -- and we also 8 knew about the cladding panels, any scratches, so 9 I wouldn't expect to see any panels up there with 10 scratches.
  - So I don't think there is -- I have a formal inspection sheet saying I've done it, but what I've done is gone up the building and come back down with an installer, and said, "Right, not quite happy with that little bit", and we just finish it off there and then and come back down. So by the time I got to the bottom, I was happy that those elevations were ready for the clerk of works and Building Control to inspect.
- 19 Q. Yes.

12

13

14

15

16

17

18

- 20 Were you aware at the time that Rydon had a quality 21 control checklist?
- 22 A. Yes.
- 23 Can we just have a look at that. It's {RYD00042087}. 24 So this is a, I think, two-page checklist. So if we can
- 25 see there the first page, you have got to tick if

125

- 1 certain works have been completed to a satisfactory 2 standard. Do you see that there?
- 3 A. Yes.
- 4 Q. Then can we just look at page 2 {RYD00042987/2}, so you
- 5 have got a checklist there which is by room, and the
- 6 work to be done and de-snag check to be signed and
- 7 dated, and then who it's to be completed by. Do you see
- 8 that there?
- 9 A. Yes. I do.
- 10 Q. Did you use this checklist for your inspections of the 11 cladding works?
- 12 On this project, no, I didn't. I have used these
- 13 before. I remember being on the first project that they
- 14 were brought out in, and the idea behind them was to
- 15 make sure that the subcontractor was doing their works
- 16 in accordance. But they also were designed that the
- 17 subcontractor was to take responsibility for them in
- 18 some way, so a Harley snag sheet would take precedence
- 19 over this.
- 20 Q. Right, I see.
- 21 Did anyone at Rydon, for example Mr Blake, ever 22 check your work, like check what you were doing in terms 23 of your inspections?
- 24
- A. He asked me whether I was doing my job and going up 25 there and snagging it and doing the bits I was supposed

126

1 to, yes.

6

- 2 Q. Did Mr Blake or anyone else at Rydon ever inspect the 3 works for themselves?
- 4 A. No, because I wouldn't expect that to be his role as
- 5 such, to actually go out on an inspection. I would
  - expect Steve, if he saw something wrong with something
- 7 I was doing, or anyone, anything anyone was doing, to
- 8 tell me, and I would go out there and fix it, and he
- 9 certainly did that in terms of sort of things he saw
- 10 which possibly you could say were unsafe, he made me go 11 and make sure people were doing things right, but in
- 12 terms of a formal inspection, no.
- 13 Q. Did anyone ever raise concerns about the thoroughness of 14 inspections that had been carried out?
- 15 A. No. I believe we had been quite thorough, making sure 16 that subcontractors are doing their work, and they're
- 17 giving me sheets telling me they've done it all. Like
- 18 I say, they have a responsibility to make sure their
- 19 work is correct in the first place. I go up there,
- 20 I check, I do not have any sheets proving that
- 21 I checked, but by the simple fact that when I took
- 22 Building Control and clerk of works up there, it came
- 23 back with very minor issues.
- 24 Q. Yes.
- 25 If we go back to your step-by-step process that you

127

- 1 have got at paragraph 86.4 on page 20 {RYD00094213/20}
- 2 of your statement, this is after -- so you have said in
- 3 86.3 that you have viewed all of the finished elevations
- 4 before offering them to Building Control and the clerk 5 of works, and then you say:
- - "On the first proper handover inspection John Hoban and Jon White came up together and Jon White did a snag
- 8 list ."
  - Do you see that there?
- 10 A. Yes.

6

7

9

- 11 Can you recall when the first proper handover inspection 0.
- 12 was? We're currently somewhat unclear as to when that 13 might have been.
- 14 That was the second time I took John Hoban up the
- 15 mast climbers. So in my witness statement, the second
- 16 time I took him up there was the formal -- I would say
- 17 the formal inspection. I told him, "We are ready, it is
- 18 all up there for you, please come and have a look", and,
- 19 as I think I said earlier, the clerk went up there with
- 20 Building Control and the clerk was the one who wrote the
- 21 list . because --
- 22 Q. So early January 2016, could that be --
- 23 Yes, I believe it was.
- 24 Was the cladding complete by that stage?
- 25 Yes. Sorry, when I say complete, it was complete from

- 1 the 4th floor up to the 23rd floor.
- $2\,$  Q. Yes. So taking that 4th floor to the 23rd floor, would
- 3 Building Control have had any opportunity at that
- 4 inspection to look behind the cladding panels to see the
- 5 insulation and cavity barriers, or would that all have
- 6 been covered up?
- 7 A. On that visit, no, they would not have been able to see
- $8\,$   $\,$  it , but that was the point of the first  $\,$  visit a couple
- 9 of weeks prior, to make sure that he could see it. As
- 10 I explained to you, the last thing that I wanted on that
- $11 \hspace{1.5cm} \text{handover inspection, the second one we did, was for John} \\$
- 12 to say, "I've not seen behind it, please take some
- $13\,$  panels off so I can see ". That's why I took him up the
- first time. You could say it was a pre-inspection visit
- to make sure that he was happy with the insulation and
- 16 the cavity barriers, what he could see at the time.
- $17\,$  Q. What did you understand the role of Building Control to
- be during their inspections?
- 19 A. That if they see anything wrong, they would tell us.
- $20\,$   $\,$  Q.  $\,$  Do you agree that  $\,$  it's not the role of Building Control
- $21\,$   $\,$  to  $\,$  quality  $\,$  control the works carried out by Rydon and
- 22 Harley?
- 23 A. I don't know semantics of it, but I would always expect
- Building Control, if they didn't see the quality was
- right, to say something.

- 1 Q. Right.
- $2\,$   $\,$  A. Whether you say they have  $\,$  responsibility ,  $\,$  I  $\,$  don't
- 3 understand that, but I would always expect them, if they
- 4 saw something substandard in their opinion, to tell us.
- 5 Q. Do you agree that, in a design and build contract, the
- 6 contractor can't rely solely on Building Control to
- 7 raise issues that it might have missed?
- 8 A. Yes, I do agree.
- 9 Q. Was that what you were doing in practice? I mean, how
- 10 much reliance were you placing on Building Control to
- pick up things you might have missed?
- 12 A. Me, on, what, these inspections? None.
- 13 Q. Yes.
- 14 A. I was taking them up there thinking it was completely
- finished and hoping that he would say, "Yes, I agree
- 16 with you, it is finished and I'm happy, carry on, please
- strike the mast climbers".
- 18 Q. So did you understand he was, on that "is it finished"
- 19 check, looking at any questions of compliance with the
- 20 Building Regulations at all, or was it -- what did you
- 21 understand him to be looking for on that visit?
- 22 A. I thought every visit they do they are looking at
- compliance with Building Regulations, that's their role.
- 24 Q. Yes.
- Now, just moving on to your step 5. 86.4 we have

- 1 just discussed:
- 2 "On the first proper handover inspection John Hoban
   3 and Jon White came up together and Jon White did a snag
- 4 list ."
- 5 Then you say at 86.5:
- 7 Then Harleys would rectify the snags and Jon White would inspect again to check they were done. John Hoban
- 8 did not want to view the completed snags as they were
- 9 mainly scratches."
- Do you see that there?
- 11 A. Yes.
- $12\,$   $\,$  Q. So did you rely on Jon White to check that the snags had
- 13 been rectified?
- 14 A. Yes, because that's part of the handover process,
- anything on a client inspection sheet, they need to
- 16 check that has been done.
- 17 Q. Why did Rydon not check for itself as well?
- 18 A. We did.
- 19 Q. You did?
- 20 A. Yes.
- 21 Q. When was that?
- 22 A. Prior to taking Jon White up there.
- 23 Q. I see. So before 86.4, before the first proper handover
- inspection, you say you would have checked?
- 25 A. Yes. That's how the snagging process works, is, as

131

- 1 I said, for Harleys to do their own snags, they present
- 2 it to me, I then check it, I check I'm happy that I can
- 3 present it to the people who need to approve our work or
- 4 Rydon's work, which is Building Control and the clerk of
- 5 works. So then any snags which come out of those two
- 6 lists, I then give back to Harleys because it's them
- 7 doing the work.
- 8 Q. Yes.

11

- 9 A. They rectify the snags. I then check the snags are
- done, and then I re -- or I give the finished product
  - back to -- or, as I say, I asked John Hoban -- or Jon,
- sorry -- I'm getting confused with Johns here --
- Jon White to come back and inspect that the snags are
- 14 done. And as I said before, I would never have struck
- $15 \hspace{1cm} \text{those mast climbers unless } I \hspace{0.1cm} \text{knew that } I \hspace{0.1cm} \text{had that}$
- 16 assurance that Jon White was happy that all the snags
- 17 had been done.
- 18 Q. Yes.
- Were you aware of what the obligations were between
- 20 the TMO and John Rowan and Partners, the clerk of works?
- Were you aware of what they had been contracted to do by
- 22 the TMO?
- 23 A. Not at all.
- 24 Q. So you weren't --
- 25 A. Sorry, I knew that they were clerk of works and I would

130

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

3

9

1 expect that to be what a clerk of works does. I have 2 a clerk of works on every job.

- 3 Q. Would that expect that to include checking for
- 4 compliance with the Building Regulations?
- 5 I would say it's more checking compliance with the plans 6 and specifications as per my role is.
- 7 Q. Yes.

8 Now, I just want to look at your witness statement 9 at paragraph 97, so something you say further on. This 10 is at  $\{RYD00094213/22\}$ . This is the meeting that you 11 said you had there. You say:

12 "I had a meeting on 12th January 2016 with Jon White 13 and Tony Batty [the clerk of works] which was also 14 attended by Andrew Malcolm of Artelia and Matt Smith of 15 Max Fordham. The purpose of this meeting was to go 16 through the Clerk of Works reports to date and correlate 17 all of the outstanding issues on to one definitive 18

19 Do you see that there?

- 20 A. Yes.
- 21 Who was that list then provided to, after that list had 22 been compiled?
- 23 Well, Andrew Malcolm took or sort of chaired the 24
- meeting, he was the one who provided the minutes 25 afterwards, with all the items, and then I would have

133

- 1 gone through with the relevant subcontractors to get all 2 the outstanding items finished. I know quite a few of
- 3 them, certainly Tony Batty's items, would have been JSW,
- 4 because it would have been M&E snags or bits which were
- 5 outstanding.
- 6 Q. So were you responsible for resolving the outstanding 7 issues?
- 8 A. I was -- well, responsible for managing the process, ie
- 9 telling the subcontractors, "This is still outstanding, 10 the clerks are not happy with it, please sort it out or
- 11 give me the information that they're asking for", then
- 12 I would have given it back to the clerks.
- 13 Q. Yes.
- 14 A. So this meeting -- the idea of this meeting was -- it 15 was all part of the handover process. The clerks were
- 16 never going to sign off a building unless everything had
- 17 been done and all their reports, including the ones
- 18 prior to my involvement. So this was a meeting to go
- 19 through all of the reports prior to my involvement, get
- 20 all the outstanding items on there, items they were
- 21 still not happy had been resolved satisfactorily, and
- 22 get them all on to one definitive list so then I could
- 23 work my way through them and resolve them and rectify

134

- 2.4 them.
- 25 Q. Yes.

A. Or get the responsible parties to do the work.

2 Now, I want to show you something that Mr Neil Reed of 3 Artelia has said about that meeting. If we can go to 4 his witness statement, this is at {ART00006663/15}. 5 Mr Reed says:

"On 12 January 2016, Andrew Malcolm, my assistant EA, attended a clerk of the works reports review meeting, at which JRP [John Rowan and Partners], Silcock Dawson, Rydon and Max Fordham were present. During this meeting, the [clerk of works] Reports were reviewed for outstanding points. Those points were then identified and responsibility was allocated to an individual present at the meeting to address them. A number of outstanding issues on fire stopping and fire sealing were identified and were the responsibility, in each case, of Dave Hughes of Rydon. Jon White also raised a number of issues at the meeting relating to fireproofing. Apart from the instruction of a quotation for fireproof painting, those issues were the responsibility of Dave Hughes. Once again, as would be expected for a project of this nature, outstanding issues were identified and arrangements were made for them to be addressed before completion. In any event, as I explain in paragraphs 112 and 113 below, both

135

Silcock Dawson and [John Rowan and Partners] later

1 formally signed off on Rydon's works for the purposes of 2 certifying practical completion."

Do you see that there?

4 A. Yes

5 So if we can go back one page, I want to ask you about 6 some of these outstanding issues. It's said there:

7 "A number of outstanding issues were identified on 8 fire stopping and fire sealing ..."

Do you recall what those issues were?

- 10 A. One of the issues was to do with the fire sealing of the 11 communal pipes through the floors in the heating
- 12 cupboards on each lobby.
- 13 O. Yes.
- 14 A. So from the 4th floor up to the 24th floor, there was 15 a new heating cupboard where all the new communal 16 pipework came up, and to do that, they drilled holes 17 through the floor. As I say, the clerks weren't happy 18 what had been done, or it wasn't 100% in accordance with 19 the specification, what had been specified, so they were 20 raising a concern with it.

21 So, as I say, I don't agree it was my 22 responsibility, but I went through the process of 23 managing and getting the subcontractors or whoever

needed to do the works --

25 Q. Yes.

24

A. -- to get them signed off, and like he said, the 1 description just now, is it? 2 2 clerks -- we did what was required and to the A. Yes. To me, that's what fireproofing is, yes, more 3 3 satisfaction of the clerk of works. a coating of materials. 4 4 Q. Yes. That was my next question: did you agree that MS GRANGE: I see. 5 these were your responsibility in each case? 5 Mr Chairman, I'm about to start a related topic, 6 6 A. I would say he is saying their Rydon's responsibilities which is a little bit more on the clerk of works, but 7 7 as a main contractor, and I was the one sitting in the I think if I start the next bit I'm going to --8 8 SIR MARTIN MOORE-BICK: I think it might be better to have meeting, so they're saying, yes, you're the one who 9 9 needs to ... thing. Whether or not I'm responsible for a break now, mightn't it? 10 it, I'm not the one doing the work, I'm managing the 10 MS GRANGE: Exactly. 11 11 SIR MARTIN MOORE-BICK: How are you getting on? Quite work. 12 Q. Yes. 12 13 13 A. So I'm responsible for, yeah, making sure the job is MS GRANGE: We are getting on fine, yes. SIR MARTIN MOORE-BICK: Mr Hughes, we will have another 14 done or getting the relevant subcontractors to do what 14 15 15 break now so we can all get some lunch. Please don't was needed. 16 Q. Yes. 16 talk to anyone about your evidence or anything to do 17 There's also reference there to fireproofing two 17 with the refurbishment while you're out of the room. 18 lines below that: 18 THE WITNESS: Okay, thank you. 19 "Jon White also raised a number of issues at the 19 SIR MARTIN MOORE-BICK: And we will resume at 2 o'clock, 20 20 meeting relating to fireproofing." please. All right? 21 21 THE WITNESS: Okay, thank you. Do you see that? 22 22 A. Yes. SIR MARTIN MOORE-BICK: Thank you very much. If you would 23 23 Q. Do you know what that's referring to as distinct from -like to go with the usher. 24 A. I think fireproofing is to do with the intumescent paint 24 (Pause) 25 25 to the steelwork. To me, that's fireproofing, is to --2 o'clock, then, please. Thank you. 137 139 1 almost painting steel in a sort of intumescent fireproof 1 (1.00 pm) 2 2 or fire paint. (The short adjournment) 3 3 Q. Yes. (2.00 pm) 4 A. Fire sealing was to do with penetrations through 4 SIR MARTIN MOORE-BICK: All right, Mr Hughes? 5 holes -- or penetrations through floors, sorry, or 5 THE WITNESS: Yes, thank you. 6 6 SIR MARTIN MOORE-BICK: Ready to continue? walls. 7 Q. Yes. 7 THE WITNESS: Yes. 8 8 The meeting minutes of that we can just have a look SIR MARTIN MOORE-BICK: Yes, Ms Grange. 9 at, {ART00006688}. We can see at the top it says, 9 MS GRANGE: Thank you. 10 "[Clerk of works] COW Reports Review Meeting Minutes" 10 I just want to start by correcting something I said 11 11 dated 12 January 2016. Do you see that there? earlier this morning about John Hoban's site visits. 12 12 I put it to you that John Hoban's visit in October 2015 A. Yes 13 13 Q. We can see you're in attendance, together with the clerk was only the third of that year. We have checked the 14 of works and some others. 14 point, and while there are only two visits officially 15 15 If we look at page 5 {ART00006688/5} of the minutes, recorded in the RBKC system, their electronic system, we at the bottom of the page, fourth line from the bottom, 16 16 think there may have been more based on other material. 17 it says there: 17 Now, we have not yet had Mr Hoban's evidence, and he 18 "Fire proofing - all around the site (new and 18 will be asked about this in more than detail, but what 19 existing) needs to be done as per the Fire Strategy." 19 I want to do is just ask you whether you had any 20 Then your initials are next to this. 20 concerns during your time on site about the frequency of 21 21 A. Yes. site visits from Building Control. 22 Q. What fire strategy is being referred to there? 22 A. During my time, no concerns at all about frequency. It 23 23 A. As far as I was concerned, it was the fire strategy would be what I expected. 24 24 drawings. Q. Yes. 25 Q. Right, yes. And the fireproofing is as per your 25 Now, another topic we discussed this morning was

1 about the taping of joins and joints on the insulation 1 walls (marked up drawing attached), making sure that the 2 2 boards. Do you remember? joints are butted tightly together and the joints taped 3 3 with adhesive backed foil '0' tape. Joints against the A. Yes. 4 4 Q. You said to me that: existing concrete should be sealed with suitable 5 "... the joins on the insulation boards weren't 5 intumescent mastic." 6 6 taped. I asked Taff and Bez this question and they said Do you see that there? 7 7 that they didn't need to, and that's when I went back A. Yes. 8 and referred to the Celotex -- or had a look at the 8 Q. Had you read that Harley method statement when you were 9 9 Celotex brochure ..." considering the point about taping of joints? 10 Then you carried on, and you said that you could see 10 A. I know I read a method statement for Harleys, because 11 nothing in the Celotex brochure that it needed to be 11 they had a number of them. This one specifically for 12 12 the cladding, I don't know whether I read the earlier 13 13 one, but I certainly read a Harley one and I didn't note Now, I just want to look at the Celotex rainscreen 14 cladding guide, first of all. This is at {CEL00000013}. 14 15 15 Do you recall whether it was this document that you Q. Actually, if we look at the next paragraph, paragraph 16 looked at? 16 number 10, I think this is actually clearer about the 17 A. That wasn't the document I looked at. 17 insulation. It says: 18 Q. No, okay. 18 "Operatives will then fit the 100mm thick insulation 19 19 It was more of a datasheet. around the brackets and firebreaks, taping joints with a 20 20 class 0 adhesive foil tape where necessary." Q. This is the rainscreen cladding specification guide 21 dated 27 August 2014, and if we go to the page 14 21 Do you see that there? 22 22 {CLG00000013/14} and look on the right-hand column, if A. Yes. 23 23 we could blow up the top of that page, above the heading Q. So that's very clearly saying it's part of the Harley 24 "Selection of fasteners" on that right-hand column, it 24 method statement that Osborne Berry ought to be taping 25 25 with a class 0 foil tape around the joints. savs: 141 143 1 "In all cases, the joints of the insulation boards 1 A. I would say that they didn't do number 9 but they did do 2 2 should be taped with a self-adhesive aluminium number 10, because they taped the joints between the 3 rainscreen foil tape with a minimum width of 75mm." 3 boards and the firebreaks or the cavity barriers, so 4 Do you see that there? 4 that was taped. 5 A. Yes, I do. 5 Q. But you don't think they did number 10? 6 6 Q. But you hadn't looked at this guide? A. No. They didn't do number 9 but they did do number 10. 7 7 Q. I see. I thought you said to us earlier that you A. No. 8 8 Q. So you didn't find anything in the literature you looked checked and the joins in the insulation boards didn't 9 9 need to be taped. 10 A. No, I didn't see that, and I never read that guide. I'm 10 A. I'm talking about joins between boards. The join 11 11 pretty sure it was a product brochure sheet or the between the boards and the cavity barriers were to be 12 product datasheet I read. 12 taped, that's what I was told, and everywhere I saw, 13 Q. Right, yes. 13 that was done. So I'm only talking about where two 14 Can I also have a look at the Harley method 14 insulation boards butt up against each other. They were 15 statement for cladding installation . This is 15 the joins I was talking about that I checked. But I was 16 {RYD00044095}. So we see the Harley method statement 16 told and everywhere I saw, where a board butted up with 17 for Grenfell Tower, and it says, "Activity: Installing 17 a cavity break, that was to be taped and that --Column Cladding". Do you see that on that first page? 18 18 O. Right. 19 19 Everywhere I looked, I saw that. 20 Q. I want to look at something on page 3 {RYD00044095/3}. 20 So you didn't understand from anything in this method 21 Point 9 at the top, there is a series of numbered 21 statement that the joins of the insulation boards 22 22 points, and it says this: themselves should be taped to one another?

142 144

23

24

25

"When all the brackets have been installed on the

cladding rails, operatives will install the vertical

firebreaks in the same position as the internal party

23

24

25

A. As I say, I didn't read this, or -- I'm sure I read

a method statement, and there were a number of them,

because this is specifically for the cladding on the

1 column panels, I think I must have read one of the 1 combustibility for the entire envelope." 2 2 earlier ones. Well, if it says there, then they should Pausing there, I think you confirmed this morning 3 3 have been doing it. that wasn't something you were aware of at the time of 4 4 Q. Can you explain why you wouldn't have read this method working on the project. 5 statement if you were supervising this aspect of the 5 No, I wasn't aware. 6 6 Q. Then it says: works? 7 7 A. I can't, no. I'm ... "Kingspan Kooltherm K15 rigid insulation is 8 8 Q. Okay. currently the subject of debate and further 9 9 Just a couple of other points from this morning. investigation after its suitability for use in certain 10 You mentioned that the FR in FR5000 stood, you 10 construction types of buildings over 18m has been called 11 thought, for flat roof. 11 into question." 12 A. Mm-hm. 12 I wanted to ask you about that: were you ever aware 13 13 that the use of Kingspan K15 in buildings over 18 metres Q. Do you remember saying that? 14 A. Yes. had been called into question? 15 15 Q. Can you recall, how did you come to that view? A. Not aware at all. 16 A. I don't remember, but it's something I have 16 Q. Or the subject of debate? 17 a recollection of. 17 A. No. 18 Q. Right. So you don't know who told you that the FR stood 18 Q. No. 19 19 Then before I pick up on where I was at this 20 20 A. Specifically -- I don't know if that was from before the morning, we want to take you to a photograph of the 21 21 fire or after the fire, but as I say, I knew that the tower, which I believe was October 2015. If we can go 22 22 boards being fitted at Grenfell were RS5000. to {RYD00055130}. This is, we believe, either the east 23 23 Q. Yes. Okay. I see. or the west façade. We know it's either the east or 24 Now, I think a couple of times this morning you said 24 west because that has only two columns down the middle. 25 25 that when you started on the project you looked at any Do you remember? And the north or south has three. So 145 147 1 1 relevant NHBC guidance; do you remember that? we can't be clear which of the two it is, east or west, 2 2 A. No, I didn't say I looked at it, I said that would be but we've zoomed in, and with the help of the operator 3 3 I think we can zoom in to some of the branding on the the document I would go to if I had any queries. 4 4 Q. Yes, I see. insulation. I don't know whether you can see that. 5 A. I wouldn't go to Building Regulations, that's too 5 It's not terribly clear, but we think that is some 6 6 high-level for me, so I would deal with the NHBC Kingspan K15 that you can see in the middle of this 7 7 guidance. page. Do you see that? 8 8 Q. Do you have a recollection of ever looking at any NHBC A. 9 9 guidance on this project? Q. It has a blue logo going diagonally across the page. Do 10 A. No, I don't, not specifically on this project, but it 10 you see that? would surprise me if I hadn't, because certain things, 11 11 A. Yes. 12 that's where I would look. 12 Just to be clear, it's your evidence, is it, that you 13 Q. Yes. 13 weren't aware of any K15 being used on the building 14 prior to you approving it in late December 2015, early 14 Let me just show you a piece of NHBC guidance and 15 15 2016; is that right? see if that triggers any recollection. So if we can go 16 to {NHB00001317}. So this is a NHBC workbook on 16 A. I confirm that, yes. 17 cladding systems from 2015. Do you have a recollection 17 Q. Yes, okay. 18 of looking at that? 18 A. Sorry, when were these photos taken? 19 A. Never seen it . 19 We believe October 2015. 20 Q. No. 20 A. Because I believe I took that photo. As I say, the 21 Can we look at page 24 {NHB00001317/24} of this 21 first week I was there, I took a photo of each

146 148

22

23

24

25

elevation.

in when I went to site.

A. And that would be basically what state the building was

Q. Yes.

workbook, and I want to look at the second paragraph

filler materials in walls is required to be of limited

"In buildings of over 18m in height, insulation and

down on that page. It says there:

22

23

24

4

5

6

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

Q. Yes, okay. Thank you.

2 So just picking up where I left off, I was about to
3 turn to look a little bit more at your relationship with
4 John Rowan and Partners, the clerk of works on the
5 project. I want to go to some minutes of a progress
6 meeting in September 2015, so just before you joined
7 site. This is at {ART00006666}.

So we can see there this is progress meeting 15, held on 18 September 2015. If we go to item 7.4 on page 7 {ART00006666/7}, if we can zoom in, it says there:

"Quality Control - Rydon is not responding to the CoW's observations and comments Re quality, etc. Issues are not being resolved and responses are not being provided. Rydon to remedy as part of the Design Meeting process covered off earlier in the meeting."

Do you see that there?

18 A. Yes.

8

9

10

11

12

13

14

15

16

17

- 19 Q. Now, when you were preparing to join the project, did
- you read any of these progress minutes?
- 21 A. No. Well, I had one day preparation.
- 22 Q. But you didn't read them, say, in the couple of weeks
- afterwards when you were first there?
- A. I do -- when I get on site, I do read as much as I can do to try and get a bit of a history on it, but I don't

149

- 1 specifically read in old site meeting minutes.
- Q. But were you made aware of anybody else of concerns
- 3 expressed by the clerk of works that their observations
- 4 were not being listened to by Rydon?
- 5 A. Yes, the clerks made it aware to me, I believe, in
- a meeting, and that was part of the reason for that
- 7 meeting in January that we discussed earlier --
- 8 Q. Yes.
- 9~ A.  $\ \mbox{--}$  of going back to through the old reports and getting
- 10 all the outstanding issues into one list and resolving
- 11 them.
- 12 Q. Right.
- Can you tell us any more about the nature of their concerns about quality? Were you given any details?
- 15 A. I would say it is because the same things were appearing
- on reports on a number of times.
- 17 Q. Yes.
- 18 A. We could say they're not being resolved. I would like
- 19 to think that if something appears on a report once,
- $20\,$   $\,$   $\,$  I would try and sort it out and make sure it doesn't
- 21 happen again.
- $22\,$   $\,$  Q. Can you recall  $\,$  what kind of things they were raising
- about the cladding?
- $24\,$  A. Cladding, no, but it would be -- if they were
- 25 outstanding, it would have been what was discussed in

150

1 that meeting in January.

2 Q. Yes, I understand.

Can we turn on to some more minutes of a progress meeting held on 17 November 2015. This is {ART00005184}, and this time we can see that you are present, David Hughes, five lines down there.

7 Then if we can go to page 3 {ART00005184/3} of the 8 minutes and look at item 2.13, it says there:

"This matter is ongoing in that Rydon is not formally responding to the queries, direction and observations provided by Jon and Tony. SB [Steve Blake] confirmed that Rydon had no comments on the issues being raised in the COW reports. But the issue remains that the CoW are expecting a response to allow matters to be concluded satisfactorily . Rydon did not provide a commitment to respond and suggested that issues that need addressing could be raised in an email to SB. NR [Neil Reed] stated that this was not satisfactory and responses to the CoW reports are key to ensure outcome certainty is managed Re all things compliance and quality. TB [Tony Batty] noted that items will be reviewed at ultimate inspection at handover and if not resolved the certificate of [practical completion] will not be issued. NR supported the statement."

151

Do you see that there?

1 A. Yes.

- $2\,$   $\,$  Q. So looking at that, can you explain why it was that
- 3 Rydon was failing to respond to the issues raised in the
- 4 clerk of works reports?
- 5 A. I don't want to comment on what happened before, but
- I do know afterwards that I started to respond to their
- 7 reports and, as I say, tried to close out the snags or
- 8 any defects or any issues they had as quick as possible.
- $9\,$   $\,$  Q. We can see three lines up from the bottom that the
- 10 concern seems to be about "outcome certainty is managed
- $11 \qquad \quad \text{Re all things compliance and quality ".} \quad \text{Were you aware} \\$
- 12 that they were concerned about the compliance of the
- 13 works?
- $14\,$   $\,$  A. Well, that's their job, is to ensure that, as I say, to
- $15\,$  me, it complies with the plans and specification .
- That's what I would say they're assessing their works on, so yes. And as I say, also note the last statement,
- where it says if it wasn't resolved, we wouldn't have
- got PC. So my job and what I did over the next
- 20 nine months was to ensure that the clerk of works, all
- 21 the issues were resolved.
- 22 Q. Can we look at an inspection report that Jon White
- 23  $\,$  produces in December 2015, this is  $\,$  at  $\,$  {RYD00063728}. So

with regard to, on page 1, resources -- so this is dated

25 10 December 2015, and I just want then to look at --

152

1 there's a whole section headed "Resources", and I want 2 to look in the comments box there. So it says this:

"One of [the] site managers Jason, who is the longest site manager, is away for approximately 4 weeks. Also Jack the trainee foreman is not in, and Chris is

also not in. Rydons need to get additional supervision,

7 otherwise site safety could be compromised. Also the

8 contract manager Steve Blake has not been on site all 9

week."

10 Do you see that there?

11 A. Yes.

3

4

5

6

12 Now, do you recall receiving this inspection report?

13 A. Yes, I would have received it. I was there on site and 14 it would have been sent to me.

15 Q. Did it concern you that so many site supervisors and

16 site managers were absent at this time?

17 A. Not overly, no. I felt we had the site under control.

18 Q. So you didn't think that these concerns about presence

19 on site were justified?

20 A. There was obviously -- when I first started, there was

21 Chris, Jason and Gary and Jack, who supervised, and

22 myself, so you could say there was four site managers

23 and one assistant, we went down to two site managers and

one assistant in the time before Christmas. So, no, 25

I wouldn't say that that was concerning. If I had been

153

1 on site on my own, then yes, I probably would have been 2 concerned, it would have been too much for me, but --

3 Q. Okay.

2.4

6

4 A. As I say, we knew that Jason was going away. I don't

5 specifically know why Chris wasn't there that day. It

might have been just a day off, I don't remember. But

7 I know that Jason went away for four weeks over

8 Christmas because he had a lot of leave to use up, so we

9 were aware and we could manage Jason. I don't remember

10 why Chris wasn't there.

11 Q. So that's Jason North?

12 A. Jason North, yes. 13 Q. And Chris?

14 A. Holt.

15 Q. Chris Holt, yes.

16 How did you plan at this point to ensure that

17 adequate supervision was carried out?

18 A. How do you mean? Sorry, I don't understand that 19

20 Q. Well, did you think that there needed to be any changes

21 in the light of this concern being flagged by the clerk

22 of works?

23 A. I knew Jason was planned leave, so no, and as I say,

24 I can't remember whether I picked up his work, he was

25 mainly looking after the bottom four floors at the time.

154

1 Chris was looking after the internals, so as I say, it

2 doesn't say anything about -- so I would say that it

3 would be me and Gary who were still on site. Gary was

4 looking after the communals. Gary could pick up Chris'

5 work and I could pick up Jason's work.

6 Q. Okay.

7 A. So I don't think that's the same as if another site

8 manager -- so we don't always, when a site manager has

9 a holiday, ensure that somebody else comes in.

10 0.

11 So, no, I don't -- I'm not concerned by that at all. A.

12

14

19

13 A. But I would say it was -- the clerk of works, it was

within his remit to report if he thought it was

15 under-resourced, but I don't agree that it was.

16 Q. No, okay.

17 Now, on page 2 {RYD00063728/2} of this report, we

18 can see that he has given a score for health and safety,

if we look at the top of the page. It's headed

20 "Performance indicators", and there is a 7 for

21 workmanship, a 7 for quality, but then only a 5 for

22 health and safety. Do you see that there?

23 A.

24 Q. We can see from the key below that between 4 and 5

25 demonstrates:

155

1 "... inconsistency in achieving/meeting the required

2 quality standards. Inconsistencies in performance

3 evident. Responsive rather than pro-active approach to

quality issues evident."

Do you see that there?

A. Yes.

4

5

6

7 Q. Now, in the light of that, did you take any steps after

8 this to improve your process of inspection and

9 supervision?

10 A. Not specifically, but I would hope that Jon, if he had

11 any concerns, that he would raise them with me on site

12 before he left . That was something I always tried to

13 ensure with the clerk of works, that they didn't leave

14 site without telling me what their concerns were. Part

15 of the process of obviously managing their expectations

and managing their view that they weren't being listened 16

17 to was to ensure that he told me what the issues were 18 and that I listened to him and dealt with it.

19 So I don't specifically remember that 5 score.

20 I don't know whether I consider it fair or not. But, as 21 I say, I would expect him to tell me specifically what

22 it was, and if it was purely related to the fact that he

23 didn't think we had enough supervision, then I disagree 24 with it.

25 Q. Okay. But you don't recall a separate conversation with

3

1 him about this?

- 2 A. I had lots of conversations with him. That's one of the
- 3 main parts of my job, is to talk to people. So, I'm
- 4 sorry, I don't remember specific conversations like
- 5 that, no.
- 6 Q. You don't recall a conversation where they were talking
- 7 about potentially health and safety not being
- 8 consistently dealt with?
- 9 A. Well, it also talks about four things about quality
- 10 issues, but in health and safety, no, I don't remember.
- 11 It might be that he had seen something and, as I said,
- 12 I would expect to see it.
- 13 I didn't always walk around with the clerks, but by 14 this time I would say that I probably had assumed the
- 15 number one role on site, so I would hope that they would
- 16 come and tell me what their concerns were, because
- 17 sometimes you don't get the report for another three,
- 18 four days, or possibly the next week, so if it is 19 a serious issue, they should tell me there and then.
- 20 But I don't remember what that one was, and I don't
- 21 know whether it says anywhere else in there whether
- 22 there was a specific health and safety issue that he was
- 23 giving us a 5 for.
- 24 Q. In your experience, did Rydon ever appoint its own clerk
- 25 of works to carry out inspections on projects?

157

- 1 A. Never been my experience for that, no. That's what our
- 2 site manager role is.
- 3 Q. I see, so that's why you don't --
- 4 A. Part of our role is to manage it.
- 5 Q. Yes.
- 6 Just to pick up a few more questions about
- 7 information provided to Building Control, can we just 8 look at paragraph 72 of your witness statement. This is
- 9 on page 17 {RYD00094213/17}. You just say there:
- 10 "I also relied upon the advice received from and
- approval given by the RBKC Building Control surveyors, 11
- 12 John Hoban and Paul Hanson."
- 13 Now, I want to ask about the information that was
- 14 shared with them.
- 15 When you started on site, did you ever enquire as to
- 16 what information Building Control had been provided with
- 17 about the external cladding system?
- 18 A. About the external cladding system, no.
- 19 Did they ever indicate to you at any time during your
- 20 dealings with them that they didn't have the information
- 21 that they required in terms of the external cladding?
- 22 A. No.
- 23 Q. Now, in paragraph 58.4 of your statement -- this is on
- 24 page 12 {RYD00094213/12} -- this is in the context of
- 25 the alterations to the community room layout to

accommodate the AOV, and in the last few lines you say:

2 "I definitely sent a drawing to the architect for

his approval and showed this alteration to John Hoban,

- 4 RBKC Building Control surveyor, during one of his
- 5
- 6 Do you see that?
- 7 A. Yes, I do.
- 8 Now, when Building Control were on site, did you
- 9 regularly show them drawings during their site visits?
- 10 A. No.
- 11 0. Did you ever give Building Control drawings to take away
- 12
- 13 A. Not to my recollection, no.
- 14 Q. So it would follow from that, would it, that there was
- 15 no record of what information or drawings had been
- 16 provided to Building Control by you and Rydon?
- 17 A. As I say, any drawing that I provided, it would probably
- 18 be done by email, so the record would be on email, but
- 19 I would say that the record is what they were given
- 20 to -- when they were -- the application was put in,
- 21
- 22 Q. At any stage during any of their site visits, were any
- 23 concerns raised with you about compliance with the
- 24 **Building Regulations?**
- 25 Well, I would say that any, say, any snag or any issue

159

- 1 he raised, specifically, like I say, towards the end,
- 2 was always about compliance with Building Regulations.
- 3 It was ensuring -- as I say, that's what my
- 4 understanding is, that's their role, to come and
- 5 basically say, yes, you have built in compliance with
- 6 it, or compliance with the drawings that they were
- 7 given.
- 8 Q. Yes.
- 9 I want to look in a little more detail at the visit 10 that Building Control did on 7 January 2016, because 11 we've got some minutes of this.
- 12 Now, you refer to this meeting at paragraph 61.4 of your statement on page 13 {RYD00094213/13}, if we can
- 13 14 just have a look at that. You say there: 15 "Steve Blake and I had a meeting on site with the
- 16 two senior building control surveyors, John Hoban and 17 Paul Hanson ... on 7th January 2016, also in attendance 18 was Neil Crawford, the architect from Studio E ...
- 19 purpose of the meeting was to discuss what would be
- 20 required to achieve Building Control completion prior to
- 21 handover to the client. We initially met in the site
- 22 office for the first part of the meeting and then walked
- 23 the relevant parts of the building. I took the minutes 24 of this meeting [and you exhibit them] ... and
- 25 distributed them to all attendees and requested

15

16

1 a response from John Hoban and Paul Hanson if they had 2 any comments." 3

Do you see that there?

4 A. Yes.

5

7

8

9

10

11

12

13

14

15

16

17

18

Q. Then you go on and say that you distributed those 6 minutes to the client team.

> You mention in the last few lines of that paragraph of your statement that there is a typographical mistake in the minutes about the existing riser cupboards, and you have explained what that mistake is.

Can we look at those minutes, {RBK00003856}. So this is, these are minutes of the meeting that was held there with John Hoban, Paul Hanson, Neil Crawford.

You can take it from me, we have looked through these minutes and they contain no information about the external façade. Is that because you didn't discuss the external façade with RBKC Building Control at this meeting?

- 19 A. I don't remember discussing it in detail, but as I say, 20 it was a lot to do with concerns and making sure and
- 21 everything else, so if they had no concerns on it then
- 22 it probably wouldn't have been noted in the minutes.
- 23 Q. Yes.
- 24 A. I honestly don't remember if we did discuss it in that

25 meeting.

161

- 1 Q. Okay, yes. Well, we can't see anything from these 2 minutes.
- 3 A. No.
- 4 Q. As we just saw, you said in your witness statement that
- 5 you distributed the minutes and requested comments, but
- 6 what you don't do is mention whether or not you received
- 7 a response to those comments, and I just want to look at
- 8 the comments you did get.
- 9 A. Okav.
- 10 Q. So if we can turn to {RYD00063791}, this is an email 11 from you, if we could look at the top of the page, to 12 John Hoban, and you say, on 12 January 2016:
- 13 "Hi John

14 "Following your visit to site and our discussion, 15 your only comment on the minutes was that there was no 16 mention of fire stopping to penetrations through walls &

18 "Please could you confirm this is correct?" 19 Do you see that there?

20 A. Yes.

17

- 21 Q. So is it right that there was a discussion about
- 22 firestopping to penetrations through walls and floors
- 23 but that hadn't been put in the minutes?
- 24 A. Yes. Well, it must have been because that's what he
- 2.5 wrote. I believe obviously that was around the time

162

1 that John came back to site, so I would have verbally 2 asked him if he had any issues with those meeting 3 minutes I distributed the week before, and he must have 4 said that yes, the only thing was there was no mention. 5 So that's why I was confirming that, apart from that, he

6 was happy with the minutes. 7 Q. Looking at your statement at paragraph 61.5 on page 14 8 {RYD00094213/14}, you say there:

9 "I arranged for John Hoban to visit site on 10 12th January 2016 ... to go up the mast climbers again. 11 I followed up the meeting with an email confirming a 12 conversation about fire stopping to penetrations through 13 walls and floors."

We just wanted to be absolutely clear when that conversation was had. Do you mean that the conversation was had during the meeting on 7 January, or that it was had on 12 January?

17 18 The conversation about firestopping -- well, sorry, 19 firestopping and penetrations were obviously talked 20 about on the meeting the week before, so the 7th, and 21 I hadn't made a note on the minutes, because, as I say, 22 it was a walk-round meeting, so I was walking around, 23 trying to make notes in my book as we went around. 24 There was a number of people talking. I tried my best

to get an accurate recollection of those minutes down

25

163

1 and, as I say, wrote them -- I'm pretty certain I wrote 2 the minutes the next day to make sure that it was fresh 3 in my memory, but I must have missed that bit, and that 4 was his recollection, so his comment back was, "You have 5 made no note of it", so I was confirming back.

> So the actual conversation about firestopping and penetrations would have been had on the walk-round. That should have been noted in the minutes and it wasn't, but I was asking him to confirm verbally on his visit the next week, and that's what he said.

11 O. I follow.

6

7

8

9

10

14

15

16

17

18

19

20

21

22

23

- 12 So I confirmed it back to him.
- 13 O. Thank you.

Can we look at something Mr Hanson said as well in his reply to the minutes. This is at {RBK00003863}. So this is his response at the top of the page, if we can zoom in on that, and he says:

"Dear Dave

"I have reviewed the minutes and confirm they are accurate regarding my reference (means of escape). In addition John Hoban (RBKC building control) did also mention about fire stopping particularly above door frames."

24 Do you see that there?

25 A. Yes, I do, yes.

- Q. Now, can you recall now for us, what was the discussion 2 that was had about firestopping?
- 3 A. It was -- if I remember correctly, it was about
- 4 firestopping to the front doors above the new flats that
- 5 we were building.
- 6 Q. Right.
- 7 A. So we built nine new flats in there.
- 8 Q. Yes.
- 9 A. At that time there was only eight of them because we
- 10 didn't build number 6 until later, but it was regarding
- 11 that.
- 12 Q. Yes. Yes.
- 13 A. Just to give you -- we did a thorough walk-round of that 14
  - building with them at the time to make sure that we had
- 15 gone over everything that we might need or was
- 16 outstanding, and that was supposed to be an accurate
- 17 record of that meeting. I obviously missed the part
- 18 about the thing, but, as I say, it was me trying to take
- 19 notes as I walk around involved in the meeting as well.
- 20 Q. Can you recall whether there was any issues raised about
- 21 firestopping to the windows?
- 22 A. No, I can't recall, and I say, if it was, I would have
- 23 hoped I would have written it down.
- 24 Q. Yes.
- 25 Obviously I missed the bit about fire stopping

- 1 penetration, but I would hope that if we had the thing,
- 2 that they would also have noted them --
- 3 Q. Yes.
- 4 A. -- from my conversation with John or from Paul that we
- 5 had. So I can only say that no, there wasn't.
- 6 Q. We can see here Mr Hanson is saying particularly above
- 7 door frames, which is what you have confirmed, but the
- 8 reason I'm putting that to you is because this has been 9
- suggested by Mr Hoban, and I want to look at his witness
- 10 statement. This is at {RBK00050416/9}, right at the
- 11 bottom. So Mr Hoban is asked the question:
- 12 "Did you ever raise concerns about the compliance of 13 the windows at any stage during the project?"
- 14 Do you see that? Then if you go over
- 15 {RBK00050416/10} we get the response:
- 16 "Possibly. During site visits I would make physical 17 note[s] in my A3 notebook and raise any concerns with 18 the site manager or the person escorting me. I have
- 19 been informed RBKC cannot locate my notebook."
- 20 Then he says this:
- 21 "Additionally, email from David Hughes on 12.01.16
- 22 at 1620 states that raised the issue of fire stopping 23 during a site visit. This could relate to the windows
- 24 but without sight of my notes I cannot be sure."
- 25 So you can see Mr Hoban suggested it might have been 166

- 1 the windows but he can't be sure. We just want to get
- 2 your recollection of whether that issue about
- 3 firestopping had anything to do with windows.
- 4 My recollection of the firestopping is as I said: it was
- 5 to do with the front doors to the new flats. As I say,
  - I don't believe it was anything to do with the windows.
- 7 Q. Yes

6

- 8 Did you ever amend your minutes in the light of the
- 9 comments that you got about firestopping and
- 10 penetrations?
- 11 A. No, because I had -- the only note I got was from
- 12 Building Control that that was the only error on them.
- 13 So that was -- the email was a note that there was
- 14 an error, so no, I did not.
- 15 Q. Why would you not amend the minutes once you got those
- 16 comments back?
- 17 A. I would like to think -- as I say, I would like to say
- 18 I did, but I didn't. I didn't have time, I don't know.
- 19 What we can see is that just over four months later you
- 20 shared these meeting minutes with Claire Williams and
- 21 Janice Wray of the TMO. This is {TMO10045169}. It's
- 22 an email dated 25 May 2016. If we zoom in on that top
- 23 email, you say there in the first line:
- 24 "Following our FRA meeting yesterday, please see
- 25 confirmation e-mail below from Paul Hanson regarding

167

- 1 acceptance of minutes from design team meeting held back
- 2 in January."
  - Do you see that there?
- 4 A. Yes

3

- 5 We have checked and the minutes that you attached to
- 6 this email were unamended, so they hadn't got anything
- 7 in about firestopping being raised by Building Control.
- 8 On what basis did you take Paul Hanson's response
- 9 that you have set out below as acceptance of the
- 10 minutes? Wasn't he actually raising a point that had
- 11 been missed in the minutes?
- 12 Yes, regarding that point that I had missed the thing,
- 13 but I would say that it was -- I was specifically
- 14 replying about an issue about fire alarms at this point,
- 15 or heat detectors on the first floor.
- 16 Q. I see. So that's why you are saying he accepted that
- 17 bit of the minutes?
- 18 A. Penetrations and firestopping has no relevance to what
  - I was sending it to in this point.
- 20 O. I see.

19

- 21 Just the last point on this, if we can look at some
- 22 Artelia meeting minutes from progress meeting 19, this
- 23 is on {ART00005321}. So these are meeting minutes,
- 24 progress meeting 19, 26 January 2016, and we can see
- 25 that you're present.

- Then on page 5 {ART00005321/5} at the bottom of the page, it's point 3.10.1, it says, "DH", so that's you, yes, David Hughes?
- 4 A. Yes.
- Q. "... confirmed that the Approved Building Control
   Inspector had confirmed in writings details found with
   Building Control Meeting Minutes issued on 08/01/16."
- 8 Do you see that there?
- 9 A. Yes.
- 10 Q. Again, it wasn't entirely correct that he had confirmed 11 the meeting minutes because they had actually raised
- $12\,$  an issue that hadn't been covered in them, hadn't they?
- 13 A. I agree with what you're saying, yes, they weren't 100%14 correct, but I also had a record of what the issue was,
- so it was that one thing about firestopping and no mention of it.
- mention of it .Q. Yes, then if we look at --
- 18 A. So I would say from that that the rest of the minutes
- are correct, but yes, I do agree with your statement,
- they aren't 100% accurate.
- 21 Q. Yes.
- Then if we look at point 3.10.2, it says this:
- 23 "SB [Steve Blake] noted that the Inspector had
- identified areas of existing Fire Compartmentation which
- $25\,$   $\,$   $\,$  needed addressing. It was discussed and agreed that

- 1 although these works are not required under the current 2. contract it may be beneficial to the TMO to carry out 3 these works to improve the condition of the building. 4 SB to draw up a proposal identifying scope, cost and 5 programme implications of undertaking this additional 6 work to be issued to CW [Claire Williams] and Artelia. 7 [Claire Williams] will then review the necessity of 8 these works ..."
- 9 Can you help us as to what that was referring to, 10 existing fire compartmentation issues?
- 11 It was referring to the existing riser cupboards, either 12 side of the lift, the ones where I talk about in the 13 meeting minutes not -- or made my mistake about the 14 chipboard. If you took those chipboard off there, 15 that's where the old riser pipes used to rise for the 16 original heating system and water distribution system 17 and the electric system as well. Over the years, people had come and added, I think, telecom and telephone bits 18 19 down it, so not all of them were firestopped between 20 floors, there was some firestopping missing. So part of 21 our process at the end was we went round and firestopped
- those holes.

  The only hole that we didn't firestop was impossible to do so, was on the left -hand side of the lifts . As you looked at the lifts , the cupboard on the left -hand

- 1 side, one of the first parts of that was the main
- 2 electrical busbar for the building which rose through
- 3 all 24 storeys of the building. As I say, the only way
- 4 to firestop that would have been to turn the whole
- 5 building off.
- 6 Q. Right, yes, thank you.
- $7\,$  A. Other than that, it was mainly -- from what I remember,
- 8 it was mainly the right-hand side. You could take the
- 9 chipboard off and you could see holes which hadn't been 10 fire proofed.
- 11 Q. Yes, thank you, that's really helpful.
- 12 So I now want to ask you some questions about Exova
- and fire engineering in terms of the project.
- Now, is it right that you were the fire co-ordinator on the project when you were --
- 16 A. Yes.
- $17\,$   $\,$  Q.  $\,$  Yes.  $\,$  We can see that from Rydon's project  $\,$  fire  $\,$  plan for
- Grenfell Tower dated May 2016. If we look at that, this
- 19 is {CST00000033} on the first page. So this is the
- $20\,$  construction project fire plan and you're down there as
- 21 the fire co-ordinator; yes?
- 22 A. Yes.
- $23\,$   $\,$  Q. Did you receive any training for the purposes of
- 24 carrying out that role?
- 25 A. I have been on a fire safety training course, yes, but

- $1 \hspace{1cm} \text{specifically} \hspace{0.2cm} \text{it 's about managing fire } risk \hspace{0.1cm} \text{during the} \\$
- 2 construction phase.
- 3 Q. Yes. So you're not looking at fire safety beyond that?
- 4 A. No, no, I haven't -- as I said before, I had never read
- 5 the Building Regulations and it was never part of the
- 6 training course I went on. It's about making sure
- 7 essentially that there is enough fire extinguishers
- 8 on site, they're the right ones for the work you're
- 9 doing, people know where they are, there is a plan in
- $10 \hspace{1cm} place \hspace{0.1cm} and \hspace{0.1cm} everyone \hspace{0.1cm} at \hspace{0.1cm} induction \hspace{0.1cm} stage \hspace{0.1cm} is \hspace{0.1cm} aware \hspace{0.1cm} of \hspace{0.1cm} the \hspace{0.1cm} absolute \hspace{0.1cm} and \hspace{0.1cm} everyone \hspace{0.1cm} at \hspace{0.1cm} induction \hspace{0.1cm} stage \hspace{0.1cm} is \hspace{0.1cm} aware \hspace{0.1cm} of \hspace{0.1cm} the \hspace{0.1cm} as \hspace{0.1cm} as$
- 11 site fire procedures.
- $12\,$  Q. You say at paragraph 107 of your witness statement, if
- 13 we can look at that on page 24 {RYD00094213/24}, you say
- there that, as part of your duties, you took on
- responsibility for reviewing the project fire risk
- assessment. Do you see that there?
- 17 A. Yes.
- 18 Q. You say:
- 19 "The first review I carried out was in February 2016
- 20 and then on a monthly basis after that."
- 21 A. Yes.
- $22\,$  Q. You describe the project fire risk assessment
- 23 immediately above that at paragraph 106, and you say
- it's part of Rydon Group's environment and quality
- procedures. Do you see that there?

A. Yes.

3

4

5

6

7

14

15

16

17

18

19

20

21

22

23

24

25

6

7

8

9

10

11

12

13

14

15

16

17

Q. You say in the third sentence there:

"Its main focus is how to carry out the contracted works within the site, residential properties, communal and public spaces, and comply with the current regulations."

Do you see that there?

8 A. Yes.

9 Q. Just to pull up this project fire risk assessment, it
10 can be found at {RYD00077583}. It's dated
11 February 2016, and it names you on page 2
12 {RYD00077583/2} as the responsible person for the
13 project. We can just look at that. Yes, so we see that

Now, at paragraph 69 of your witness statement, if we could go and look at page 16 {RYD00094213/16} of your statement, you say this:

"I read the Exova outline fire safety strategy report, dated 7th November 2013, when it was sent to me by Matt Smith from Max Fordham. It was sent to me to help answer a query about the difference in the numbers of smoke/heat alarms between the flats on the 1st floor and on the 3rd floor. I liaised with Matt Smith regarding the specification of the mechanical and electrical systems ..."

173

When you started work on the project, were you told what Exova's role was?

3 A. No.

4 Q. What did you know about Exova's involvement in the project?

A. At that time, I didn't think they are. My understanding the whole time I was at the project was that the Exova document, this fire strategy, was a tender document and, as I say, my understanding was it had been superseded by the fire strategy drawings from the architect.

As I say, when I've done jobs right from the start we have lots of documents at the start of projects which to me are tender documents, and from those documents that's what you build up and sort of build your design from. So I -- my understanding was that the fire strategy drawings overruled that and it was just a tender document.

18 Q. Yes.

Did you know that Exova hadn't been instructed directly by Rydon?

A. I knew that they were -- essentially had been instructed by Studio E, but that was only from reading that report.

Before that -- I don't think prior to that report Exova

 $24 \hspace{1cm} \text{had come up in any conversations, I don't believe} \, .$ 

 $25\,$  Q. So was that your understanding, that they had entered

1 into a contract with Studio E?

A. My understanding, as I said, was it was a tender
 document that the architects needed to formulate their

4 fire strategy drawings.

Q. Did you ever think about who their client was, Exova'sclient?

7 A. No, not really . As I say, I thought it was the architects .

9 Q. Let's just turn up that outline fire safety strategy
10 dated 7 November 2013 which you say there that you read.
11 It's at {EXO00001107}. We can see there it's issue

number 3, 7 November 2013. So you must have been sent this no earlier than October 2015, when you came on to

14 the project.

Were you concerned when you were sent it that this fire strategy had not been updated between November 2013 and the time when you were involved in the project?

18 A. Not at all because, as I said, I thought it was a tender

19 document and that -- 2013 was just before the tender

20 period.

Q. I see. So you weren't concerned that this tenderdocument was now quite out of date, potentially?

A. No, not at all. As I said, I thought it was superseded.

 $24\,$   $\,$   $\,$  As I say, I worked -- the plans and specification , that

25 the fire strategy plans were what I was working to, and

175

1 they were the most relevant documents.

2 Q. Did you read the whole report?

3 A. I believe I did, yes.

Q. Can we look at page 9 {EXO00001107/9}. This is
 section 3.1.4. This is "Compliance with B4 (external fire spread)", and we can see it says there:

7 "It is considered that the proposed changes will 8 have no adverse effect on the building in relation to 9 external fire spread but this will be confirmed by an 10 analysis in a future issue of this report."

Do you remember reading that at the time?

12 A. Yes, I do remember reading it.

Q. Did you notice that there was a promised analysis ina future issue of the report?

15 A. I do remember reading it and, as I said, I didn't think 16 it was an issue because it was done prior to drawings,

it was at tender stage, so the Harleys drawings would

supersede that. I don't remember whether it gave me any comfort or not, I just remember reading it but not

comfort or not, I just remember reading it but not really paying much attention to it because I wasn't

looking at the document in that respect, I was looking

for other information from it .

Q. Did you ever ask anybody whether that analysis had everbeen carried out?

25 A. No.

1	Q.	Were you at all concerned that this strategy hadn't	1		issue of this outline fire safety strategy, there had
2		fully addressed the external cladding?	2		been no update?
3	A.	No.	3	A.	No, as I said, my understanding was, and the
4	Q.	Can you explain why that was the case?	4		understanding I had all the way through the project,
5	A.	Because the architect and Harleys had done the design,	5		that it was a tender document. It was there to sort of
6		so I would expect them to know and make sure the design	6		help the architects with designing their fire strategy
7		was compliant with Building Regulations, so	7		drawings, and, yeah, nobody ever said to me that it
8	Q.	Did you think to yourself when you read this about what	8		needs to be updated.
9		the proposed changes were that would have no adverse	9	Q.	Can we look at another set of emails. This is in
10		effect?	10		April 2016. If we go to {TM010013128/2}, at the foot of
11		No.	11		the page, I want to start with that, is an email from
12	Q.	No.	12		Claire Williams to you dated 27 April 2016 at 12.43. Do
13		No.	13		you see that there?
14	Q.	Did you notice can we go to page 4 {EXO00001107/4} of	14		Yes.
15		the document that the description that's provided	15	Q.	
16		there so this is a description that's given right in	16		"Dave
17		the introduction of the refurbishment of what it	17 18		"We are putting together protocols for what happens
18 19		comprises did you notice when you read it that it	19		in the case of the detection system being activated, so
20		didn't include the overcladding works?	20		I need a couple of answers to the below"
21	Α.	No.	21		Do you see that there? Then at item 1
22	Q.	Did you ever contact anyone in Exova to discuss the cladding works?	22		{TMO10013128/3} she says this: "Can I please have a copy of the latest fire
23	٨	No.	23		strategy document? I have an original version, but want
24	л. О.	Can we just look at a couple of emails on this topic.	24		to make sure it has not changed, drawings would be
25	Ų.	So these are some emails from November 2015.	25		useful."
23			23		
		177			179
					1,,
1		Can we look at {TM010044122}. So these are emails	1		Then I think what you have done is this right?
1 2		Can we look at {TMO10044122}. So these are emails between Matt Smith and Andy Bridges, but they copy you	1 2		
				Α.	Then I think what you have done is this right?
2	A.	between Matt Smith and Andy Bridges, but they copy you	2	A. Q.	Then I think what you have done is this right? is in blue you have answered her comments.
2	A. Q.	between Matt Smith and Andy Bridges, but they copy you in . Do you see that?	2	_	Then I think what you have done is this right? is in blue you have answered her comments. Yes, I do, yes.
2 3 4		between Matt Smith and Andy Bridges, but they copy you in . Do you see that? Yes.	2 3 4	_	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further
2 3 4 5		between Matt Smith and Andy Bridges, but they copy you in . Do you see that?  Yes.  I just want to start with the email at the bottom of the	2 3 4 5	_	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:
2 3 4 5 6		between Matt Smith and Andy Bridges, but they copy you in. Do you see that? Yes. I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to	2 3 4 5 6	_	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from
2 3 4 5 6 7		between Matt Smith and Andy Bridges, but they copy you in. Do you see that? Yes. I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:	2 3 4 5 6 7	_	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings
2 3 4 5 6 7 8		between Matt Smith and Andy Bridges, but they copy you in. Do you see that? Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in: "Afternoon Andy	2 3 4 5 6 7 8	Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."
2 3 4 5 6 7 8 9 10		between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy "I'm not confident the Fire Strategy document that	2 3 4 5 6 7 8 9 10	Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."  Do you see that there?
2 3 4 5 6 7 8 9 10 11 12		between Matt Smith and Andy Bridges, but they copy you in. Do you see that? Yes. I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in: "Afternoon Andy "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised	2 3 4 5 6 7 8 9 10 11	Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts ?)."  Do you see that there?  Yes.
2 3 4 5 6 7 8 9 10 11 12 13	Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?	2 3 4 5 6 7 8 9 10 11 12 13	Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."  Do you see that there?  Yes.  You say there:
2 3 4 5 6 7 8 9 10 11 12 13 14	Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?	2 3 4 5 6 7 8 9 10 11 12 13 14	Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts ?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding
2 3 4 5 6 7 8 9 10 11 12 13 14 15	Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response, the response is:	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding to this email whether or not it had been updated.  Did you ever check with anyone else at Rydon to
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response, the response is:  "Good to meet you today, I will get the lighting tech subs over in the next day or so, with regard to the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Q. A. Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding to this email whether or not it had been updated.  Did you ever check with anyone else at Rydon to establish whether it had been updated?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response, the response is:  "Good to meet you today, I will get the lighting tech subs over in the next day or so, with regard to the fire strategy document Dave has already sent it over,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Q. A. Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts ?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding to this email whether or not it had been updated.  Did you ever check with anyone else at Rydon to establish whether it had been updated?  No, but I don't know who I well, the only person who
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to  Andy Bridges, copying you in:  "Afternoon Andy  "I'm not confident the Fire Strategy document that  I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response, the response is:  "Good to meet you today, I will get the lighting tech subs over in the next day or so, with regard to the fire strategy document Dave has already sent it over, fyi the reference is Issue no. 3, dated 07/11/13."	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Q. A. Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding to this email whether or not it had been updated.  Did you ever check with anyone else at Rydon to establish whether it had been updated?  No, but I don't know who I well, the only person who would check was Steve, but no, I never did.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. A. Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response, the response is:  "Good to meet you today, I will get the lighting tech subs over in the next day or so, with regard to the fire strategy document Dave has already sent it over, fyi the reference is Issue no. 3, dated 07/11/13."  Do you see that?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. A. Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding to this email whether or not it had been updated.  Did you ever check with anyone else at Rydon to establish whether it had been updated?  No, but I don't know who I well, the only person who would check was Steve, but no, I never did.  Did it occur to you to take any steps to discuss, say
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. A. Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response, the response is:  "Good to meet you today, I will get the lighting tech subs over in the next day or so, with regard to the fire strategy document Dave has already sent it over, fyi the reference is Issue no. 3, dated 07/11/13."  Do you see that?  Yes.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. A. Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding to this email whether or not it had been updated.  Did you ever check with anyone else at Rydon to establish whether it had been updated?  No, but I don't know who I well, the only person who would check was Steve, but no, I never did.  Did it occur to you to take any steps to discuss, say with Steve Blake, the commission of an updated
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q. A. Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy  "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response, the response is:  "Good to meet you today, I will get the lighting tech subs over in the next day or so, with regard to the fire strategy document Dave has already sent it over, fyi the reference is Issue no. 3, dated 07/11/13."  Do you see that?  Yes.  Did you check when you received these emails whether the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q. A. Q. Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts ?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding to this email whether or not it had been updated.  Did you ever check with anyone else at Rydon to establish whether it had been updated?  No, but I don't know who I well, the only person who would check was Steve, but no, I never did.  Did it occur to you to take any steps to discuss, say with Steve Blake, the commission of an updated fire strategy from Exova or another fire consultant?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Q. A. Q.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy  "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response, the response is:  "Good to meet you today, I will get the lighting tech subs over in the next day or so, with regard to the fire strategy document Dave has already sent it over, fyi the reference is Issue no. 3, dated 07/11/13."  Do you see that?  Yes.  Did you check when you received these emails whether the document you had was the most up-to-date?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Q. A. Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding to this email whether or not it had been updated.  Did you ever check with anyone else at Rydon to establish whether it had been updated?  No, but I don't know who I well, the only person who would check was Steve, but no, I never did.  Did it occur to you to take any steps to discuss, say with Steve Blake, the commission of an updated fire strategy from Exova or another fire consultant?  No, I go back to my understanding. My understanding was
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q. A. Q. A. A.	between Matt Smith and Andy Bridges, but they copy you in. Do you see that?  Yes.  I just want to start with the email at the bottom of the first page, sent by Matt Smith, and he says to Andy Bridges, copying you in:  "Afternoon Andy  "I'm not confident the Fire Strategy document that I have is the most up to date - you'd be best advised getting a copy from Rydon."  Do you see that there?  Yes.  Then if we look at the top of the page, to the response, the response is:  "Good to meet you today, I will get the lighting tech subs over in the next day or so, with regard to the fire strategy document Dave has already sent it over, fyi the reference is Issue no. 3, dated 07/11/13."  Do you see that?  Yes.  Did you check when you received these emails whether the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q. A. Q. Q.	Then I think what you have done is this right? is in blue you have answered her comments.  Yes, I do, yes.  We know that because you say that in some emails further up. You say:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware) & fire strategy drawings attached (to be updated to as builts ?)."  Do you see that there?  Yes.  You say there:  "Exova Fire Strategy attached (not updated from tender as far as I'm aware)"  So you don't seem certain at the time of responding to this email whether or not it had been updated.  Did you ever check with anyone else at Rydon to establish whether it had been updated?  No, but I don't know who I well, the only person who would check was Steve, but no, I never did.  Did it occur to you to take any steps to discuss, say with Steve Blake, the commission of an updated fire strategy from Exova or another fire consultant?

- asked me ever to get it updated. Otherwise, if
- 2 they had, I would have.
- 3 Q. I mean, you can see from this that it doesn't look like
- 4 the TMO themselves have requested an update, does it?
- 5 A. No, no, nobody did.
- $6\,$   $\,$  Q.  $\,$  Did you ever discuss the points you're responding to
- 7 here in blue with Mr Ashton?
- 8 A. I think you have a record of my only correspondence with
- 9 Mr Ashton, which was to do with a smoke alarm in the hub
- 10 room.
- 11 O. Yes.
- $12\,$   $\,$  A.  $\,$  I  $\,$  believe that is the only correspondence I had with
- 13 him.
- $14\,$  Q. I think you say in your statement that you had dealings
- with him by phone and email.
- 16 A. Yeah, yeah.
- $17\,$   $\,$  Q.  $\,$  So did you ever discuss on the telephone with him that
- the fire strategy document wasn't --
- 19 A. No, I didn't, but it goes back to the -- he wrote the --
- $20\,$  and as far as I'm concerned, he was answering questions
- 21 regarding the tender document. It was his report, he
- was answering questions regarding that.
- 23 Q. If we can look at Ms Williams' response to your email,
- 24 {RYD00075983}, she says this:
- 25 "Dave

- 1 This still has the old TMO office I think the
- 2 fire strategy stuff may have been superseded on this
- 3 basis."
- 4 Do you see that there?
- 5 A. Yes.
- 6 Q. So I think it follows from your answers, but at this
- point, when she says it's been superseded, you didn't
- 8 consider discussing with anyone the request of
- 9 an updated document --
- 10 A. No.
- 11 Q. -- from Exova?
- 12 Can we look at some clerk of works review meeting
- minutes. This is {ART00006688}. Now, we looked at this
- document before, I think, 12 January 2016, and on page 5
- 15 {ART00006688/5}, three lines from the bottom, it says
- this -- we looked before at what it said about
- 17 fireproofing, but I want to ask you now about this
- 18 comment. It says:
- 19 "Fire strategy needs to be updated as per on site
- 20 discussions."
- $21 \hspace{1.5cm} \textbf{Then your initials} \hspace{0.2cm} \textbf{are there on the right-hand side} \\$
- $22\,$  in the column. Do you see that there?
- 23 A. Yes, I do.
- 24 Q. Now, what fire strategy is being referred to there, do

182

25 you know?

- 1 A. As I say, my understanding was it was the fire strategy
- $2\,$  drawings, and I'm pretty certain after this meeting that
- 3 the architect updated the drawings and I sent them over.
- $4\,$  Q. I see. So this wasn't a reference to issue 3 of Exova's
- 5 fire safety strategy for the building?
- 6 A. If it was, it's not how I took it. I took it to be the
- 7 fire strategy drawings, and I'm pretty certain that they
- 8 were updated and sort of -- yeah, a week or so later,
- 9 because this was very soon -- in and around the time
- 10 that we had the meeting with the Building Control and
- $11\,$  the architect on site , and, as I say, it got -- this
- fire strategy got discussed at that meeting as well,
- 13 so -- and the architect updated these drawings and 14 things.
- So my understanding -- and I'm pretty certain that's
- 16 how it got closed out, this -- was that the
- 17 fire strategy drawings were updated.
- $18\quad Q.\quad \text{Can we just look at paragraph 70 of your statement at}$
- page 16 {RYD00094213/16}. You say there:

  20 "During the period of my involvement ther
- 20 "During the period of my involvement there were a21 couple of times that Terry Ashton of Exova was consulted
- couple of times that Terry Ashton of Exova was consult
- $22\,$  regarding specific advice on fire safety. Generally it
- was to do with queries raised in relation to the original fire safety strategy report. I personally
- 25 corresponded with him about internal fire safety
  - 183
- 1 matters, by email and phone. My understanding was that
- 2 he would answer any queries relating to the original
  - fire safety strategy report."
  - Do you see that there?
- 5 A. Yes.

3

4

- 6 Q. On what basis did you understand Mr Ashton would be
- 7 answering any queries relating to the original fire
- 8 safety strategy report?
- 9 A. Well, I kind of got it from, I think it was Matt Smith,
- who said if you have any -- because I think I phoned
- Matt about the things, and he said, "If you have any
- queries about the report, ask Terry Ashton", and I don't
- remember whether the architect told me that as well.
- 14 Q. Right.
- 15 A. But I think it might have been, in fairness, from that
- earlier email you saw where Matt Smith and Andy Bridges
- from RJE were talking about it, and he said, "Any
- queries, go back to Terry about it ", so that's what
- 19 I did.
- 20 Q. At any time when you were going back and forth to
- 21 Mr Ashton, did you ever ask him whether Exova had
- considered the cladding or otherwise analysed the impact
- of the refurbishment on the external spread of flame?
- 24 A. No, I did not.
- 25 Q. In your experience, based on -- you have obviously

1 worked for Rydon for a long time --1 building is done, that is more a fire risk assessment 2 A. Yes. 2 thing", so then we asked the client to send their fire 3 3 Q. -- did Rydon normally engage a fire engineer when risk assessor down to assess the new entrance route and 4 4 carrying out major construction or refurbishment works? sort of the new access/egress route for the residents, 5 A. My experience -- as I say, I have no experience of them 5 but he would say yes, it's safe for them to come 6 6 doing it, but that doesn't say that on the larger through. 7 7 buildings I've done, there hasn't been a fire strategy Q. Yes. 8 8 document. But, as I say, I have no recollection of ever A. Because we needed to get them through that entrance 9 9 seeing one on a Rydon site. lobby to be able to finish off the second floor where 10 10 But I don't know if you're specifically talking the old entrance was, or where the old access bridge 11 about, yeah, the high-rise buildings or the other 11 was, because the old access was where the last flat was 12 new-build buildings I've done for Rydon. 12 going to go. So until we could get them coming through the new lobby, we couldn't finish off our works. 13 13 Q. I now want to ask you some questions about Carl Stokes, 14 14 the fire risk assessor. Right, thank you, that's helpful. 15 15 Can we just look at a couple of emails relevant to A. Okav. 16 16 Q. If you look at paragraph 71, it's on this page, you say: this. {RYD00066527}. This is an email from Steve Blake 17 "I liaised with Carl Stokes, Fire Risk Assessor for 17 to Matt Smith and you're copied in, 1 February 2016: 18 KCTMO, mainly answering his queries following his fire 18 "Hello Matt, 19 19 risk assessment inspections." "I have arranged to meet Carl Stokes to carry out a 20 20 Do you see that there? pre assessment of the building works prior to handover." 21 21 Do you see that there? 22 22 Q. What was your understanding of Carl Stokes' role A. Yes. 23 23 relating to the refurbishment? Q. Yes. 24 A. Well, my understanding was he had no role in the 24 Did you also understand that this visit was going to 25 25 refurbishment; he was the client's, so KCTMO's, fire enable Mr Stokes to prepare his record of significant 185 187 1 1 risk assessor. findings and action plan which he then subsequently 2 2 Q. Yes. prepared in April 2016? 3 Now, at paragraph 102 {RYD00094213/23} of your 3 A. That's just to me a grand name for his fire risk Δ 4 statement, can we have a look at that, you tell us that assessment. That's what it was. 5 you walked round the tower with Carl Stokes on 5 Q. Yes. 6 6 4 February 2016, and you say: Let's have a look at an email briefly on this, 7 7 "The main purpose of this meeting was to look at {RYD00065985}. This is Steve Blake and I think it 's to 8 8 areas impacted by the planned opening of the entrance Carl Stokes, we can see he says, "Morning Carl", and 9 atrium and the alteration to residents' access route 9 you're copied in. He says: 10 into the Tower." 10 "Could we meet at Grenfell next Thursday ... 11 11 Do you see that there? "We are rapidly reaching the conclusion of the 12 12 project and would appreciate the opportunity to ensure A. Yes 13 13 we have covered all formalities in respect of a [fire Q. But was that visit also to carry out a pre-assessment of 14 the building works prior to handover? 14 risk assessment]." 15 15 A. It was kind of that effect. The reason we called Carl Do you see that there? 16 down, and I think it was done through Claire, was we 16 A. Yes. 17 wanted to open the entrance lobby, and part of the sort 17 Q. Now, Mr Stokes' record of significant findings and 18 of requisite from the client was to get some kind of 18 action plan is dated 26 April 2016. Let's just turn 19 completion certificate . We had asked Building Control 19 that up. It's at {RYD00094315/2}. This is what it 20 to give us a completion certificate for the area, so 20 looked like. Do you remember seeing this on the 21 they were -- the client or KCTMO expected that then it 21 project?

186

22

23

24

25

A. Yes.

document?

Q. Yes.

area.

would be safe for the residents to come through the

Building Control, when I asked them, said, "No, we

won't give you a completion certificate until the whole

22

23

2.4

25

What was your understanding of the purpose of this

- A. It was his fire risk assessment, so it was the client's 2 fire risk assessment. He was working for KCTMO. 3 Q. Was it to satisfy the TMO that fire safety issues had 4 been resolved? 5 A. Yes, that's the idea of a fire risk assessment, the 6 purpose of it. 7 Q. Yes. 8 Now, we can see that you asked Mr Stokes to visit 9 the site again just before this assessment was prepared 10 on 7 March 2016 if we can go to paragraph 102 of your 11 statement on page 23 {RYD00094213/23}. So we see that 12 in the last line: 13 "On 7th March 2016 I requested that he visit the 14 site again." 15 Do you see that there? 16 A. Yes. 17 Q. We can see this in your email to him of 7 March, 18 {RYD00070161}. If we could blow the top up, this is 19 an email from you to him, and you say this in the third 20 paragraph there:
  - "I'd like to get you back to site this week to update the Grenfell FRA to satisfy the client so we open the main entrance lobby for residents, however I understand that the client needs to agree this as you'll need to visit again once all systems are fully

1 commissioned."

2 Do you see that there?

3 A. Yes.

21

22

23

24

25

4 Q. What did you mean by "to satisfy the client" there?

- 5 Satisfy the client that the entrance lobby was safe to 6 open. So I think the one on 4 February we talked about 7 earlier was like a pre-visit, "This is what I'm going to 8 need off you", so then we obviously in the month after 9 that done a load of work in terms of -- as I say, if 10 I remember correctly, I think we opened the entrance 11 lobby on 17 March, so we were very close to being ready, 12 and we were trying to get everyone's approval that it 13 was ready to let residents through.
- Q. What I want to ask you about now is some comments
   Mr Stokes has made about what he was told about the
   cladding.

17 A. Yeah, okay.

21

22

23

24

25

Q. So I want to look at his witness statement. This is at {CST00003063/42}, and I want to look at paragraph 120. He says this:

"When inspecting the Tower in April 2016, I spoke to various people, including representatives from Rydon, however I cannot now remember exactly who I spoke to on this occasion. As I had noted the isolated test cladding panel when visiting the Tower in 2014, and in

190

 $1 \hspace{1cm} \hbox{particular the timber battens that were being used at} \\$ 

that time, I asked about how the cladding had eventually
 been fixed to the Tower. As can be seen from my

4 handwritten notes, following discussions with

5 representatives of Rydon, I recorded 'OK FR No Timber'

6 and 'Cladding external Non Combustible Metal Fixings

7 signed off by B/C. I do not remember the precise

8 conversations I had, however my understanding on leaving

9 the Tower after my inspection was that the actual cladding was compliant with the Buildings Regulations

and that the obvious presenting issue (the timber

battens) had been dealt with as metal fixings were now

 $13 \qquad \quad \text{being used.} \ \ \text{In addition, as far as I was concerned, if} \\$ 

the cladding itself and the system by which it was fixed
 to the building had been passed by Building Control, the

16 system and component parts would have been compliant

with the requirements of the Building Regulations and

 $18\,$  ADB. That is what I meant by reference to the 'new fire

19  $\,$  rated cladding' in the April and June 2016 FRAs [fire

20 risk assessments]."

Do you see that there?

22 A. Yes.

Q. Now, Mr Stokes is referring there to initially thesenotes that he made, "OK FR No Timber" and "Cladding

25 external Non Combustible Metal Fixings signed off by

191

1 B/C".

Do you recall any discussions you had with Mr Stokes during his visits in April 2016 about those topics?

A. Specifically, no, I don't remember, but if he says we
 did, we did. But the same as him, my understanding was
 that it had been passed by Building Control and the

that it had been passed by Building Control and the system and component parts were compliant with

8 Building Regulations. So if I confirmed it to him,

9 that's because that's what my understanding was.

 $\begin{array}{lll} 10 & \text{Q.} & \text{Do you have a specific recollection} \text{, though, of} \\ 11 & \text{discussing the fixings?} \end{array}$ 

A. No, but he says that -- yeah, it says no timber, and
 I would have definitely confirmed to him that there was

no timber in the system and that metal fixings were

being used. I don't remember specifically going into

fire rating or anything like that. But same as him, my understanding was that that system was compliant.

understanding was that that system was compliant.
 Q. He says in the last part of that paragraph that, as far

as he is concerned, if the cladding itself and the
system by which it was fixed to the building had been
passed by Building Control, the system and component
parts would have been compliant with the requirements of
the Building Regulations.

Did you ever have any discussion with him about whether the cladding had been passed by

192

24

- 1 Building Control?
- 2 A. Not specifically , but at the time he's talking about,
- 3 I've struck every single mast climber around the
- 4 building and we had 20 floors of finished cladding
- 5 there, so I would say that was signed off by
- 6 Building Control. But specifically in terms of, yeah,
- 7 actually Building Control saying, "Yes, it's compliant",
- 8 no, I have no recollection of saying that to him.
- 9 Q. He says that:
- 10 "... my understanding on leaving the Tower after my
- inspection was that the actual cladding was compliant
- 12 with the Buildings Regulations ..."
- $13 \hspace{1.5cm} \hbox{Did you ever have that \ specific \ discussion \ with}$
- 14 Mr Stokes?
- 15 A. I don't remember having that specific thing.
- 16 Q. Would it have been you that he was having these
- 17 discussions --
- 18 A. It would have been me if I had, yes, because I was the
- one at that point who mainly dealt with  $\operatorname{Carl}$  when he
- 20 came on site.
- $21\,$   $\,$  Q.  $\,$  What about Mr Stokes asking you what the nature of the
- 22 cladding materials at Grenfell were?
- 23 A. I don't remember specific conversations, I'm sorry,
- 24 I don't.
- 25 Q. So you can't remember a conversation where you might

- $1 \qquad \quad \text{have referred to fire rated cladding --} \\$
- 2 A. No.
- 3 Q. -- or talking about the fire performance of the
- 4 cladding?
- 5 A. No.
- 6 Q. Is that that you can't recall having those conversations
- 7 or that you actually think you didn't have those
- 8 conversations with him?
- $9\,$  A. I don't know. As I said to you earlier , I have a lot of
- 10 conversations with an awful lot of people, that's my
- job, or it's a big part of my job, so I'm afraid I don't
- remember the specifics of every single conversation.
- 13 Q. Yes.
- 14 A. But if he said that he took it from that thing, that it
- would have been with me, I can confirm that.
- 16 Q. Yes. Just one last set of questions on this topic, and then we might pause for a break.
- So I want to take you to an email thread that you
- weren't copied in to, but I want to see if it triggers any recollection for you. This is at {CST00002764} and
- $21 \,\,$  this is an email thread of 24 April 2017.
- Now, the genesis of this email chain is that the LFB had sent the TMO a letter, just so you understand, dated
- 24 6 April 2017 about external cladding and glazing
- following the Shepherds Court fire.

194

- 1 A. Okay.
- $2\,$   $\,$  Q. So the TMO had got a letter about that  $\,$  fire ,  $\,$  and I  $\,$  want
- 3 to pick this up at the bottom of page 1. So
- 4 Janice Wray, we can see, at 9.34 asks Carl Stokes, she 5 says:
- 6 "Carl
- $7\,$  "My understanding is that we do not have any blocks
- $8\,$  with external cladding of this nature. Are you able to
- 9 confirm please?
- "I need to write back to the Director of Housing andI think you are probably best placed to advise me on
- 12 the construction of our blocks."
- Do you see that?
- 14 A. Yes
- $15\,$  Q. Then if we look at his response to that, we can see that
- 16 he says on 24 April 2017 at 12.20:
- 17 "As far as I know that is correct.
- "Grenfell was clad but the cladding complied with
- 19 the requirements of the Building Regulations, lots of
- $2\,0\,$   $\,$   $\,$  questions asked of Rydons and answers received back from
- 21 them."
- Do you see that there?
- 23 A. Yes.
- 24 Q. Now, do you remember Mr Stokes contacting you at this
- time, at any time in 2017 or April 2017, and asking you

195

- 1 questions about the cladding?
- $2\,$   $\,$  A. No, I had no correspondence with Carl after I left
- 3 Grenfell
- 4 Q. Would you say that the exchanges you had had with
- 5 Mr Stokes in 2016 resembled "lots of questions asked of
  - Rydons and answers received back from them"?
- 7 A. Well, there was lots of queries in the fire risk
- 8 assessment, so you could say that was lots of questions.
- 9 Q. Yes.

6

11

- 10 A. But I also would have expected that he would have talked
  - to the earlier site team as well. He had been down to
- Grenfell prior to my involvement a number of times,
- 13 I knew that.
- 14 Q. So he may have spoken to people before you got to site?
- 15 A. He may have asked lots of questions then as well. So,
- over the duration, he did ask lots of questions, but ...
- MS GRANGE: Mr Chairman, I think that's a good moment fora break.
- 19 SIR MARTIN MOORE-BICK: Yes, so do I, thank you.
- We will have a short break now, Mr Hughes.
- 21 If we say 3.25, will that be all right for you?
- 22 MS GRANGE: That's fine, yes.
- 23 SIR MARTIN MOORE-BICK: Please remember not to talk to
- anyone else about your evidence or anything to do with
- 25 the refurbishment, and if you would like to go with the

1	usher, we will resume at 3.25.	1	A.	Sorry, my recollection is wrong then, he must have
2	THE WITNESS: Thank you.	2		turned I didn't think he met with me and Steve, so he
3	SIR MARTIN MOORE-BICK: Thank you very much.	3		might have not turned up when Steve might have left
4	(Pause)	4		site at that point, so then that was one and yes,
5	Right, 3.25, then, thank you very much.	5		he's saying that he met with me, although, as I say,
6	(3.11 pm)	6		I was never the project manager.
7	(A short break)	7	Q.	Can you help us as to what was discussed at that
8	(3.25 pm)	8		meeting?
9	SIR MARTIN MOORE-BICK: Right, Mr Hughes, are you ready to	9	A.	No, I'm afraid I can't.
10	carry on?	10	Q.	No.
11	THE WITNESS: Yes, I am.	11	A.	I can't remember. It would have been sort of
12	SIR MARTIN MOORE-BICK: Good, thank you.	12		an introduction, have a quick walk round with him and
13	Yes, Ms Grange.	13		just check whether he was okay.
14	MS GRANGE: Thank you.	14	Q.	And you can't remember whether the cladding system
15	Just a follow-up question on Building Control. Can	15		specifically was discussed?
16	we look at your witness statement on page 12	16	A.	No, specifically no.
17	{RYD00094213/12} at the bottom of the page. If we look	17	Q.	Okay.
18	at the bottom of the page, 61.1. We went through this	18		Moving on, then, just a few questions about fire
19	in detail previously, you say:	19		doors. Can we go to a document {RYD00078593}. I want
20	"On 30th October 2015 was my first contact with RBKC	20		to look at an email at the bottom of page 1 and on to
21	Building Control when I requested a site visit from	21		page 2 {RYD00078593/2}. You there send Mike Brown of
22	John Hoban on 2nd November 2015, so Steve and I could	22		Rydon you are attaching the "Grenfell Tower
23	discuss the project with him."	23		Significant Findings and Action Plan April 2016", and
24	A. Yes.	24		you say:
25	Q. Do you see that there?	25		"Mike
	197			199
1	Then over the page {RYD00094213/13} at 61.2, you	1		"Client FRA & Rydon comments as discussed.
		2		•
2	say:			"Biggest thing is to prove FD30 to riser cupboards."
3	"I requested that John Hoban visit site to inspect	3		Do you see that there?
4	the cladding on 11th November 2015"	4		Yes.
5	Do you see that there?	5	Q.	Can you help us as to what that meant?
6	A. Yes.	6	Α.	It was the riser cupboards, or, I described them
7	Q. Going back to 61.1 {RYD00094213/12}, was there	7		earlier, the cupboards on the existing lobby. So from
8	a separate visit from John Hoban on 2 November 2015, ie	8		the 4th all the way up to the 24th floor, it was proving
9	before the one on 11 November 2015?	9		that those doors were FD30s. There was no markings on
10	A. Yes, I believe he turned up the day after, I believe he	10		them because I think they had been painted, so we were
11	turned up on 3 November. He didn't turn up when Steve	11		trying to find sort of records from who we got them from
12	and I was there, but he turned up the next day.	12		that we had been supplied FD30 doors.
13	Q. I see. So did you meet him on that day?	13	Q.	If we can then look at your email to Steve Blake on
14	A. Yes.	14		page 1, you say there at point 1:
15	Q. When you say he didn't turn up when Steve	15		"Hi Steve
16	A. No, so I requested he turn up on the 2nd sorry, I got	16		"Non fire rated doors doesn't make sense for
17	my but I remember him coming to site the day after.	17		following reasons:
18	Q. Yes.	18		"1. We fitted smoke seals into doors."
19	Can we look at a document, {RBK00003041/4}. There,	19		Can you help us as to what doors you're referring to
20	in the middle of the page, these are some notes we've	20		there?
21	got from RBKC's system. It says, 2 November 2015:	21	A.	Same doors, so talking about the on each of those
22	"Cladding inspection and meeting with new project	22		riser cupboards, from the 4th through to the 23rd
23	manager."	23		sorry, not the 24th there was two doors. So I'm
24	So is what you're saying that that didn't happen on	24		talking about those doors and the new riser cupboards,
25	the 2nd but it happened on the 3rd?	25		the ones that Rydons built.

- 1 Q. After the numbered points, there is a sentence that 2 says:
- 3 "John Hoban stated on last walk around that doors
- $4 \qquad \quad \text{including cupboards off protected lobbies } \text{must be fire} \\$
- 5 rated."
- 6 Do you see that there?
- 7 A. Yes.
- 8 Q. Now, can you help us: did Rydon ever carry out any works
- $9\,$   $\,$  to the stairway doors, the doors between the stairs  $\,$  and  $\,$
- the lobbies, on levels 4 to 23?
- 11 A. The only works we did was paint them.
- $12\,$   $\,$  Q. Right, okay. So did you fit any smoke seals to these
- 13 doors?
- 14 A. No, we didn't, that was done by the client's
- contractors -- or, sorry, KCTMO's contractors.
- 16 Q. Which contractors were they?
- 17 A. I don't know, it was done prior to my time, but I know
- there was some records, emails on the system about it
- because the contractors had left it in a right mess and
- all the residents thought it was to do with us, but it
- 21 wasn't. Sorry, by "us" I mean Rydons.
- 22 Q. I see. So Rydon didn't do any work at all --
- 23 A. No.
- 24 Q. -- to any of those stair doors?
- 25 A. Apart from painting them.

- 1 Q. Okay.
- 2 I now want to ask you some questions about the 3 health and safety file .
- 4 Now, we've looked at the question of fire risk
- 5 assessment, and can we call up again the record of
- 6 significant findings and action plan dated
- 5 Significant infants and action plan dated
- 7  $\,$  26 April 2016. This is at {RYD00094315/3}. I want to
- 8 look at the first item in the third column. So here
- $9 \hspace{1cm} \text{what we see is on "Identified risk or hazard", third}$
- 10 column on the left, it says:
- 11 "When the construction/refurbishment work is
- $12 \hspace{1cm} \text{completed on this building all information as required} \\$
- $13 \hspace{1cm} \text{by the Building Regulations must be handed over to the} \\$
- 14 TMO by the contractors before they hand over the areas
- 15 now under their control."
- Do you see that there?
- 17 A. Yes
- 18 Q. If you look in the next column along on the right, under item 2 it says:
- "All the Regulation 38 information as required bythe Building Regulations."
- 22 A. Yes.
- 23 Q. Do you see that? It's marked as a high priority in the
- 24 second red column.
- Were you aware at the time of the requirements of

202

- 1 regulation 38 of the Building Regulations to provide
- 2 fire safety information to the responsible person?
- 3 A. No, but I was aware that we had to hand over a health
- and safety file and O&M file to the client at the end of the job.
- 6 Q. So you didn't know what your separate duties might be
- 7 under regulation 38?
- 8 A. No.
- 9 Q. If it was anyone's responsibility, was that your
- 10 responsibility within Rydon to ensure that fire safety
- information was passed to the client?
- 12 A. No, I wouldn't say it was, I would say it's the whole
- 13 team's responsibility to pass it on.
- 14 Q. Right.
- 15 A. But as -- well, I think we talked about it, we employed
- a specialist to do the O&M for us, provided all the
- 17 information to him.
- 18 Q. Within Rydon, were you responsible for overseeing the
- production of the operation and maintenance, 0&M,
- 20 manual?
- 21 A. No, but I helped a lot with it. I don't know if you're
- aware, but we contracted a company called
- All Group Holdings to do the O&M file and health and
- safety file for him. It was part of his contract to
- obtain the information and compile it in a way that the
  - 203
  - 1 client wanted. But my agreement was -- there was
  - an awful lot of things we had on our files. So, like,
  - 3 snagging sheets had to go into it. There were certain
- 4 things he wouldn't get from anyone else apart from
- $\,\,\,$   $\,\,$  Rydons. So I sent over the documents that we had in our
- 6 system, and I also said that, "If you struggle with any
- 7 contractors, let us know as soon as you can and we will
- 8 give them a little gee up as well".
- 9 Q. I think you began that answer, when I asked you were you
- responsible, with a "No, but I helped a lot with it".
- 11 A. Yes
- 12 Q. If not your responsibility, who else within Rydon was
- responsible for making sure --
- 14 A. Since this is a contract, in my mind it would be for the
- contracts manager to do that.
- 16 Q. I see. So that would be Steve Blake by this time?
- 17 A. Yes.
- 18 Q. Now, as you have explained already, we know that
- All Group Holdings were asked to provide and produce
- an O&M manual and a health and safety file for
- 21 Grenfell Tower. What steps did you take to ensure that
- the file was properly completed?
- 23 A. When -- as I say, it took a long time to do it, I think
- 24 over about four months it took to compile the thing and

204

get all the information together, and I know at one

- point I got one of the drafts and I had a quick look
- 2 through it. At the time, I didn't note any issues with
- 3 it, but I never saw the finished file. It was handed to
- 4 Claire Williams by Steve Butler, I think, from
- 5 All Group Holdings, and, as I say, at the time she had
- 6 the principal design or principal designer --
- $7\,$   $\,$  Q.  $\,$  I see. How were All Group Holdings going to  $\,$  collate  $\,$  the
- 8 information that it needed, did you know?
- 9 A. Well, in line with the -- I'm pretty certain they had
- 10 the contract document which set out what needed to go in
- it. We set out the -- well, we sent them, so they could
- give us a quote, the relevant section of the -- sorry,
- 13 the NBS specification , I was about to say the ERs, but
- 14 the NBS specification, the relevant sections that he
- 15 needed to find out what he needed to get off the
- 16 contractors.
- 17 Q. I see. So you expected All Group Holdings to then
- liaise with the subcontractors to get that information?
- 19 A. Yes, yeah. I did have a couple of meetings with them
- 20 along the way, sort of checking on progress, so
- 21 I certainly was involved in the meeting with him and
- Claire as well. Obviously ultimately we were trying to
- satisfy Claire that she had all the information that she
- 24 needed.
- 25 Q. At the end of the process, did you take steps to satisfy

- 1 yourself that the O&M manual that was presented to the
- 2 TMO was the complete manual?
- 3 A. I never saw the completed manual. It got handed to
- 4 Claire, I think, by thumb drive.
- 5 Q. Do you know why you never saw it?
- 6 A. Just never got a copy of it, or it never went on our
- 7 systems, so ...
- $8\,$  Q. Did you understand that there were requirements in the
- 9 CDM regulations for the preparation of a health and
- 10 safety file?
- 11 A. Yes, as I said, I am aware that one of our sort of
- 12  $\,\,$  contractual obligations is to supply an 08M file and
- a health and safety file at the end of a contract.
- 4 Q. Did you know what that file had to contain?
- 15 A. Well, anything relevant or as set out in -- sorry,
- 16 I keep calling them the ERs, as set out in the
- 17 specification .
- $18\,$  Q. I see. So you didn't look at a particular document or
- guidance to help you as to what it should contain?
- 20 A. No, I would expect what was in the specification was --
- would be what was required.
- $22\,$   $\,$  Q. Now, two copies of the health and safety  $\,$  file  $\,$  have been
- provided to the Inquiry, one from Rydon and one from the
- 24 TMO. The Rydon version has a section 4, health and
- 25 safety file, but this section contains no information,

- whereas the TMO version contains an index that we'll look at in a moment.
- 3 Can you help us as to why there might be two
- $4 \hspace{1cm} \text{versions of the health and safety} \hspace{0.2cm} \text{file} \hspace{0.2cm} \text{that are} \\$
- 5 different, one from Rydon --
- 6 A. As I said, I got an earlier draft of it and that would
- 7 be the one which was on our systems, so that would be
- 8 the one that I had a look at, but I believe the O&M
- 9 files actually got handed to Claire after practical
- 10 completion and it was given to her on a thumb drive, but
- $11 \hspace{1cm} I \hspace{1.5cm} \text{never got a separate thumb drive so} \hspace{1.5cm} I \hspace{1.5cm} \text{could copy it} \hspace{1.5cm} \text{on}$
- to our system.
- Q. Can we look at {MET00065979}. This is an email of
- $14\,$   $\,$   $\,$  23 May 2016. So this is from Steve Blake to Neil Reed,
- and you're copied in. It says:
- "We are all working towards a partial
- $17 \hspace{1cm} possession/handover\ date\ 27/5/16\ which\ is\ 4\ days$
- 18 away ..."
- $19 \hspace{1.5cm} \textbf{Then you can see towards the bottom, just before the} \\$
- 20 end of the email:
- 21 "The O+M drop box(sic) link will be provided later
- 22 today."
- 23 Do you see that?
- 24 A. Yes.
- 25 Q. Is it possible that, because partial possession and

207

- 1 handover was contemplated, there was an earlier draft
- 2 but incomplete version of the O&M manual, and then later
- 3 a second full version after full practical completion?
- 4 Is that possibly the reason why we see two different --
- 5 A. Possibly. I don't know if that's absolutely correct or
- 6 whether it was just -- as I say, we started work on it
- 7 back in I believe April sort of time, and we had
- 8 a partial copy from Steve Butler.
- 9 Q. Can we look at a document which is the contents page for
- 10  $\,$  the health and safety  $\,$  file . This is  $\,$  {TMO10013708}. So
- $11 \hspace{1.5cm} \text{this is the contents page for the health and safety} \hspace{0.2cm} \text{file} \\$
- which was included in the building manual.
- Can you remember seeing this before?
- 14 A. As I said, I only looked at the draft version, which
- would have been probably, as you say, around about March
- time, so no, and I didn't look at it in great detail.
- 17 Q. No.
- We can see from an email on 27 June 2016 that you
- were copied in to this contents page.
- 20 A. Yeah.
- 21 Q. Can you see that it includes cross-references to other
- 22 parts of the building manual?
- 23 A. Yes
- 24 Q. Do you see that there?
- 25 A. Yes.

Q. Did you ever check those cross-references? 1 me to sort of get the relevant documents, and one of the 2 2 A. No. first ones I got was the O&M file and I copied it across 3 3 to the RWay system. I don't know if that is the reason Q. Were you aware of guidance supporting the 4 4 CDM Regulations which explains what a health and safety why it looks like there's a new creation. 5 file should and shouldn't include? 5 Q. Yes, that helps. 6 6 Did you do anything with the contents of the file? A. Specifically as to exactly what it should include, no, 7 7 I am not aware, but I am aware that it is a contractual A. No. 8 8 obligation to supply it. Q. No, you just saved it over on to --9 9 Q. If we look there at B1 under "Architectural Design", it A. Well, yeah, just copied it over from one part of our 10 says, "Architects As Built Drawings", and then it says: 10 system, the old part of our filing system, to the new 11 "Please refer to the Drawings located in the 11 part of our filing system. 12 Building Manual - Part 2 - Section 2.1.2.2." 12 Yes, that's helpful. 13 13 Do you see that? So just one last question on this topic. If we can 14 go to {ART00005362}, these are some meeting minutes from 14 A. Yes, I do, yeah. 15 15 Q. Then if we can look at  $\{TMOM00000001\}$ , this is the 23 February 2016, progress meeting 20, and we can see 16 contents page for the building manual, and if we go to 16 you're present. 17 page 9 {TMOM0000001/9}, which is section 2, what we see 17 If we can go to item 2.20 on page 4 {ART00005362/4}, 18 is there is no 2.1.2.2. It's not there and it's not 18 we can see that there's an action there about fire 19 19 over the page, if you look over the page protection works to start with: 20 20 {TMOM0000001/10}. So that cross-reference appears to "... nothing further is to be progressed other than 21 21 the remedial works required of the CoW in relation to 22 22 Did you notice that at the time? Rydon's own works." 23 23 A. No, I did not. Then if we keep going down: 24 24 Q. Did you ever check points like that to check that it --"Carl Stokes will produce a report in the form of 25 25 A. No, I remember looking at it very briefly but not going the Fire Risk Assessment ..." 209 211 1 over it in great detail. 1 At the end: 2 2. Q. Now, in its investigations we have discovered that the "NR requested that this be included in the H&S File 3 3 (CDM) on Completion as formal recognition of a fire risk Rydon version of the O&M manual was edited on 4 Δ shortfall and potential 'residual risk' arising from the 14 June 2017, that's the night of the fire. We can look 5 at the metadata. 5 building in its previous form." 6 If we can go to {BLARP2000006/208}. If we can blow 6 Do you see that? 7 7 up that top box, this is figure 17.1, and what we can A. Yes. 8 8 see is that the metadata for the manual has been Q. Do you know whether the health and safety file was ever 9 9 accessed, and it says "Created: 14/07/2017". Do you see updated to include this? 10 that there? 10 A. No, I don't, but I also think that what Carl Stokes is 11 11 talking about is what we talked about earlier, which is A. Yes. 12 Were you aware of the O&M manual being accessed or 12 the holes through the existing riser cupboards which we 13 13 fire proofed. edited that day? 14 Q. Yes. 14 A. I was in the office on the day of the fire, so I was 15 15 A. So there was no -- and we also did something very outside Steve Blake's office, and on the day of the fire 16 I -- as I say, it is very blurry that day, but I know 16 similar down in the main electrical cupboard as well, 17 I had a meeting with the health and safety department 17 fire proofed some existing holes. So where we saw 18 where I was asked to get the relevant documents and we 18 issues with compartmentation, we fixed them. 19 19 transferred them to a new part of our system. So Q. Yes. 20 I think Simon O'Connor talked about this, there is 20 I now just want to ask you a few brief questions 21 an M drive, but there's also on Rydons a filing system 21 about the smoke control system and the related interface 22 22 called the RWay system, which was a newer system, and panels. 23 23 that's what the majority of the company worked off at So in your statement you say that you ran a tour for

> 25 212

24

the time.

So the meeting I had, health and safety team asked

210

24

25

the local Fire Brigade on 26 July 2016 at which you

showed them the operation of the human mechanical

6

8

14

22

- 1 interface, HMI, panel for the smoke extract system and 2 the automatic opening vents in the lobby areas. You 3 discuss this at paragraphs 92 and 93 of your witness 4 statement on pages 21 {RYD00094213/21} and 22 5 {RYD00094213/22}. So that's where you say that you ran 6 familiarisation tours. You talk about the TMO in 91 and 7 then the tour for the Fire Brigade on 26 July 2016 in 8 92.
- 9 Now, is this HMI, human mechanical interface panel, 10 the main control panel for the smoke extract system in 11 the lobby?
- 12 Yes, the one in the lobby, yes.
- 13 Q. Can you remember how you demonstrated the operation of that HMI panel and the AOVs for the Fire Brigade? 14
- 15 A. No, I don't remember specifically, but I knew it was 16 a fairly simple system that I obviously had -- well, 17 I got to learn how it worked through -- with -- sorry,
- 18 with JSW and PSB, so it was quite a simple one. I think 19 I just showed the Fire Brigade the very simple thing,
- 20 and there was a little instruction manual to the side
- 21 and it sort of explained that. Because -- as I say, to
- 22 the side there was a little instruction manual which
- 23 related the numbers on the panel to the levels that the
- 24 AOVs were on in the building, so the floor levels.
- 25 Q. Right, yes, I see, and was the smoke extract system and

213

- 1 the AOVs working during the tours that you did?
- 2 A. Yes.
- 3 Were the LFB provided with instructions as to the
- 4 operation of that smoke extract system, to your
- 5 knowledge?
- 6 A. To my knowledge, no.
- 7 Q. If we can look at paragraph 118 of your witness 8 statement on page 26 {RYD00094213/26}, you say at this
- 9 point:
- 10 "I was involved in the 'End of Defects' (EOD) 11 inspection at the end of May 2017, about two weeks 12 before the fire. It was arranged with Claire Williams 13 and was booked for two full days. On 30th May 2017, 14 I walked round with Claire Williams, Tom Bishop, Rydon 15 site agent, and on the 1st June 2017, Gary Martin, site 16 manager, joined us."
- 17 Do you see that there?
- 18 A. Yes.
- 19 Then you tell us in 119:
- 20 "The reason for an EOD [end of defects inspection] 21 is to revisit all of the building works at the end of 22 the 12 month defect period, to see if any work is 23 defective and requires repairing, with the aim of 24 creating one definitive list of defects. When all
- 25 defects have been rectified, inspected and approved or

214

- 1 signed off by the client's representative, then
- 2 responsibility for any further issues is the client's."
  - Do you see that there?
- 4 A. Yes, I do.
- 5 Q. Then looking at paragraph 121 of the statement,
  - $\{RYD00094213/27\}$ , you say in the first few lines there:
- 7 "It was during the walk-round of the communal
  - lobbies on the upper floors on 1st June 2017 that
- 9 I noticed that the environmental function of the smoke
- 10 extract system was not working."
- 11 Do you see that there?
- 12 A. Yes
- 13 Q. When you realised that, did you think to yourself: well,
  - if the environmental aspect of that system is not
- 15 working, then there might be a problem with the smoke
- 16 control aspect of that system?
- 17 A. Yes, I did think that.
- 18 Q. You also say that you went -- this is in the next few
- 19
- 20 "I checked the main control panel, with Claire
- 21 Williams present, and noticed that it did not appear to
  - be showing that any vents were open."
- 23 Do you see that there?
- 24 A. Yes
- 25 Is that the same HMI panel that you demonstrated --

215

- 1 A. Yes.
- 2 Q. -- to the Fire Brigade and others? Yes.
- 3 Had the HMI panel previously shown, if it was
- 4 working, that the vents were open?
- 5 If the vents were open it would show on the panel.
- 6 Q. Yes. So you could see that on this occasion, and you
- 7 say that Claire Williams of the TMO told you that
- 8 a company that was going to take over maintenance of the
- 9 smoke extract system had come to look at it two weeks
- 10 previously and had set the system off; do you see that
- 11 there?
- 12 A.
- 13 What was Claire Williams' reaction to this discovery 0.
- 14 that the environmental system wasn't working and that
- 15 none of the vents were showing as open on the panel?
- 16 A. What I remember is Claire was also shocked because
- 17 I don't think it was Claire that had called them in. My
- 18 understanding was KCTMO -- as I said -- sorry, go back
- 19 a stage. In the defects, once that building is handed
- 20 over and we've proved we've done everything or all the
- 21 outstanding defects which have occurred in the last
- 22 year, then it 's KCTMO's responsibility. KCTMO, from my
- 23 understanding, were starting to line up contractors to
- 24 carry on the maintenance and servicing of Grenfell.
- 25 Q. Yes.

- $1\,$  A. So I think somebody jumped the gun trying to get them
- 2 in, but I do remember Claire being -- sort of saying
- 3 that she was shocked because it wasn't her who called
- 4 them in.
- 5 Q. Did she seem to understand the potential significance of
- $\ \ \, 6 \qquad \quad the \,\, system \,\, not \,\, working \,\, in \,\, terms \,\, of \,\, the \,\, smoke \,\, control$
- 7 system?
- 8 A. I understand that Claire would be, yeah, rightly
- 9 worried. But also, it's come to light afterwards that
- it might not have been such a big thing anyway, because
- it was a really hot day when we done that walk-around,
- 12 and the environmental system also had a shut-off system
- on it, which if the air outside is hotter than the air
- inside, then it wouldn't work, it wouldn't basically
- bring in hotter air. The idea was to keep the lobby
- areas cooler. So if it was hotter outside than it was
- inside, it wouldn't bring the air in, and it was
- a really hot day that we done our -- sort of the
- two days we did the walk-around were hot days, so --
- $20\,$  Q. Right. Did you have that thought at the time, that that
- 21 might be the reason?
- 22 A. I didn't have that thought at the time. My worry at the
- 23 time was that it didn't look to be working. I would
- 24 expect it -- I think I -- I don't know whether -- it's
- hard to explain, but it didn't work on every floor at

- $1 \qquad \quad \text{every time, so it went through a rotation } --$
- Q. Sorry, do you want to just slow down a little bit.
- $3\,$   $\,$   $\,$  I think we got to -- you said it wasn't going to work on
- 4 every floor at every time; is that right?
- $5\,$   $\,$  A. Yes, okay. It worked on a rotation system, so it would
- $\mbox{\ensuremath{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath}\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath}\ens$
- 7 it would work for 15 minutes, then it would move up
- 8 a rotation.
- 9 Q. Yes.
- 10 A. So, yeah, and like I said, it only worked-- it also had
- a temperature sensor outside that if the air outside was
- hotter than the air inside, it wouldn't work, because
- $13\,$  all you'd be doing was bringing hotter air in, and that
- wasn't the purpose of the system. But I think, like
- I say -- I think I also say that I wasn't sure because,
- in terms of me walking round, we were also that day
- going in and out of flats looking at any defects inside
- 18 the flats, but I might have happened to miss the
- 19 rotation.
- $20\,$   $\,$  Q.  $\,$  Did you explain to Ms Williams at this time the
- $21 \hspace{1cm} \text{relationship between the environmental system and the} \\$
- 22 smoke control system?
- $23\,$  A. At the time, I don't think I did, but I would hope that
- 24 Claire was aware of what we had done, because obviously
- 25 we had done the work a year earlier and it was part of

- 1 our specification.
- $2\,$   $\,$  Q. Now, you go on in your statement to explain that you
- 3 were sufficiently concerned that you reported the
- 4 malfunction to JS Wright's aftercare department. That's
- 5 right, isn't it, you phoned it through to JS Wright's
- 6 aftercare team? Can you recall, what was JS Wright's
- 7 response when you did that?
- $8\,$   $\,$  A. Same as every time I phoned them up, that they would get
- 9 it organised as quick as possible.
- 10 Q. Yes.
- 11 A. And I'm pretty certain they asked me to send over
- an email and I sent over an email and sent some photos.
- $13 \quad Q. \quad \text{Yes.} \quad \text{We can see that.} \quad \text{If} \quad \text{we go to} \quad \{\text{RYD00094213/64}\},$
- $14 \hspace{1.5cm} \text{there is an email you sent on 1 June to their aftercare} \\$
- department, where we can see you're saying:
- "Further to my e-mails about defects at Grenfell,
- the environmental mode on the AOV system is not working.
- $18 \hspace{1.5cm} I \hspace{.2cm} walked \hspace{.2cm} all \hspace{.2cm} \hspace{.2cm} 24 \hspace{.2cm} floors \hspace{.2cm} on \hspace{.2cm} Tuesday \hspace{.2cm} and \hspace{.2cm} it \hspace{.2cm} was \hspace{.2cm} not \hspace{.2cm}$
- 19 operating on any floor."
- $2\,0\,$  Do you see that? We can see from the attachments
- 21 that you are sending photos.
- Do you know whether JS Wright followed up on the
- 23 defect report?
- 24 A. I now know they didn't, but at the time I had no reason
- 25 to suspect that they wouldn't because JSW had the best

219

- 1 aftercare department that I have ever worked with.
- 2 In fact, there was a couple of times in the year
- 3 previously that I'd gone up there and phoned through
- a defect and somebody had arrived an hour later.
- 5 Q. Did you ever check whether they had attended to the
  - matter or somebody else had attended to the matter?
- 7 A. No, I didn't.
- 8 Q. Did you ever contact Claire Williams again to emphasise
- 9 the importance of this issue?
- 10 A. No, I didn't.
- 11 Q. Did Claire Williams subsequently contact you about the
- 12 system?

6

- 13 A. No, she didn't.
- $14\,$  Q. Now, we know that that was, I think, your last visit to
- 15 Grenfell Tower, wasn't it?
- 16 A. Yes.
- 17 Q. 1 June 2017.
- Can we turn to a document, {RYD00086541}. I think
- this was your weekly defect update report for
- 20 Grenfell Tower.
- I want to look -- I know it's quite a small font
- here, but look at line 6 in the main text. There is
- a line that says, "AOV system not working properly" that
- you can see in the description. Do you see that there?
- 25 A. Yes, I can.

3

11

14

23

3

6

14

- Q. You have got "Service By: JS Wright" in the next column.
- 2 It's created on 1 June 2017, and then you have got
- 3 a target complete date of 29 June 2017. Do you see that
- 4 there?
- 5 A. Yes.
- 6 Q. Can you explain why that target complete date was
- 7 28 days after the defect had been logged?
- 8 A. No. This -- as I say, this document is dealt with by
- 9 our Rydon's aftercare department and they're obviously
- 10 given response times as per the contract. I don't
- 11 understand why it was given a date that thing -- that
- 12
- 13 Q. Did you not think that it needed to be dealt with more 14 urgently than in 28 days?
- 15 A. I never saw this document, and, as I said, every other
- 16 one I had ever phoned through to JSW was dealt with very
- 17 rapidly.
- 18 Q. Okay.
- 19 Final topic for my questions, Mr Hughes. I just
- 20 want to ask you about snagging of broken and draughty
- 21
- 22 To what extent were you made aware during your time
- 23 on the project, or indeed after when you went back to
- 24 Grenfell Tower, that there were complaints being made
- 25 about gaps around the windows?

221

- 1 A. I did visit a couple of flats and felt a bit draughty in 2 a few places.
- 3 Q. So you agree that you did receive some complaints about 4 draughty windows?
- 5 A. Yes, and I visited a couple of flats as well, as I say, 6 afterwards and during the works as well.
- 7 Q. Can we look at just two emails on this. So if we go to
- 8 {HAR00017538}. This is someone called Emma Kelly of
- 9 Rydon to you. Sorry, to be fair, it's to Ben Bailey and
- 10 Ray Bailey but copying you in. She says:
- 11 "It has been noted that there is a large number of
- 12 defects relating to windows open on our system, some of
- 13 which have been open as long as August. This is not
- 14 acceptable and we are not receiving any response from
- 15 our chaser emails/calls. We must ensure that defect are
- 16 closed out within the target rectification time
- 17 provided."
- 18 Do you see that there?
- 19 A. Yes, I do.
- 20 Q. Were you concerned at this point about the quality of
- 21 the window installation?
- 22 A. The quality of the window itself, no, I wasn't, but
- 23 I asked -- Emma I think phoned me and said sort of, "Can
- 24 you possibly give the Baileys sort of a chase because we

222

25 have got this outstanding and things". I said to copy

- me into it. I don't remember, but I think I also asked
- 2 Steve because Steve had the better relationship to
  - Harleys to say they need to come and sort this out.
- 4 Q. Did any of the concerns that were raised about the
- 5 quality of the window installation ever trigger in you
- 6 a thought about whether the fire safety of those windows
- 7 might be adequate?
- 8 A. No, they didn't.
- 9 Q. Can we look at another document. This is a bit later.
- 10 So that was January 2017, I want to look at May 2017.
  - This is  $\{RYD00086363/2\}$ . There is an email from
- 12 Lee Chapman to Ben Bailey dated 14 May. We can see it 's 13 about flat 195.
  - We can see about four paragraphs down it's said:
- 15 "Under the window sill in the kitchen I can get my 16 fingers underneath, probably about a 10mm gap, then a 17 5mm gap up the side.
- 18 "In the living room, there are 3 windows."
- 19 And again, there's talk of gaps:
- 20 "... around 3-4 mm, which gets very drafty (sic) in
- 21 windy weather, there is now a finishing stripe and it is
- 22 not sealed."
- Et cetera. 24 So we get a sense of that.
- 25 Then there are various chasers about this.

223

- 1 Were you made aware of this at the time, that there 2 were complaints about draughts and gaps around windows?
  - A. I was aware of a couple of them, yes.
- 4 Q. Again, the same question: were you not concerned about
- 5 the quality of the installation of the windows upon
  - being made aware of this kind of complaint?
- 7 A. It did raise some concerns with me, but I was concerned 8 at the time that it was -- I keep using my hands to try
- 9 and illustrate, but it was an issue with the support
- 10 underneath, because none of the issues were ever around
- 11 the sort of top and sides, so I thought if there was
- 12 gaps round there we would also be getting reports of
- 13 water coming in as well, and we never had one report of
  - a leaky window at all.
- 15 So my understanding -- or what I had in my head, 16 that there was an issue at the bottom with how the metal
- 17 plate which held the windows up wasn't possibly properly
- 18 sealed -- as I say, I don't remember actually seeing how
- 19 it was done on site, because, like I say, a lot of the
- 20 windows were in and insulation underneath them. I never 21 saw actually how that was finished. So whether or
- 22 not -- I had in my mind that there was an issue with the
- 23 sealing behind that metal plate or the metal bracket the 24 window sat on.
  - Like I say, it was always at the bottom of the

224

1 1 windows; it was never the top and the side. So it was Going back to that 2 November 2015 Building Control 2 2 never a waterproofing issue, otherwise we would have visit --3 3 A. Yes. been getting reports of leaky windows as well. 4 4 Q. Okay. Q. -- do you remember we looked at that just before, when 5 A. So that's the thought process which went through my head 5 we restarted last time? Can you remember whether 6 6 Mr Hoban actually went up the hoist and looked at any of at the time. 7 7 Q. Were you ever concerned that issues such as poorly the elevations at that point? 8 8 A. No, he didn't. The first time I took him up the mast installed windows might provide a route for fire spread 9 9 around the windows? climbers was on that first one we discussed, so --10 10 A. No, I didn't have any concerns. Q. 11 November 2015? 11 Q. Did you ever investigate these issues personally? 11 A. Yes. 12 I went into a couple of flats and I did feel the 12 So not on 2 November 2015? 13 13 A. No. draughts, and my remedy was to mastic up the gaps from 14 the inside, because at that stage -- as I say, while we 14 Q. Okay. 15 15 had the mast climbers up, nobody ever came to me with A. As I say, I hadn't agreed with him to take him up there, 16 16 an issue, so the issues didn't start appearing until and it takes an awful long time to go up there and come 17 after the mast climbers had finished or had been 17 back down, so it was something that I had prebooked with 18 dropped, so it was impossible to get back to the outside 18 him, that he would need to give us some time to do it. 19 19 and see what my suspicions -- whether they were true. Q. I understand. 20 20 So I just dealt with the issue that there was at the On fire risk assessment and fire risk assessors, did 21 time, which was the draughts, and sealed up all around 21 you generally have experience of fire risk assessors 22 22 the uPVC. considering the cladding or external façade of 23 23 MS GRANGE: Thank you, Mr Hughes. 24 Mr Chairman, I have come to the end of my questions. 24 A. No, I didn't, because that's probably the first time 25 25 SIR MARTIN MOORE-BICK: Good, thank you. that I've really had interaction with a client's fire 227 225 1 MS GRANGE: But we obviously need to take the customary 1 risk assessor. 2 2 break to see if there are any final questions. Q. What was your understanding about why Mr Stokes was 3 SIR MARTIN MOORE-BICK: Yes. 3 asking about the cladding? Did he give you any 4 4 Well, as you heard, Mr Hughes, those are all the reason --5 questions Ms Grange has for you, but we have to have 5 A. It was part of the communal part of the building or the 6 6 a pause now just to make sure that there are no further outside of the building so he was, well, I guess, 7 7 questions that might need to be put to you. So we are informing the client of their risks. 8 8 going to break now until 4.15. Q. Did he seem to you to have a particular interest in the 9 cladding? 9 Will that be all right? 10 MS GRANGE: Yes, that should be fine. 10 A. No, he didn't seem to. I always thought he was more 11 SIR MARTIN MOORE-BICK: And we will come back then and see 11 interested on the inside of the building and how it 12 if there are any more questions. 12 interacted with residents. 13 THE WITNESS: Okay, thank you. 13 MS GRANGE: Mr Chairman, those were all the follow-up 14 14 SIR MARTIN MOORE-BICK: Would you like to go with the usher. questions I had. That's it. SIR MARTIN MOORE-BICK: Well, it was a few questions, 15 15 Thank you. 16 (Pause) 16 Mr Hughes, wasn't it? 17 Right, we will say 4.15. 17 Thank you very much, Ms Grange. 18 MS GRANGE: Thank you. 18 Well, that's all the questions we have for you. 19 (4.03 pm) 19 THE WITNESS: Okay. 20 (A short break) 20 SIR MARTIN MOORE-BICK: It just remains for me to thank you 21 21 for coming to give your evidence. It has been very (4.15 pm) SIR MARTIN MOORE-BICK: Right, ready to carry on, Mr Hughes? 22 22 helpful to hear you, and you are now free to go. 23 23 THE WITNESS: Yes. THE WITNESS: Okay, thank you very much. 24 SIR MARTIN MOORE-BICK: I think just a few more questions. 24 SIR MARTIN MOORE-BICK: Thank you very much.

226 228

25

THE WITNESS: Thank you.

MS GRANGE: Yes, just a few.

```
1
                       (The witness withdrew)
 2
     SIR MARTIN MOORE-BICK: Thank you very much, Ms Grange.
 3
         That's all for the day, I imagine?
 4
     MS GRANGE: Yes. Tomorrow Mr Millett will be taking
 5
         Mr Blake.
 6
     SIR MARTIN MOORE-BICK: Good. And that will be at
 7
         10 o'clock?
 8
     MS GRANGE: That's correct.
     SIR MARTIN MOORE-BICK: 10~\mbox{o'clock} tomorrow, then, please.
 9
10
11
     (4.19 pm)
     (The hearing adjourned until 10 am on Tuesday, 28 July 2020)
13
14
15
16
17
18
19
20
21
22
23
24
25
                             229
 1
                              INDEX
 2
     MR DAVID HUGHES (affirmed)
 3
            Questions from COUNSEL TO THE INQUIRY .......1
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
```

a3 (1) 166:17 a32 (1) 17:24 able (9) 29:8 30:2 44:11 48:17 49:5 107:6 129:7 187:9 195:8 above (9) 31:6 33:19 41:11 118:19 141:23 164:22 165:4 166:6 172-23 absent (1) 153:16 absolutely (4) 78:10 107:8 163:14 208:5 accept (2) 18:2 104:3 acceptable (2) 102:8 222.14 acceptance (2) 168:1,9 accepted (3) 28:3,3 168:16 access (4) 49:6 186:9 187:10.11 accessed (2) 210:9,12 accessegress (1) 187:4 accommodate (1) 159:1 accordance (7) 13:9 14:12 106:3 114:2 124:22 126:16 136:18 accordingly (3) 24:3 103:21 120:21 accredited (1) 80:9 accurate (4) 163:25 164:20 165:16 169:20 achieve (5) 31:13 46:19 58:16 89:21 160:20 achievingmeeting (1) 156:1 acm (3) 44:19 51:22 96:18 acms (1) 44:17 acp (1) 75:19 across (5) 37:1 41:13 53:18 148:9 211:2 action (6) 11:1 188:1,18 199:23 202:6 211:18 activate (1) 114:17 activated (1) 179:18 activity (1) 142:17 actual (6) 12:15 39:14 54:14 164:6 191:9 193-11 actually (18) 8:16 23:6 56:15 61:10 66:20 71:12 123:7 127:5 143:15,16 168:10 169:11 193:7 194:7 207:9 224:18,21 227:6 adb (2) 32:19 191:18 added (1) 170:18 addition (2) 164:21 191:13 additional (3) 18:15 additionally (1) 166:21 address (1) 135:13 addressed (2) 135:23 177:2 addressing (2) 151:17 169:25 adequate (2) 154:17 223:7 adequately (1) 29:23 adhered (1) 23:21

alarm (1) 181:9 alarms (2) 168:14 adjourned (1) 229:12 173:22 adjournment (1) 140:2 albeit (1) 4:25 allen (7) 109:25 110:2 administration (2) 18:3 116:19,22 117:2,25 admit (2) 38:22 41:8 118:8 alliance (1) 34:6 allocated (1) 135:12 allow (2) 114:11 151:14 adverse (2) 176:8 177:9 almost (7) 64:10 68:4 70:5 81:10 121:7 advice (3) 6:19 158:10 125:2 138:1 along (4) 45:5 104:6 202:18 205:20 already (14) 8:17 affect (3) 50:23 51:17 38:13,18 59:17 63:8,9 66:20,25 85:5,6 102:1 affirmed (2) 1:12 230:2 111:12 178:18 204:18 afraid (3) 57:3 194:11 also (72) 2:3,5 3:19 6:4 8:23 13:11 15:5 after (42) 3:20 9:1,23 16:3.18 20:20 24:15 25:10 26:9 36:7 37:9 42:5,25 43:9 46:3,9 76:11.17 78:21 82:22 48:20 53:15.16.24 89:11,12 102:17,18 64:6 72:17 78:20 111:5 119:14 128:2 79:25 80:25 84:3 133:21 145:21 147:9 85:20 93:15 94:18 154:25 155:1,4 156:7 99:23 101:10 115:17 172:20 178:25 183:2 119:10,14 120:3 125:7 190:8 191:9 193:10 126:16 133:13 135:16 196:2 198:10,17 201:1 137:17,19 142:14 207:9 208:3 221:7.23 152:17 153:5.6.7 157:9 158:10 160:17 aftercare (5) 219:4,6,14 164:21 166:2 169:14 186:13 187:24 196:10 204:6 210:21 212:10,15 215:18 afterwards (8) 42:12 216:16 217:9,12 66:11 102:22 133:25 218:10,15,16 223:1 149:23 152:6 217:9 224:12 alteration (2) 159:3 again (21) 2:25 8:25 alterations (2) 107:6 63:21 111:4,25 123:7 158-25 131:7 135:20 150:21 although (4) 26:9 36:15 170:1 199:5 aluminium (15) 5:3,20 220:8 223:19 224:4 6:5,11,13,15 7:18 44:21.24 52:2.21 53:7 104:17 105:3 143:3 72:14 74:3 142:2 always (24) 15:21 25:4 27:5 29:16 32:15 33:14 46:21 64:7 66:1 77:24 79:5 91:3 agree (22) 15:12 26:25 112-18 19 121-3 6 129:23 130:3 155:8 156:12 157:13 160:2 224:25 228:10 amend (2) 167:8,15 amended (1) 121:25 amongst (1) 92:5 agreed (7) 9:4,8 40:19 analyse (1) 15:14 57:21 66:22 169:25 analysed (1) 184:22 analysing (1) 15:18 agreement (3) 19:25 analysis (3) 176:10,13,23 agreements (1) 69:10 andrew (3) 133:14,23 135:6

adhesive (3) 87:18

adopted (1) 122:8

advanced (1) 40:20

adversely (2) 50:23

advise (1) 195:11

advised (1) 178:10

30:24 50:17 51:5

64:16 66:11 70:17

183:22

199:9

225:17

178:8

222:6

220:1 221:9

afternoon (2) 89:17

20:23 26:25 39:17

163:10 169:10

189:9,14,25 202:5

against (5) 103:14

agent (1) 214:15

77.14 17 21 79.12

91:9 94:24 103:15

108:12,15 129:20

130:5,8,15 136:21

169:13.19 189:24

137:4 155:15

222:3

227:15

71:16 204:1

ah (2) 21:9 62:24

air (7) 217:13,13,15,17

andy (4) 178:2,7,8

another (14) 1:5 6:4

26:7 40:5 61:8 63:11

184:16

aim (1) 214:23

218:11,12,13

alan (1) 1:23

144:14

ago (1) 3:16

143:3.20

139:14 140:25 144:22 155:7 157:17 179:9 180:22 223:9 answer (5) 24:19 85:23 173:21 184:2 204:9 answered (1) 180:2 answering (4) 181:20,22 184:7 185:18 answers (8) 15:11 30:25 62:13 65:21 179:19 182:6 195:20 196:6 anybody (6) 12:20 55:13 59:5 65:13 150:2 176:23 anyone (21) 9:18 12:20 29:6 35:24 70:13 102:18 108:19 113:16.18 114:1 126:21 127:2.7.7.13 139:16 177:21 180:16 182:8 196:24 204:4 anvones (1) 203:9 anything (33) 1:25 6:6 11:6 14:25 34:4,16 43:15 45:5 70:13 81:1 82:1 84:21 90:8 91:4 101:2 103:2 105:4 120:23 127:7 129:19 131:15 139:16 142:8 144:20 155:2 162:1 167:3,6 168:6 192:16 196:24 206:15 211:6 anyway (1) 217:10 anywhere (3) 86:24 87:15 157:21 aov (3) 159:1 219:17 220:23 aovs (3) 213:14,24 214:1 apart (5) 120:23 135:18 163:5 201:25 204:4 apparently (1) 62:1 appear (3) 92:14 121:18 215:21 appearing (2) 150:15 225:16 appears (4) 63:14 110:1 150:19 209:20 application (1) 159:20 apply (1) 118:3 appoint (1) 157:24 appointed (1) 80:1 appointment (1) 37:18 appreciate (2) 97:8 188:12 appreciated (1) 1:21 approach (1) 156:3 appropriate (2) 13:17.18 approval (4) 69:16 158:11 159:3 190:12 approve (1) 132:3 approved (13) 30:7,9,11 31:1 33:7 35:16,18 68:22 70:5 72:22 112:5 169:5 214:25 approving (1) 148:14 approximately (2) 5:18 153:4 april (14) 179:10.12 188:2,18 190:21 191:19 192:3

194:21,24 195:16,25

199:23 202:7 208:7 architect (14) 15:16,23 19:8 36:5 68:22 69:17 159:2 160:18 174:10 177:5 183:3.11.13 184:13 architects (6) 18:23 36:8 175:3,8 179:6 architectural (2) 46:4 209.9 area (6) 69:24 94:25 95:18 96:16 186:20.23 areas (11) 31:19 85:17 86:4 98:22 103:13 124:17 169:24 186:8 202:14 213:2 217:16 arent (2) 122:1 169:20 arising (1) 212:4 around (35) 28:19,20 32:20,23 34:19 39:15 40:22 42:17.25 52:22 96:16,18 110:24 113:2,12,24 117:18 138:18 143:19.25 157:13 162:25 163:22.23 165:19 183:9 193:3 201:3 208:15 221:25 223:20 224:2,10 225:9,21 arranged (5) 61:15 111:24 163:9 187:19 214:12 arrangements (1) 135:22 arranging (1) 88:24 arrival (1) 89:12 arrived (3) 60:1 61:7 220:4 art00000914 (1) 47:3 art0000091411 (1) 47:14 art0000091413 (1) 47:23 art00005184 (1) 151:5 art000051843 (1) 151:7 art00005321 (1) 168:23 art000053215 (1) 169:1 art00005362 (1) 211:14 art000053624 (1) 211:17 art0000666315 (1) 135:4 art00006666 (1) 149:7 art000066667 (1) 149.10 art00006688 (2) 138:9 182:13 art000066885 (2) 138:15 182:15 artelia (4) 133:14 135:3 168:22 170:6 ashton (6) 181:7,9 183:21 184:6,12,21 ask (42) 2:1 5:6 13:1 17:20 20:23 21:9 24:6 37:20 39:2 44:5 55:14 58:4 65:21,22 66:23 71:14 72:3,6,24 83:12 84-9 90-8 91-4 92-22 109:23 110:15 116:13 136:5 140:19 147:12

182:17 184:12,21 185:13 190:14 196:16 202:2 212:20 221:20 asked (42) 8:7,8,23 19:6.8 21:6 29:6 37:12 44:11 45:8 46:19 86:21 87:7,9 90:6 97:11 116:2,3 117:1,1 126:24 132:11 140:18 141:6 163:2 166:11 181-1 186-19 24 187-2 189:8 191:2 195:20 196:5.15 204:9.19 210:18,25 219:11 222:23 223:1 asking (15) 1:24 2:1 51:11 58:18 59:19 60:8 71:8.19.24 91:23 134:11 164:9 193:21 195:25 228:3 asks (1) 195:4 aspect (4) 124:18 145:5 215:14,16 aspects (1) 3:24 assess (1) 187:3 assessed (1) 105:12 assessing (1) 152:16 assessment (17) 105:10 172:16,22 173:9 185:19 187:1,20 188:4.14 189:1.2.5.9 196:8 202:5 211:25 227:20 assessments (1) 191:20 assessor (5) 185:14,17 186:1 187:3 228:1 assessors (2) 227:20,21 assistant (5) 3:16 11:25 135:6 153:23,24 associated (1) 28:9 assumed (4) 24:15.25 108:7 157:14 assurance (1) 132:16 atrium (2) 68:18 186:9 attached (9) 62:6 75:21,25 76:3 143:1 168:5 180:6.8.12 attaches (1) 75:20 attaching (1) 199:22 attachments (1) 219:20 attend (1) 117:2 attendance (3) 92:5 138:13 160:17 attended (7) 10:21 29:14 38:6 133:14 135.7 220.5 6 attendees (1) 160:25 attention (1) 176:20 august (3) 92:1 141:21 222:13 automatic (1) 213:2 available (2) 53:5,24 aware (105) 5:22 6:25 7:15 13:3,7,11 14:17,21,24 15:1,5,18 16:20,21 17:21 26:5 29:22,25 31:4,5,8,10,11 32:19 33:7,10,11,16 34.18.20.37.10.39.20 41:7,9 42:1,3,4,15 46:20 51:22 158:13 171:12 176:23 53:4,9,9,11,14,24

54:1,2,7,12 55:17 56:2.8.18.23 57:1.1 59:15,25 60:2 66:21 76:22 80:19 81:5 82:1 84:17 92:25 95:6 102:2 105:22 112:25 113:4,5,7 114:16 117:25 119:10 125:20 132:19,21 147:3,5,12,15 148:13 150:2.5 152:11 154:9 172:10 180:7,13 202:25 203:3.22 206:11 209:3,7,7 210:12 218:24 221:22 224:1.3.6 away (6) 107:18 153:4 154:4,7 159:11 207:18 awful (4) 43:13 194:10 204:2 227:16

b (2) 31:1 33:8 **b1 (1)** 209:9 **b4 (2)** 29:19 176:5 back (74) 3:5 4:12,18 21:9 26:10 31:23 33:6 37:5 38:23 42:20 46:22 66:6 67:25 68:3 70:4,14 73:10 83:14 84.10 86.18 22 89:7,15 97:13,15 98:16 102:22.23 105:14 109:8 110:2,15 111:2 112:8 114:9.10.13 117:24 120:2 122:23 125:2.13.16 127:23.25 132:6.11.13 134:12 136:5 141:7 150:9 163:1 164:4,5,12 167:16 168:1 180:23 181:19 184:18,20 189:21 195:10.20 196.6 198.7 208.7 216:18 221:23 225:18 226:11 227:1.17 backed (1) 143:3 background (1) 3:13 backtoback (1) 46:22 backwards (1) 96:12 bad (1) 42:5 bailey (29) 43:10 45:20 49:12 50:15.16 52:13 57:21 58:21 59:3 60:5 61:12 71:8 75:19 83:21 97:19,22,25 103:11 112:17 117:9,12 118:21 120:7 121:13,18 123:2 222:9,10 223:12 baileys (4) 61:19 105:14

107:12 222:24

barriers (55) 6:25

116:9

barrier (3) 87:4 115:11

7:2.11.15 21:19.21

32:8,12,17,18,20,23

33:1.9.12 34:19 42:17

88:2 95:1.24 96:3.7.14

98:21 99:7 100:20

101:23 104:19,21

105:8 106:23 108:8

british (1) 13:17

broadly (1) 29:6

brochure (7) 21:5,12,14

86:24 141:9,11 142:11

110:10,11,19,19
111:10,16 112:13
113:2,12,15,24 114:4,5,12,22
115:1,6,25 119:1
129:5,16 144:3,11
based (4) 26:20 40:19
140:16 184:25 basically (9) 8:20 41:11
44:24 64:14 106:19
109:2 148:24 160:5
217:14 basis (7) 63:25 78:16
92:15 168:8 172:20
182:3 184:6
battens (2) 191:1,12 batty (2) 133:13 151:21
batty (2) 133:13 131:21 battys (1) 134:3
bba (2) 65:16,19
bc (2) 191:7 192:1
bca (1) 34:6 became (9) 9:7 24:22
25:3,11,13,20,21,24
43:1
become (1) 13:21 before (70) 4:25 5:16
10:16 26:2 32:22 33:2
37:24 60:1,3 61:7
62:13,14 66:22 69:17 71:5 74:14 75:17
80:21 93:22 98:1,19
99:2,8 100:5,21
102:24 104:1,5
105:8,18 106:11,22 109:19 111:3,12
113:25 119:3,18
120:25 121:23 122:17
124:6,12 126:13 128:4 131:23,23 132:14
135:23 145:20 147:19
149:6 152:5 153:24
156:12 163:3,20 172:4 174:23 175:19
182:14,16 189:9
196:14 198:9 202:14
207:19 208:13 214:12
227:4 began (1) 204:9
beginning (1) 92:2
behalf (1) 79:20
behind (14) 6:13 7:15,16 39:15,20
40:17 55:22 63:8
78:10 96:8 126:14
129:4,12 224:23 being (43) 7:2 9:1 17:21
37:7 44:15 53:10
54:3,9 55:18 56:25
63:4 77:23 91:21 100:3 101:6,16 104:22
113:23 115:21 123:20
126:13 138:22 145:22
148:13 149:14,14
150:4,18 151:12 154:21 156:16 157:7
168:7 179:18 182:24
190:11 191:1,13
192:15 210:12 217:2
221:24 224:6 believe (28) 6:16 11:18
47:10 51:6 52:6,22
59:19 66:11 112:16
115:16 122:19 123:21

127:15 128:23 147:21.22 148:19.20 150:5 162:25 167:6 174:24 176:3 181:12 198:10.10 207:8 208:7 believed (2) 71:7 105:9 below (14) 14:2 22:11 39:21 45:12 73:24 93:16 101:2 124:4 135:24 137:18 155:24 167-25 168-9 179-19 ben (43) 43:10 45:20 49:12 50:15.16 51:16 57:21,25 58:10,18,21 59:3 61:12,13,19 63:24 64:14 65:15 66:12,22 75:19 83:20 97:11.11.19.22.25 103:11 104:25 105:14.24 109:5 112:17 117:9,12 118:21 119:5.10 120:7 121:18 123:2 222:9 223:12 beneficial (1) 170:2 berry (6) 45:20 48:21.24.25 72:12 143:24 best (8) 2:17 3:2 19:9 120:3 163:24 178:10 195:11 219:25 better (9) 45:15 49:23 58:16 108:19 122:11.12.13 139:8 223:2 between (23) 15:8 17:11 39:5 72:9 77:14 78:12 82:14 87:1 93:5 96:25 109:22 114:3 132:19 144:2,10,11 155:24 170:19 173:22 175:16 178:2 201:9 beyond (1) 172:3 bez (6) 45:20 48:25 85:23 86:21 122:2 141:6 big (4) 36:8 73:4 194:11 217:10 biggest (3) 5:7 24:24 200:2 bishop (1) 214:14 bit (27) 6:4 30:23 37:9 48:10 54:16,19 78:9 80:16 90:24 94:22 101.8 107.17 110.5 25 120:24 121:8 125:15 139:6,7 149:3,25 164:3 165:25 168:17 218:2 222:1 223:9 bits (14) 21:15 49:6 55:7 96:25,25 98:4 109:9 120:23 121:9 122:16 123:13 126:25 134:4 170:18 black (1) 120:24 blake (23) 8:5,5 11:2 24:14 58:1 66:8 71:17,19,22 89:18

229:5 blakes (1) 210:15 blarp20000006208 (1) 210:6 blas000000848 (1) block (2) 110:8 114:19 blocks (5) 5:12,13,13 195:7,12 blow (4) 13:25 141:23 189:18 210:6 blue (3) 148:9 180:2 181:7 blurry (1) 210:16 board (9) 55:22 60:18 63:15 64:7 69:12 82:14 87:4,9 144:16 boards (17) 62:22,24 64:9 86:20 87:1 95:11 117:22 141:2.5 142:1 144:3,8,10,11,14,21 145:22 book (2) 30:20 163:23 booked (1) 214:13 borough (1) 35:7 both (11) 24:14 46:14.16 93:15 94:12,16 96:13 107:20 108:7,9 135:24 bottom (33) 18:12 19:13 26:17 39:10 61:3,9,12,14,24 69:1 72:23 93:4 98:12 108:4 118:3.5.17 125:17 138:16,16 152:9 154:25 166:11 169:1 178:5 182:15 195:3 197:17,18 199:20 207:19 224:16,25 box (3) 93:16 153:2 210:7 boxed (1) 96:18 boxsic (1) 207:21 br (1) 34:4 bracket (1) 224:23 brackets (2) 142:23 143:19 branding (2) 95:9 148:3 bre (3) 47:17.18.20 break (14) 2:3 68:11 70:9,21 139:9,15 144:17 194:17 196:18,20 197:7 226:2,8,20 breaks (1) 84:2 breaksfire (2) 110:10,18 brick (1) 32:25 brickclad (1) 5:13 brickwork (2) 7:16,22 bridge (1) 187:10 bridges (3) 178:2,7 184:16 brief (4) 110:9,16,18 212:20 briefed (1) 112:14 briefing (1) 12:19 briefly (2) 188:6 209:25 brigade (5) 212:24 213:7.14.19 216:2 bring (4) 2:11 59:23 217:15,17

broken (1) 221:20 brought (2) 24:15 126:14 brown (1) 199:21 bucket (1) 125:6 build (11) 13:24 15:22 16:15 30:1 46:23 79:12 104:16 130:5 165:10 174:14.14 building (226) 4:14 5:22 7:7 13:9,14 15:13,20 16:8 18:13.15.20.23 19:2 27:22 28:5.9.11.13.18.22 29:1.5.8.15.20 30:1.7 34:6 35:1,6,8,14 36:1 38:13 41:1 43:23,23 45:5.9 49:19 50:3 51:7,11,14 54:8,11 58:17 60:3 62:17 63:24 66:21 67:17,20,25 68:1,6 74:16 75:6 79:7 82:11,19 84:6,17,19,22 85:4,12,13 86:17 88:20.25 89:20 90:5.14.20 91:11.13.18.19 92:8,11,14,22 94:22 96:1,6 98:23 99:2.8.20.24 100:2,4,7,9,17,21 101:22 102:2,3,17,20 103:1,3,7,15 104:1,5 105:18 106:6,13 107:25 108:7,13,18,20,22,24 109:12,17,22 110:1,9 113:22,23 114:25 115:3,18 116:16,19 117:13,24 119:15,18 120:17 121:1 124:6.20 125:5,13,18 127:22 128:4.20 129:3.17.20.24 130:6,10,20,23 132:4 133:4 134:16 140:21 146:5 148:13.24 158:7,11,16 159:4,8,11,16,24 160.2 10 16 20 23 161:17 164:21 165:5,14 167:12 168:7 169:5.7 170:3 171:2,3,5 172:5 176:8 177:7 183:5.10 186:14,19,24 187:1,20 191:15.15.17 192:6,8,20,21,23 193:1,4,6,7 195:19 197:15.21 202:12,13,21 203:1 208:12,22 209:12,16 212:5 213:24 214:21 216:19 227:1.23 228:5,6,11 buildings (15) 6:8 7:1

31:6 33:18 41:4,6,19

146:24 147:10,13 185:7,11,12 191:10 193:12 built (5) 80:9 160:5 165:7 200:25 209:10 builts (1) 180:8 bullet (1) 39:21 busbar (1) 171:2 butler (2) 205:4 208:8 butt (1) 144:14 butted (4) 96:22 114:12 143:2 144:16

calculations (3) 90:17,25 91:10 call (8) 33:23 38:1 78:15 80:25 89:25 90:3 103:6 202:5 called (13) 12:11,12 22:20 92:15,18 147:10.14 186:15 203:22 210:22 216:17 217:3 222:8 calling (2) 89:15 206:16 calls (1) 111:11 came (22) 5:20 36:7 38:20 51:5 53:15 75:18 76:10 82:14 101:11 104:6 109:3,6 119-18 121-8 127-22 128:7 131:3 136:16 163:1 175:13 193:20 225:15 cannot (3) 166:19,24 190:23 cant (23) 44:20 69:25 70:2 77:2.6.25 94:23 96:15 97:2 116:7 121:21 130:6 145:7 148:1 154:24 162:1 165:22 167:1 193:25 194:6 199:9,11,14 carl (14) 185:13,17,22 186.5 15 187.19 188:8,8 193:19 195:4.6 196:2 211:24 212:10 carried (14) 17:4 72:11 79:14 104:22 107:17 116:18 120:20 124:24 127:14 129:21 141:10 154:17 172:19 176:24 carry (14) 6:3 70:25 87:8 104:13 130:16 157:25 170:2 173:3 186:13 187:19 197:10 201:8 216:24 226:22 carrying (5) 27:21 59:9 83:3 171:24 185:4 cases (1) 142:1 catch (1) 42:11 caught (1) 42:13 cause (2) 91:20 120:6 cavities (1) 64:7 cavity (60) 6:25 7:2.11.15 21:19.21 32:8,12,18,19,23,24,25 33:8.11 34:19 42:17

87:4 88:1 95:1.24

100:20 101:23

104:19.21 105:8

96:3,7,14 98:21 99:7

106:23 108:8 110:10.11.18.19 111:10,16 112:12 113:2.12.15.24 114:4.5.12.17.22 115:1,5,11,25 116:9 119:1 129:5,16 144:3,11,17 ccf (1) 63:14 ccf00000019 (1) 63:12 cdm (4) 80:2 206:9 209:4 212:3 ceilings (1) 41:11 cel00000013 (1) 141:14 cellotexsic (1) 62:8 celotex (25) 21:3.12 45:1,3 56:11,16 57:22,23 58:15,18 61:16 63:24 64:8 65:4,8 68:5 69:21 86:23,23 87:11 95:10 141:8.9.11.13 certain (17) 29:17 47:20 58:23 78:1,21 120:11 126:1 146:11 147:9 164:1 180:14 183:2.7.15 204:3 205:9 219:11 certainty (2) 151:20 152:10 certificate (7) 65:16,19 66:3 151:23 186:19.20.25 certificates (1) 20:2 certifications (1) 4:4 certified (1) 19:25 certifying (1) 136:2 cetera (3) 79:16 106:23 223:23 chain (2) 61:10 194:22 chaired (1) 133:23 chairman (6) 68:9 70:7 139:5 196:17 225:24 228:13 chalcots (6) 5:25 6:1 42:2 53:10,17 54:17 challenge (3) 36:18,24 37:2 chance (2) 63:8 70:10 change (7) 14:24 51:12 68:21 71:10,20 81:4 changed (1) 179:24 changes (3) 154:20 176:7 177:9 changing (1) 69:17 chapman (1) 223:12 chase (1) 222:24 chaser (1) 222:15 chasers (1) 223:25 chat (1) 89:19 chatting (2) 25:8 75:9 check (39) 20:6,10 21:2 36:21 77:7 87:22 98:20 99:3.8.19

100:20,21,22 102:18

126:6,22,22 127:20

132:2,2,9 178:22

180:16,19 199:13

209:1,24,24 220:5

130-19 131-7 12 16 17

104:17.21 106:4

114:22 119:8

checked (12) 87:21 103:24 106:11 109:9 118:21 127:21 131:24 140:13 144:8.15 168:5 215:20 checking (17) 15:19 16:7 20:21 21:4,7,20 35:24 87:23 100:23 101:21 103:14 105:7 108:8 110:7 133:3,5 205:20 checklist (7) 103:13.17.22 125:21,24 126:5,10 checks (4) 100:24 104:5 105:3.17 chelsea (1) 35:8 cherrypicker (1) 118:8 cherrypickers (1) 118:6 chimes (1) 24:19 chipboard (3) 170:14,14 171:9 choice (1) 68:17 chris (8) 153:5,21 154:5.10.13.15 155:1,4 christmas (5) 111:4,5,12 153:24 154:8 civil (1) 3:20 clad (1) 195:18 cladding (134) 4:25 5:3.15.21 6:5,6,7,11,12,24 7:13,18 8:9,15,17 9:23 15:25 16:2 21:1 27:10 31:22,22 32:5 34:2,10 35:20 38:6,12,15,16 39:18,23 40:14,20 41:6,9,16,21 42:5,24 43:4.16 44:5.15.16 45:15.19.25 47:25 48:1 49:24 50:5,20,24 51:22 53:4 54:2,10 55:11 63:7 77:17 79:4,5 84:3,5,14 86:14.16.18 88:11 93:13 96:17 98:2,22 99:7 100:3,21 101:23 103:19 110:7.11.20 113:8 114:10 118:24,25 122:18 124:12.14 125:8 126:11 128:24 129:4 141:14,20 142-15 18 24 143-12 144:25 146:17 150:23,24 158:17,18,21 177:2,22 184:22 190:16,25 191:2.6.10.14.19.24 192:19,25 193:4,11,22 194:1.4.24 195:8.18 196:1 198:4,22 199:14 227:22 228:3,9 claire (27) 25:12,15,15,17,19 167:20 170:6,7 179:12 186:16 205:4,22,23 206:4 207:9 214:12 14 215:20 216:7,13,16,17 217:2,8 218:24 220:8,11

126.21 127.2 151.11

153:8 160:15 169:23

180:21 187:16 188:7

200:13 204:16 207:14

bringing (1) 218:13

clapham (1) 5:21
class (6) 31:15,21,24 83:5 143:20,25
clause (8) 13:20 14:1,16
17:25 19:14 22:16 47:21 67:1
cleaning (1) 121:8
clear (21) 7:19 12:19 19:3 23:20
25:3,20,22,24 34:18
37:7 61:4 63:25 72:25 101:20 107:8 120:12
124:11 148:1,5,12
163:14 clearer (1) 143:16
clearly (1) 143:23
clerk (57) 20:20 28:5 43:25 49:19 51:7 58:2
78:14 85:11
100:7,12,16 102:3
103:4,7 106:6,14 107:25 108:8,14,24
109:2,5,8,12,17 112:5
119:16 120:17 121:21 124:7 125:18 127:22
128:4,19,20
132:4,20,25 133:1,2,13,16
135:7,10 137:3
138:10,13 139:6 149:4 150:3 152:4,20 154:21
155:13 156:13 157:24
182:12 clerks (9) 35:9 51:15
134:10,12,15 136:17
137:2 150:5 157:13 clg0000001314 (1)
141:22
client (28) 9:6,7 16:17 25:11,19,19 28:3,5
85:11 103:6,7 131:15
160:21 161:6 175:5,6 186:18,21 187:2
189:22,24 190:4,5
200:1 203:4,11 204:1 228:7
clients (6) 185:25 189:1
201:14 215:1,2 227:25 climber (6) 43:7 84:5
98:20 112:22 121:4
193:3
climbers (28) 43:24,25 60:4 83:21 84:4,16,20
89:5 94:17 100:9
101:15 102:25 103:9 106:15 107:4,6 109:11
111:25 112:4,20 118:4
128:15 130:17 132:15 163:10 225:15,17
227:9
clipped (2) 104:25 105:1
clips (2) 46:8 105:1
close (3) 114:17 152:7 190:11
closed (3) 121:21
183:16 222:16 coating (1) 139:3
codes (1) 13:18
collate (1) 205:7 column (11) 38:16
141:22,24 142:18
145:1 182:22

202:8,10,18,24 221:1 columns (6) 96:23,23 97:1 117:18,22 147:24 combustibility (3) 34:12 65:23 147:1 combustible (7) 51:23,24 53:25 54:3 66:1 191:6,25 come (35) 19:1 21:9 26:10 29:16 33:6 37:1 41:13 53:18 67:25 70:14 78:21 104:1 106:8 112:8.17 117:1 121:7 125:13,16 128:18 132:5,13 145:15 157:16 160:4 170:18 174:24 186:22 187:5 216:9 217:9 223:3 225:24 226:11 227.16 comes (3) 28:23,24 155:9 comfort (1) 176:19 comfortable (1) 1:14 coming (10) 1:20 25:12 28:8 82:20 83:14 101:22 187:12 198:17 224:13 228:21 commenced (1) 84:13 comment (4) 152:5 162:15 164:4 182:18 commentary (1) 33:17 comments (13) 118:25 149:13 151:12 153:2 161:2 162:5,7,8 167:9.16 180:2 190:14 200:1 commission (1) 180:21 commissioned (1) 190:1 commitment (1) 151:16 communal (8) 8:9 31:18 69:12 136:11,15 173:4 215:7 228:5 communals (1) 155:4 community (1) 158:25 company (7) 60:16 63:14 79:19.20 203:22 210:23 216:8 compartmentation (5) 7:16 41:10 169:24 170:10 212:18 competence (1) 4:9 competent (2) 105:9,12 compile (2) 203:25 204:24 compiled (1) 133:22 complaint (1) 224:6 complaints (3) 221:24 222-3 224-2 complete (18) 13:8,11 38:8.11 39:5 40:12 82:15 93:11,13,16 119:21.22 128:24,25,25 206:2 221:3,6 completed (12) 35:6 119:11,13 120:13,19 121:23 126:1,7 131:8

202:12 204:22 206:3

completely (4) 96:2

117:6,17 130:14

completing (1) 9:3

completion (13) 8:8,15

83:24 135:23 136:2 151:23 160:20 186:19,20,25 207:10 208:3 212:3 compliance (20) 13:12 15:19 17:4 28:11 34:24 35:1 45:4 130:19,23 133:4,5 151:20 152:11,12 159:23 160:2,5,6 166:12 176:5 compliant (16) 16:7 35:5.13.25 36:3 74:15 75:6 79:15 177:7 191:10,16 192:7,17,22 193:7.11 complied (8) 15:13 20:8 23:1 27:22 71:25 75:11.12 195:18 complies (2) 99:17 152:15 comply (10) 19:19,25 22:4 23:18 29:7 47:16,20 80:20 82:2 173.5 complying (1) 13:16 component (3) 191:16 192:7,21 composite (2) 44:24 53:19 comprehensively (1) 105:7 comprised (1) 6:12 comprises (1) 177:18 compromised (1) 153:7 concealed (1) 77:18 concentrated (1) 96:24 concern (11) 91:20 97:6,8 109:15 120:6,9 136:20 152:10 153:15 154:21 178:25 concerned (24) 10:15 31:20 57:23,25 64:8 73:18 75:10 103:20 114:1 138:23 152:12 154:2 155:11 175:15.21 177:1 181:20 191:13 192:19 219:3 222:20 224:4,7 225:7 concerning (3) 45:25 91:7 153:25 concerns (22) 75:3 84:2,24 97:4 102:21 127:13 140:20,22 150.2 14 153.18 156:11,14 157:16 159:23 161:20,21 166:12,17 223:4 224:7 225:10 conclude (1) 87:23 concluded (2) 87:24 conclusion (1) 188:11 concrete (2) 115:18 143:4 condition (1) 170:3 conducted (3) 77:23 98:20 118:17 confident (2) 105:6 confirm (12) 50:22

69:7,9 72:10 96:15

97:2 148:16 162:18 164:9.19 194:15 195:9 confirmation (3) 97:12 99:12 167:25 confirmed (11) 27:6 147:2 151:12 164:12 166:7 169:5,6,10 176:9 192:8,13 confirming (4) 112:1 163:5,11 164:5 confused (4) 94:4 100:6 110:25 132:12 connection (1) 31:21 consent (4) 14:14,20 15:2 67:3 consider (8) 27:14.20 65:1 100:13 122:15,17 156:20 182:8 considered (6) 45:18.24 46:22 64:1 176:7 considering (3) 90:24 143:9 227:22 consistently (1) 157:8 construction (22) 4:9 13:6 18:15,20 19:4 32:24 33:13 35:4,12,17,19 36:16 44:15 72:22 77:18 79:14 80:4 147:10 171:20 172:2 185:4 195:12 constructionrefurbishment (1) 202:11 constructions (1) 33:18 consult (2) 65:7,9 consultant (1) 180:22 consulted (2) 67:5 183:21 consulting (1) 47:4 contact (8) 5:20 45:10 90:7,20 177:21 197:20 contacting (1) 195:24 contain (3) 161:15 206:14,19 containing (1) 51:22 contains (2) 206:25 207:1 contemplated (1) 208:1 contemporaneous (1) 39:3 content (1) 71:19 contents (8) 2:17 3:2 22:10 208:9,11,19 209:16 211:6 context (2) 60:25 158:24 continue (1) 140:6 continues (1) 80:7 contract (22) 12:14,15,21,22,25 13:12.23.25 14:21 17:5,8,10 67:1 130:5 153:8 170:2 175:1 203:24 204:14 205:10 206:13 221:10 contracted (6) 14:22 46:24 78:3 132:21 173.3 203.22 contractor (11)

14:6,11,17 15:9 18:14

copies (5) 22:6,7

56:6 79:12,25 80:1

130:6 137:7 contractors (10) 14:10,12 201:15.15.16.19 202:14 204:7 205:16 216:23 contracts (6) 13:10 24:13 37:11 42:23 46:23 204:15 contractual (4) 12:3 28:10 206:12 209:7 control (140) 18:13.16.20.23 19:2 22:1,17,19,21 23:1,7 28:5,13,18 34:6 35:8 43:23.23 45:9 49:19 51:7,14 67:17,20,25 68:1 84:17.19.22 85:12 86:17 88:20.25 89:20 90:5.20 91:11,13,18 92:8.11.14.22 99:2,8,20,24 100:2,4,7,9,17,21 101:22 102:2.3.17.20 103:1,3,7,15 104:1,5 105:18 106:6.13 107:25 108:7,13,22,24 109:5,12,17,22 110:1 113:22,23 114:25 115-3 116-16 19 117:13 119:15.18 120:17 121:1 124:7 125:18.21 127:22 128:4,20 129:3.17.20.21.24 130:6,10 132:4 140:21 149:12 153:17 158:7,11,16 159:4,8,11,16 160:10.16.20 161:17 164:21 167:12 168:7 169:5,7 183:10 186:19,24 191:15 192:6,21 193:1,6,7 197:15,21 202:15 212:21 213:10 215:16,20 217:6 218:22 227:1 controllable (1) 110:8 conversation (23) 50:22 51:3,4,21 54:13,20,23 63:23 66:12.18 111:18 112:2 118:2 156:25 157:6 163:12,15,15,18 164-6 166-4 193-25 194:12 conversations (19) 42:12 43:11 45:8 49:13,23 57:5,6 69:24 113:19.23.25 157:2.4 174:24 191:8 193:23 194:6.8.10 cooler (1) 217:16 coordinate (1) 18:23 coordination (3) 15:7 18:2 91:9 coordinator (3) 4:9 171:14,21 copied (7) 187:17 188:9 194:19 207:15 208:19 211:2,9

23:11,12 206:22 copy (13) 16:12 46:12 65:16 123:11,11,14 207:11 208:8 222:25 copying (2) 178:7 222:10 core (8) 50:25 51:23 53:20 74:4,9 76:6,19,19 cores (1) 53:25 corner (1) 73:3 correct (21) 2:23 3:9,10,18,21 27:10 28:13 36:3 37:14,15 40:12 48:6 72:13 127:19 162:18 169:10.14.19 195:17 208:5 229:8 correcting (2) 3:7 140:10 correctly (8) 20:15 correlate (1) 133:16 corresponded (1) 183:25 correspondence (3) 181:8,12 196:2 cost (1) 170:4 council (1) 35:8 counsel (2) 1:18 230:3 couple (28) 21:15 24:6 25:15,21 39:3 42:4 50:17 71:4 84:2 145:9.24 149:22 course (4) 21:10 83:13 171:25 172:6 covered (6) 4:13 11:6 129:6 149:16 169:12 188:13 cow (5) 138:10 151:13.14.19 211:21 cows (1) 149:13 crawford (3) 69:2 160:18 161:13 create (1) 29:4 creating (1) 214:24 creation (1) 211:4 criteria (7) 104:13,15,16 107:24 108:13,15 109:16 crossreference (1) 209:20 crossreferences (2) 208:21 209:1 crown (1) 93:15 cst00000033 (1) 171:19 cst00002764 (1) 194:20 cst0000306342 (1) 190:19 cup (1) 74:19

161:9 170:11 200:2.6.7.22.24 201:4 212:12 178:2.11 179:22 206:6 current (3) 19:20 170:1 173:5 currently (2) 128:12 147:8 curtain (2) 34:10 75:22 curtins (1) 47:4 customary (1) 226:1 cut (1) 117:22 cw (1) 170:6 cwct (3) 34:8 48:8.9 danny (1) 82:22 datasheet (9) 56:19 58:10,12,24 64:14,19 87:13 141:19 142:12 date (9) 3:8 19:20 133:16 175:22 178:10 207:17 221:3.6.11 26:22 27:1 101:11,24 dated (21) 2:13,22 39:9 119:24 165:3 190:10 60:13 72:21 75:25 126:7 138:11 141:21 152:24 167:22 171:18 173:10,19 175:10 178:19 179:12 188:18 194:23 202:6 223:12 dave (7) 50:21 couldnt (2) 6:21 187:13 135:16.20 164:18 178:18 179:16 181:25 david (8) 1:12.23 11:5 24:15 151:6 166:21 169:3 230:2 dawson (2) 135:9.25 101:15 103:9 105:10 day (24) 8:8 37:9 62:2 117:14 120:23 129:8 78:18.18 90:24 117:10 177:24 179:19 183:21 149:21 154:5.6 164:2 178:17 187:15 205:19 220:2 198:10,12,13,17 222:1.5 224:3 225:12 210:13.14.15.16 217:11,18 218:16 courses (3) 4:4,12 29:14 days (10) 37:13,22 89:12 157:18 207:17 214:13 217:19.19 221:7.14 daytoday (1) 26:21 deal (1) 146:6 dealing (2) 28:12 105:11 dealings (2) 158:20 created (2) 210:9 221:2 181:14

dealt (8) 156:18 157:8 191:12 193:19 221:8,13,16 225:20 dear (1) 164:18 debate (2) 147:8,16 december (5) 50:17 57:20 148:14 152:23,25 defect (6) 214:22 219:23 220:4,19 221:7 222:15

Opus 2 International Official Court Reporters defective (1) 214:23

defects (12) 86:16

214:10.20.24.25

216:19.21 218:17

219:16 222:12

159:2 192:13

definitely (3) 40:22

110:8 152:8

cupboard (3) 136:15

cupboards (10) 136:12

170:25 212:16

definitive (4) 109:4
133:17 134:22 214:24
degree (2) 3:20,24
delayed (1) 14:15
deliver (3) 12:22 16:16
63:18 delivered (1) 76:12
delivery (6) 26:19,20
60:21 61:15,21,25
demonstrated (2)
213:13 215:25
demonstrates (1) 155:25
department (5) 210:17
219:4,15 220:1 221:9
depends (1) 27:14
descends (1) 30:23 describe (5) 7:25 28:21
50:12 114:8 172:22
described (4) 14:8,9
65:25 200:6
describing (1) 54:23
description (8) 9:25 10:5,15 60:17 139:1
177:15,16 220:24
descriptions (1) 30:22
design (25) 13:3,24
14:12 15:6,8,22 16:5
18:25 26:22 27:2 35:3 46:22,23 56:5 79:12
108:17 113:1 130:5
149:15 168:1 174:14
177:5,6 205:6 209:9
designed (5) 56:24,25
104:7 108:19 126:16 designer (4) 16:3 36:16
68:6 205:6
designers (3) 15:24
36:2 46:21
designing (1) 179:6
designs (4) 15:7,23 16:7 79:15
desk (1) 2:10
desnag (1) 126:6
detail (11) 17:17 29:18
30:23 80:16 93:15 140:18 160:9 161:19
197:19 208:16 210:1
details (4) 33:22 45:10
150:14 169:6
detection (1) 179:18
detectors (1) 168:15
dh (1) 169:2 diagonally (1) 148:9
diagram (1) 33:8
didnt (90) 5:21 7:18
12:19 19:3 33:5 34:11
37:23 52:9,11 62:23 63:21 68:8 69:20,25
72:15 73:15 74:12,24
75:3 76:18 77:7 80:16
82:24 86:22 87:10
90:23 91:2,5,8 103:22
90:23 91:2,5,8 103:22 104:19 105:25 112:3
90:23 91:2,5,8 103:22 104:19 105:25 112:3 113:2,7 118:8 119:17
90:23 91:2,5,8 103:22 104:19 105:25 112:3
90:23 91:2,5,8 103:22 104:19 105:25 112:3 113:2,7 118:8 119:17 126:12 129:24 141:7 142:8,10 143:13 144:1,6,8,20,23 146:2
90:23 91:2,5,8 103:22 104:19 105:25 112:3 113:2,7 118:8 119:17 126:12 129:24 141:7 142:8,10 143:13 144:1,6,8,20,23 146:2 149:22 153:18
90:23 91:2,5,8 103:22 104:19 105:25 112:3 113:2,7 118:8 119:17 126:12 129:24 141:7 142:8,10 143:13 144:1,6,8,20,23 146:2 149:22 153:18 156:13,23 157:13
90:23 91:2,5,8 103:22 104:19 105:25 112:3 113:2,7 118:8 119:17 126:12 129:24 141:7 142:8,10 143:13 144:1,6,8,20,23 146:2 149:22 153:18
90:23 91:2,5,8 103:22 104:19 105:25 112:3 113:2,7 118:8 119:17 126:12 129:24 141:7 142:8,10 143:13 144:1,6,8,20,23 146:2 149:22 153:18 156:13,23 157:13 158:20 161:16 165:10

178:25 181:19 182:7 194:7 198:11.15.24 199:2 201:14,22 203:6 205:2 206:18 208:16 217:22.23.25 219:24 220:7,10,13 223:8 225:10,16 227:8,24 228:10 difference (5) 77:14 114:3,8,9 173:21 different (13) 2:2 15:8 53:4,19,20 57:9 63:14 66:15 68:2 71:5 72:3 207:5 208:4 difficulty (2) 1:25 57:22 direction (2) 26:4 151:10 directly (3) 65:13,14 174:20 director (3) 8:6 89:17 195:10 disabled (2) 30:13.16 disagree (1) 156:23 discharging (1) 80:3 discovered (1) 210:2 discovery (1) 216:13 discuss (14) 55:10 59:1 83:22 88:11 113:15 160:19 161:16,24 177:21 180:20 181:6,17 197:23 213:3 discussed (20) 17:3 48:24 49:1 57:20 59:6 62:6 66:25 68:18 84:4 89:16 131:1 140:25 150:7.25 169:25 183:12 199:7,15 200:1 227:9 discussing (6) 53:1 69:22 95:14 161:19 182:8 192:11 discussion (10) 52:24 59:18 60:5 92:4 112:12 162:14,21 165:1 192:24 193:13 discussions (6) 43:4 45:4 182:20 191:4 192:2 193:17 distinct (1) 137:23 distinction (2) 78:12,12 distributed (4) 160:25 161:5 162:5 163:3 distribution (1) 170:16 dixon (1) 68:19 document (49) 10:10 19.13 21.23 25 30.21 31:1 33:8,20 47:2,9,11,14 48:11 89:9 93:8 116:14 118:23 141:15,17 146:3 174:8.8.17 175:3,19,22 176:21 177:15 178:9.18.23 179:5,23 180:24 181:18,21 182:9,14 185:8 188:25 198:19 199:19 205:10 206:18 208:9 220:18 221:8,15 223:9

17:5,22 25:5 30:7.9.11.19 34:1.1.11 48:16 112:10 174:12,13,13 176:1 204:5 210:18 211:1 does (15) 6:7 10:9,11,13 15:11 27:5,12 29:13 30:25 35:12 61:4 64:11 74:24 133:1 181:4 doesnt (6) 10:11 150:20 155:2 181:3 185:6 200:16 doing (32) 5:23 23:22 26:5 46:6 55:5 67:15 82:1.18 98:25 101:10 102:10 105:12,17 106:25 107:9 118:5 122:3 126:15.22.24.25 127:7.7.11.16 130:9 132:7 137:10 145:3 172:9 185:6 218:13 domestic (1) 41:18 done (60) 6:6,7,11 25:4 26:9 38:14.18.25 53:13 64:6 65:3 78:21 85:1.9 94:12 103:20 106:2,10,13 107:2 109:10,13,19 110:3 116:1 120:20,21 121:2 125:12.12 126:6 127:17 131:7.16 132:10.14.17 134:17 136:18 137:14 138:19 144:13 159:18 174:11 176:16 177:5 180:1 185:7,12 186:16 187:1 190:9 201:14,17 216:20 217:11,18 218:24,25 224:19 dont (134) 6:21 7:3 9:21 12:15 16:19 21:4,14,14,22 23:12 25:10 27:14,17,25 32:14 37:20 43:7,11 44:7,12 45:7 47:10,21 48:9.10 52:6.10.20 53:21 56:9 57:3,8 59:13 63:1 64:18 65:18.19 66:4.18.19 67:15,19,20 70:12 74:13 76:14 78:8 81:7 82:3.23 91:1 95:12,16,20 96:20 100:6 107:9 108:22 109.7 7 111.3 11 18 112:12,14 113:19 115:2,3 123:10,10,13 125:11 129:23 130:2 136:21 139:15 143:12 144:5 145:16.18.20 146:10 148:4 149:25 152:5 154:4.6.9.18 155:7,8,11,15 156:19.20.25 157:4,6,10,17,20,20 158:3 161:19,24 162:6 167:6,18 174:23,24 176:18 180:14,18 184-12 185-10 192:4,15 193:15,23,24 194:9,11 201:17

203:21 208:5 211:3

212:10 213:15 216:17 217:24 218:23 221:10 223:1 224:18 door (2) 164:22 166:7 doors (16) 165:4 167:5 199:19 200:9,12,16,18,19,21,23,24 119:17 121:17 125:1 201:3,9,9,13,24 down (31) 1:14 2:7 10:23 16:15 18:12 21.25 73.23 94.11 98:18 102:25 117:5 121:7.8 125:13.16 146:23 147:24 151:6 153:23 163:25 165:23 170:19 171:20 186:16 187:3 196:11 211:23 212:16 218:2 223:14 227:17 dr (1) 115:9 draft (3) 207:6 208:1,14 drafts (1) 205:1 draftysic (1) 223:20 draughts (3) 224:2 225.13.21 draughty (3) 221:20 222:1.4 draw (1) 170:4 drawing (15) 35:3,4,5,13,25 36:3 46:8 72:20.21 73:2.8 123:11 143:1 159:2,17 drawings (47) 15:16 18:24 19:8 25:5 32:10,15,16 33:2,4 35:16.18.20 36:7 45:18,24 46:1,4,5,5 79:16 104:15,17 113:5,9,11 114:2 138:24 159:9,11,15 160:6 174:10.16 175:4 176:16,17 179:7,24 180:7,25 183:2,3,7,13,17 209:10.11 drilled (1) 136:16 drive (5) 112:21 206:4 207:10,11 210:21 driving (1) 112:20 drop (1) 207:21 dropped (2) 101:2 due (4) 21:10 37:18 39:24 93:14 duraline (3) 68:19,20 69.12 duration (1) 196:16 during (32) 15:19 17:12 24:12,14 33:16 51:21 57:6 78:6 79:23 90:3 93:19 96:14 97:4 129:18 135:9 140:20.22 158:19 159:4,9,22 163:16 166:13.16.23 172:1 183:20 192:3 214:1 215:7 221:22 222:6 duties (5) 80:3 81:14 120:21 172:14 203:6 duty (2) 17:3 119:24

113:20 160:18 174:22 175:1 ea (1) 135:7 earlier (29) 24:19 33:19 37:7 48:20 63:7 86:19 92:7 100:22 118:12 128:19 140:11 143:12 144:7 145:2 149:16 150:7 175:13 184:16 190.7 194.9 196.11 200:7 207:6 208:1 212:11 218:25 early (4) 5:10 57:7 128:22 148:14 easily (1) 101:16 east (5) 98:25 105:17 147:22.23 148:1 edges (1) 87:19 edited (2) 210:3,13 effect (5) 52:14 80:18 176:8 177:10 186:15 effectively (2) 48:17,18 egg (1) 74:19 eight (2) 30:16 165:9 either (8) 2:1 4:23 64:7 107:24 108:13 147:22,23 170:11 ejected (1) 54:9 electric (1) 170:17 electrical (4) 8:10 171:2 173:25 212:16 electronic (1) 140:15 electronically (2) 46:13 122:3 element (1) 78:2 elements (2) 15:8 77:18 elevation (20) 93:14 97:21 101:18 105:22 106:18,19,25 107:3,10 112:4 122:17 123:2,8,12,17,18,20,21,25 elevations (10) 83:23 93:22,23 99:1 105:18 124:5,25 125:17 128:3 227.7 else (19) 16:6 17:15 38:2 59:5 82:1 85:25 102:18 113:16.18 127:2 150:2 155:9 157:21 161:21 180:16 196:24 204:4,12 220:6 elses (1) 35:24 email (51) 23:13 50:15 61:10 68:25 25 69:2 89:10,25 91:23 109:21,25 112:1 120:12 121:11.13.15 122:10 151:17 159:18.18 162:10 163:11 166:21 167:13.22.23.25 168:6 178:5 179:11 180:15 181:15,23 184:1,16 187:16 188:6 189:17.19 194:18,21,22 199:20 200:13 207:13,20 208:18 219:12 12 14 223:11

emailed (1) 117:9

emails (11) 97:5

e (8) 16:3 65:9 91:12,18

203:15 employer (5) 187:25 225.24 ended (2) 9:1,3 171:13 172.7 158:15 222:15 entire (1) 147:1 190.5 10 epm (1) 103:19 167:12,14 206:16 escorting (1) 166:18 essentially (12) 9:1,3

177:24,25 178:1,22 106:10 172:7 174:21 179:9 180:4 187:15 201:18 219:16 222:7 emailscalls (1) 222:15 emma (2) 222:8,23 emphasise (1) 220:8 emphasised (1) 42:16 emphasising (1) 43:16 employed (2) 35:9 employee (1) 1:6 employees (1) 48:21 14:12,15,20 15:2 67:5 employers (6) 12:11 14:8.9.19 15:15 17:6 enable (2) 121:22 encapsulated (1) 80:6 end (18) 19:24 85:14 98:10 101:8,11 120:4 160:1 170:21 203:4 205:25 206:13 207:20 212:1 214:10,11,20,21 engage (1) 185:3 engaged (1) 1:6 engineer (1) 185:3 engineering (2) 3:21 engineers (2) 3:16 47:5 enough (3) 44:9 156:23 enquire (2) 51:21 ensure (23) 15:12 17:4 22:3,15,25 27:21 36:2 77:22 79:13 99:16 117:6,17 151:19 152:14.20 154:16 155:9 156:13,17 188:12 203:10 204:21 ensures (1) 26:21 ensuring (6) 23:17,19 27:1 28:11 49:5 160:3 entails (4) 10:2,7,8 25:6 entered (1) 174:25 entirely (1) 169:10 entrance (14) 9:2 60:22 68:18 69:12 99:1 123:25 186:8,17 187:3,8,10 189:23 envelope (1) 147:1 environment (1) 172:24 environmental (6) 215:9,14 216:14 217:12 218:21 219:17 envisaged (1) 11:11 eod (2) 214:10.20 error (5) 2:23 3:5,6 ers (3) 12:11 205:13 escape (1) 164:20

establish (2) 22:3 180:17 established (1) 119:3 estate (4) 5:11,25 42:2 estimate (2) 38:7,20 estimated (1) 38:22 et (3) 79:16 106:23 223:23 etc (2) 26:20 149:13 european (1) 13:17 even (1) 111:15 event (1) 135:23 eventually (1) 191:2 ever (94) 9:25 10:5 16:25 17:11 21:20 29:13 30:9.11 31:15.21 32:11.22 35:23 42:15 46:18 47:8 53:18 54:12 55:10 59:1 62:18 65:1,3,16,19,22,25 66:23 67:5,10,17,20 73.12 75.3 76.12 77.7 87:19 92:4,22 95:5,14 101:20 102:18 104:20 109:15,19 111:15 113:15,22 114:22,25 115:5,20 119:7 120:1.6 122:10 126:21 127:2.13 146:8 147:12 157:24 158:15.19 159:11 166:12 167:8 175:5 176:23,23 177:21 179:7 180:16 181:1,6,17 184:21 185:8 192:24 193:13 201:8 209:1,24 212:8 220:1,5,8 221:16 223:5 224:10 225:7.11.15 every (19) 16:19,21 65:3 78:9 80:16 94:1 102:6 112:22 130:22 133:2 193:3 194:12 217:25 218:1.4.4.6 219:8 221:15 everyone (5) 1:3 43:19 70:10 107:17 172:10 everyones (1) 190:12 everything (12) 17:14 46:24 63:24 85:25 103:21 109:13 119:12 120:21 134:16 161:21 165:15 216:20 everywhere (3) 144:12,16,19 evidence (10) 1:5,20 70:13 71:7 112:14 139:16 140:17 148:12 196:24 228:21 evident (3) 13:21 156:3,4 exactly (10) 10:11 43:11 58:21 90:12,15 119:5 124:24 139:10 190:23 209:6 example (17) 4:7 16:24 21.1 2 22.11 29.19 31:8 32:12 33:8 34:4 65:8 104:19 111:9 118:12,15 120:5

documentation (2) 17:2

67:13

documents (22)

12:15,25 13:12

11:13 22:19 25:6

66:22 85:5 89:3 90:13

examples (1) 115:5 exchanges (1) 196:4 exhibit (1) 160:24 existing (11) 98:23 110:7 138:19 143:4 161:9 169:24 170:10,11 200:7 212:12,17 exo00001107 (1) 175.11 exo000011074 (1) 177:14 exo000011079 (1) 176:4 exova (14) 65:11.11 171:12 173:18 174:7.19.23 177:21 180:6.12.22 182:11 183:21 184:21 exovas (4) 174:2,4 175:5 183:4 expand (1) 8:25 expanded (1) 11:6 expansion (1) 11:12 expect (21) 33:14 34:23 35:12 36:2 74:14 92:14,23 106:1 120:22 125:9 127:4,6 129:23 130:3 133:1,3 156:21 157:12 177:6 206:20 217:24 expectations (1) 156:15 expected (13) 20:20 36:18,23 54:18 91:15 120:17 122:21 124:20 135:21 140:23 186:21 196:10 205:17 expecting (1) 151:14 experience (22) 3:13 15:22 18:22 28:23.24 32:9 36:16 37:1 68:8 70:4 80:3,6 88:23 92:12 124:11,19 157:24 158:1 184:25 185:5,5 227:21 experienced (1) 11:17 experiences (1) 64:6 expertise (2) 36:15 80:5 experts (1) 76:16 explain (15) 69:19,25 70:2 106:1 116:5,7 117:21 135:24 145:4 152:2 177:4 217:25 218:20 219:2 221:6 explained (10) 66:15 83:8,11 99:19 109:1 125:1 129:10 161:10 204:18 213:21 explaining (2) 10:11 97:14 explains (1) 209:4 **explanation (1)** 57:10 expressed (1) 150:3 extent (4) 22:12 104:4,10 221:22 exterior (9) 27:9 38:16,17 82:11,19 83:9 86:13 97:21 123.2 external (25) 16:24 29:20 32:13 33:18 35:17 39:13,23 40:10

83:5 110:7 118:16 158:17.18.21 161:16,17 176:5,9 177:2 184:23 191:6.25 194:24 195:8 227:22 externals (1) 5:12 extinguishers (1) 172:7 extract (7) 76:18 213:1,10,25 214:4 215:10 216:9 extractor (1) 72:18 extruded (5) 74:21,25 75:4.8 76:20 f (1) 191:17 faade (10) 39:13 40:11,14 93:9,13 118:18 147:23 161:16,17 227:22

faades (3) 49:18 63:18 85:18 facades (1) 45:21 face (1) 94:13 facing (2) 115:18,22 fail (3) 54:10,16 55:8 failing (1) 152:3 failure (1) 41:10 failures (1) 41:10 fair (5) 44:9 122:6,9 156:20 222:9 fairly (1) 213:16 fairness (3) 98:5 125:2 184:15 fall (2) 54:11 55:9 familiar (7) 29:19 31:1 32:7 80:13,16,17 82:5 familiarisation (1) 213:6 familiarising (1) 85:21 fan (2) 72:18 76:18 far (21) 10:15 30:22 31:19 57:23.25 64:8 73:18 91:21 92:9 94:16 95:6 102:1 103-19 114-1 138-23 180:7,13 181:20 191:13 192:18 195:17 fasteners (1) 141:24 fault (1) 107:22 fd30 (2) 200:2,12 fd30s (1) 200:9 february (6) 172:19 173:11 186:6 187:17 190:6 211:15 feel (6) 2:3 25:1 26:3 83:2 90:23 225:12 felt (3) 26:12 153:17 222:1 ferrier (1) 53:11 few (18) 5:6 61:5 83:13 84:9 95:11 107:3 134:2 158:6 159:1 161:7 199:18 212:20 215:6,18 222:2 226:24.25 228:15 figure (2) 115:10 210:7 file (23) 21:16 202:3 203:4,4,23,24

filing (3) 210:21 211:10.11 fill (2) 117:23,23 filled (3) 24:25 25:2,25 filler (1) 146:25 fills (2) 117:6,17 final (4) 89:21 124:25 221:19 226:2 find (9) 46:7 72:25 81:22 90:20 111:1 120:1 142:8 200:11 205:15 findings (4) 188:1.17 199:23 202:6 fine (7) 42:6 43:21 55:6 92:9 139:13 196:22 226:10 fingers (1) 223:16 finish (14) 49:14,15,17 50:9 59:10 68:10 69:13,24 119:24 124:16 125:7.15 187:9,13 finished (25) 40:25,25 89.2 96.2 97.21 106:19,21 122:16,18 123:1 124:5.16.20.25 125:3 128:3 130:15,16,18 132:10 134:2 193:4 205:3 224-21 225-17 finishes (1) 31:18 finishing (5) 8:18,19 34:22 121:9 223:21 fire (149) 3:24 6:19 29:20.24 31:2,11,20,24 41:9,13,16 42:1,5,13,16 52:25 53:1,24 54:8 55:10 59:1.6 64:17 65:1 68:21 76:17 77:7 84:1 110:10,18 112:2 135:14,14 136:8,8,10 138:2,4,18,19,22,23 145:21,21 162:16 163:12 164:22 165:25 166:22 168:14 169:24 170:10 171:10.13.14.17.20.21.2 172:1,3,7,11,15,22 173:9,18 174:8,10,16 175:4.9.16.25 176:6.9 178:9,18 179:1,6,22 180:6,7,12,22,22,24 181.18 182.2 19 24 183:1,5,7,12,17,22,24,25 184:3,7 185:3,7,14,17,18,25 187:1,2 188:3,13 189:1.2.3.5 191:18.19 192:16 194:1,3,25 195:2 196:7 199:18 200:16 201:4 202:4 203:2,10 210:4,14,15 211:18.25 212:3,13,17,24 213:7,14,19 214:12 216:2 223:6 225:8

227:20 20 21 25

firebreaks (3) 142:25

firebreak (1) 78:9

143:19 144:3

fireline (1) 68:20 fireproof (2) 135:19 138:1 fireproofing (8) 135:18 137:17.20.24.25 138:25 139:2 182:17 fires (4) 41:3,5,18,23 firestop (2) 170:23 171:4 firestopped (2) 170:19.21 firestopping (16) 32:8 112:9 162:22 163:18,19 164:6 165:2,4,21 167:3,4,9 168:7.18 169:15 170:20 first (66) 2:12,24 3:6 4:20 7:10 9:12 12:5 21:6 30:15.19 33:23 38:5,6 39:21 42:22 51:6.8 60:6 61:6 65:8 82:8 84:12,15 90:19 94:5,8,9 96:10,25 98-16 99-15 101-4 103:9 105:10 108:25 113:1 119:25 122:19 125:25 126:13 127:19 128:6,11 129:8,14 131:2,23 141:14 142:18 148:21 149:23 153:20 160:22 167:23 168:15 171:1.19 172:19 178:6 197:20 202:8 211:2 215:6 227:8.9.24 fit (5) 56:5,5 107:6 143:18 201:12 fitted (14) 33:12 53:12 63:9 73:19 76:25 83:25 94:19 95:3 98:2 101:16 106:3 115:6 145:22 200:18 fitting (4) 50:5 56:24 84:1 107:5 five (5) 10:23 36:14 45:13 151:6 218:6 fix (1) 127:8 fixed (7) 33:13,14 84:6 191:3.14 192:20 212:18 fixings (7) 54:15 55:1 191:6.12.25 192:11.14 flagged (5) 84:23 103:1 117:14,24 154:21 flame (1) 184:23 flames (1) 54:9 flat (5) 56:22 96:25 145:11 187:11 223:13 flats (13) 5:24 30:16 86:9 98:23 165:4.7 167:5 173:22 218:17.18 222:1.5 225:12 floor (17) 112:4 129:1,1,2,2 136:14.14.17 168:15 173:22,23 187:9 200:8 213:24 217:25 218:4 219-19 floors (14) 112:3

118:3,5 136:11 138:5

154:25 162:17,22

focused (1) 52:25 focusing (1) 83:18 foil (6) 87:17,18 142:3 143:3,20,25 folder (4) 2:10 21:16 23:10,10 follow (7) 6:7 15:11 29:13 30:25 83:7 159:14 164:11 followed (7) 83:17 88:19 89:25 97:14 112:1 163:11 219:22 following (11) 42:16 69:9.10 91:24 119:15 162:14 167:24 185:18 191:4 194:25 200:17 follows (4) 65:21 67:10 117:15 182:6 followup (4) 71:4 112:8 197:15 228:13 font (1) 220:21 foot (1) 179:10 fordham (3) 133:15 135:9 173:20 foreman (1) 153:5 foremost (1) 99:15 forethought (1) 37:19 form (6) 17:7 45:16 51:18 124:8 211:24 212.5 formal (12) 102:6,9,18 107:1.9 119:18.20 125:11 127:12 128:16,17 212:3 formalities (1) 188:13 formally (2) 136:1 151:10 formed (3) 15:14 17:10 former (1) 1:6 forms (1) 81:13 formulate (1) 175:3 forth (1) 184:20 forward (2) 59:20 110:5 found (6) 16:12 22:12 76:16 116:5 169:6 173:10 four (12) 85:18 98:17 118:3.5 153:22 154:7,25 157:9,18 167:19 204:24 223:14 fourth (1) 138:16 fr (5) 56:22 145:10,18 191:5,24 fr5000 (2) 56:11 145:10 fra (3) 167:24 189:22 200:1 frame (1) 72:10 frames (3) 33:1 164:23 166:7 fras (1) 191:19 free (1) 228:22 frequency (5) 92:11,15,19 140:20,22 fresh (1) 164:2 friday (2) 43:1 69:5 front (3) 2:10 165:4 167:5

fulfil (2) 33:21 81:14

163:13 170:20 193:4

215:8 218:6 219:18

foam (1) 64:22

focus (1) 173:3

fulfilled (2) 26:2,10 full (5) 1:22 22:6 208:3,3 214:13 fulltime (1) 3:19 fully (5) 15:5 47:16 122:18 177:2 189:25 function (1) 215:9 functional (4) 4:13 28:25 29:4,6 fundamental (1) 90:25 further (9) 17:2 37:10 133:9 147:8 180:4 211:20 215:2 219:16 226:6 future (3) 59:23 176:10.14 fyi (1) 178:19

G

gap (2) 223:16,17

221:25 223:19

224:2.12 225:13

gary (7) 24:10 26:7

153:21 155:3,3,4

58:10,12,23 67:23

15:5 17:15.21 18:2

71.12 103.17 18

gave (12) 24:19

g (1) 79:22

214:15

176:18

gee (1) 204:8

49:2 52:1

generally (10) 5:13

8:10.23 18:22 19:7

23:12 46:8 116:12

73:23 85:13 102:24

135:1 137:1 139:15

149:24,25 153:6

189:21 190:12

204:4,25 205:15,18

210:18 211:1 217:1

219:8 223:15,24

gets (2) 68:5 223:20

94:4 100:6 101:5,5

136:23 137:14

gill (1) 61:12

139:11,13 150:9

81:13 91:20 99:11

120:19 132:6,10

186:20,25 204:8

134:11 159:11 165:13

225:18

183:22 227:21

genesis (1) 194:22

gaps (7) 86:19 117:18 108:22 110:22 120:9 general (12) 8:14 13:2 19:19 20:6 29:22 31:5 get (48) 9:25 15:2 38:1 50.9 52.20 56.8 67.24 105:10 106:12.13.21 122:11,13 134:1,19,22 157:17 162:8 163:25 166:15 167:1 178:16 181:1 186:18 187:8.12 getting (17) 3:20 85:4 107:17 110:25 132:12 178:11 224:12 225:3 give (27) 1:20.22 29:8 30:2 60:5 70:10 71:21 106:1 107:15 119:13

205:12 222:24 227:18 228:3.21 given (18) 12:4 57:10 61:5 81:8 103:20 104:3.10 122:2 134:12 150:14 155:18 158:11 159:19 160:7 177:16 207:10 221:10,11 giving (9) 64:14 71:24 83:25 109:7 111:8 120.12 125.3 127.17 157:23 glazing (3) 73:24.25 194:24 glean (1) 44:10 glued (1) 52:2 gobetween (1) 25:11 goes (4) 68:6 70:4 98:9 181:19 going (53) 1:5,24 2:11 3:5 10:1 14:24 20:23 21:9 31:23 40:5 49:3,17 51:13,17 52:16 59:20 60:3 66:6 68:2.3 70:9 78:2 83:11 85:20 86:11 93:2 98:4 100:2.24 101:3.8.21 112:8 126:24 134:16 139:7 148:9 150:9 154:4 184:20 187:12.24 190:7 192:15 198:7 205:7 209:25 211:23 216:8 218:3,17 226:8 227:1 gone (8) 93:25 106:7 108:18 112:18 125:13 134:1 165:15 220:3 good (16) 1:3,16,19 13:9 16:22 28:1 60:11 63:8 69:5 70:7 84:5 178:16 196:17 197:12 225:25 229:6 goods (1) 14:7 goto (1) 9:7 graham (1) 45:20 grahame (1) 48:25 grand (1) 188:3 grange (32) 1:8,9,17,19 68:9,13 70:6 71:2,3 107:15.20 124:2 139:4,10,13 140:8,9 196:17,22 197:13,14 225:23 226:1,5,10,18,25 228:13,17 229:2,4,8 great (8) 3:2,11.23 21:9 29:17 89:16 208:16 210:1 green (1) 115:14 grenfell (35) 1:7 5:1,7 7:10.24 10:16 12:3 20:24 31:2 34:2 36:4 60:25 61:5 63:18 73:18 78:11 82:14 110:6 118:16 142:17 145:22 171:18 188:10 189:22 193:22 195:18 196:3,12 199:22 204:21 216:24 219:16 220:15 20 221:24 grid (2) 40:11 93:10 ground (1) 118:9  $groundfloor \ \textbf{(4)}\ 6:5,14$ 

204:20.22 205:3

211:2,6 212:2,8

files (2) 204:2 207:9

206:10.12.13.14.22.25

207:4 208:10,11 209:5

7:4 9:2
group (8) 3:16 10:6,9
203:23 204:19
205:5,7,17
groups (1) 172:24
guess (4) 25:13 71:23
74:20 228:6
guidance (20) 28:9 30:4
31:6,8 32:11,19
33:7,11,17 34:1,1,6,18
47:20 146:1,7,9,14
206:19 209:3
guide (5) 26:18
141:14,20 142:6,10
guidelines (1) 33:20
gun (1) 217:1

н\_

h92 (1) 48:4 hadnt (18) 6:7 25:2 30:25 42:13 90:17 91:2 112:21 142:6 146:11 162:23 163:21 168:6 169:12.12 171:9 174:19 177:1 227:15 half (2) 19:13 122:14 halfway (1) 21:25 hand (4) 85:13 96:1 202:14 203:3 handed (5) 202:13 205:3 206:3 207:9 216:19 handing (1) 90:13 handover (21) 4:21 8:9,15 82:11,19 83:9 100:13 118:16.18 128:6,11 129:11 131:2.14.23 134:15 151:22 160:21 186:14 187:20 208:1 hands (1) 224:8 handwritten (1) 191:4 hanson (7) 158:12 160:17 161:1.13 164-14 166-6 167-25 hansons (1) 168:8 happen (3) 99:10 150:21 198:24 happened (7) 37:21,24 71:22 99:9 152:5 198-25 218-18 happening (1) 62:14 happens (1) 179:17 happy (23) 43:19 78:5 85:12 89:3,4,7 102:4 106:5.6 109:12 122:7,9 123:13 125:14,17 129:15 130:16 132:2.16 134:10,21 136:17 163:6 har00000445 (1) 75:25 har000004456 (1) 76:5 har00002477 (1) 75:18 har00003953 (1) 72:21 har00006955 (1) 121:12 har0001006015 (1) 107:14 har000100604 (4) 98:3.17 103:12 105:15

har00017762 (1) 73:22 hard (5) 23:11.12 46:12 101:4 217:25 harley (35) 27:13,21 45:21 48:22 49:12 59:12 60:12 63:18 72:11,20 73:8 75:22 83:4 99:6 102:10 103:14,22 104:4,5,12 105:6,23 108:12 113.18 117.9 118:11,13 122:7 126:18 129:22 142:14,16 143:8,13,23 harleys (37) 16:2 27:15.18 35:18 36:4.7 40:2 46:1,18 47:3 48:13 53:16.16 56:4 57:21 73:15 79:5 97:18 98:1 104:11 106:1 108:16 112:23 117:14 119:6.20 120:8,19 122:21 125:3 131:6 132:1,6 143:10 176:17 177:5 223:3 hasnt (1) 185:7 hatched (1) 73:2 havent (3) 92:18 113:12 172:4 having (6) 59:10 66:17 107:19 193:15.16 194:6 hazard (1) 202:9 head (6) 11:16 44:21 54:14 63:1 224:15 225:5 headed (4) 19:14 50:20 153:1 155:19 heading (5) 18:13 22:1 79:22 110:6 141:23 health (20) 155:18.22 157:7,10,22 202:3 203:3,23 204:20 206:9,13,22,24 207:4 208:10,11 209:4 210:17,25 212:8 hear (2) 1:5 228:22 heard (12) 30:9,10 31:15,18,21 34:12 41:18 52:4 65:25 74:19,20 226:4 hearing (2) 1:4 229:12 heat (2) 54:16 168:15 heating (3) 136:11,15 170:16 hed (1) 103:20 height (2) 89:4 146:24 held (9) 52:2 55:4 61:20 105:2 149:9 151:4 161:12 168:1 224:17 hello (1) 187:18

help (25) 8:7,10,14,24

9:14.17.19 23:6 27:15

30:5 37:8 38:11 77:2

79:17 124:24 148:2

170:9 173:21 179:6

206:19 207:3

204:10

199:7 200:5,19 201:8

helped (3) 32:11 203:21

helpful (8) 18:11 41:17

187:14 211:12 228:22

72:2 98:5 171:11

helping (1) 9:23 helps (1) 211:5 here (15) 52:13 61:3 79:3 92:23 94:4 100:7 107:16.23 110:5 121:8 132:12 166:6 181:7 202:8 220:22 hes (8) 90:21 99:6 100:6 106:15 110:15 117:14 193:2 199:5 hi (5) 61:13 69:4 89:14 162:13 200:15 high (3) 47:11 93:24 202:23 highlevel (1) 146:6 highrise (5) 6:6 41:6,19,23 185:11 highrises (1) 53:13 history (1) 149:25 hmi (5) 213:1,9,14 215:25 216:3 hoban (43) 83:20 88:10 89:11 90:1 91:23 92:6 93:19 94:24 95:8.17.24 97:4 109:25 110:2,22 111:8.16.24 112:14 116:23 117:2 124:6 128:6,14 131:2,7 132:11 158:12 159:3 160:16 161:1.13 162:12 163:9 164:21 166:9.11.25 197:22 198:3.8 201:3 227:6 hobans (4) 91:25 140:11.12.17 hoist (1) 227:6 hold (1) 4:5 holdings (5) 203:23 204:19 205:5,7,17 hole (1) 170:23 holes (7) 24:24 136:16 138:5 170:22 171:9 212:12,17 holiday (1) 155:9 holt (2) 154:14,15 home (1) 42:11 honestly (1) 161:24 hooked (3) 54:15 55:4,7 hope (8) 44:7 116:2 120:18 123:16 156:10 157:15 166:1 218:23 hoped (1) 165:23 hoping (1) 130:15 horizontal (9) 96:14,15 114-4 9 11 14 16 115:5,21 horizontally (1) 104:24 hotter (5) 217:13,15,16 218:12,13 hour (1) 220:4 house (2) 41:8 42:2 housed (1) 72:18

housing (1) 195:10

however (4) 108:7

hs (1) 212:2

hub (1) 181:9

huge (1) 5:11

hughes (25)

189:23 190:23 191:8

1:9,10,12,13,19,23

11:5 24:15 70:9,23

135:16,20 139:14

140:4 151:6 166:21 169:3 196:20 197:9 221:19 225:23 226:4.22 228:16 230:2 human (2) 212:25 213:9 id (5) 69:9 89:18 96:3 189:21 220:3 idea (5) 96·5 126·14 134:14 189:5 217:15 identified (10) 22:10 88:1 119:8 122:10 135:11,15,22 136:7 169:24 202:9 identify (2) 9:14 86:16 identifying (2) 110:8 170:4 ie (4) 58:19 95:3 134:8 198:8 ill (4) 33:2 107:21 111:1,2 illustrate (1) 224:9 im (72) 1:24.25 2:10 7:15 10:15 16:20 19:8 20:23 21:9,11 30:23 44:10 55:5 57:3 58:10,23 64:8 73:18 79:7,10,10 80:17 82:21 83:11 86:25 89:3 94:3,4 95:6 98:4 103:20 105:25 106:5,6,21 107:22 110:25 112:8 120:11 123:5 130:16 132:2.12 137:9,10,10,13 139:5.7 142:10 144:10.13.23 145:7 155:11 157:3 164:1 166:8 178:9 180:7,13 181:20 183:2.7.15 190:7 193:23 194:11 199:9 200:23 205:9 219.11 imagine (1) 229:3 immediately (1) 172:23 impact (2) 68:21 184:22 impacted (1) 186:8 implications (1) 170:5 importance (2) 42:17 220:9 important (2) 77:21 104:21 impossible (2) 170:23 225:18 impression (1) 60:6 improve (2) 156:8 170:3 incident (1) 42:15 include (8) 3:24 28:15 121:18 133:3 177:19 209:5,6 212:9 included (12) 13:16 17:5 26:18,25 27:9 28:10,12 54:3 72:14,17 208:12 212:2 includes (1) 208:21

including (14) 13:13

23:17 33:18 72:15

110:10,19 134:17

incomplete (1) 208:2

190:22 201:4

15:6 18:3 22:4.11.16

inconsistencies (1) 156:2 inconsistency (1) 156:1 index (2) 207:1 230:1 indicate (1) 158:19 indicators (1) 155:20 individual (1) 135:12 induction (1) 172:10 industry (3) 33:17 34:1,18 infill (5) 72:4,7,15 73:4 information (30) 12:4 18:15,20 19:4 30:17 66:23 89:19 90:4.11.16.22 134:11 158:7,13,16,20 159:15 161:15 176:22 202:12.20 203:2.11.17.25 204:25 205:8,18,23 206:25 informed (1) 166:19 informing (2) 71:22 228:7 infrequent (1) 93:1 initially (5) 79:1 83:20 93:10 160:21 191:23 initials (2) 138:20 182:21 initiative (1) 88:24 inquiry (5) 1:18,22 2:9 206:23 230:3 inquirys (1) 76:16 inside (13) 32:25 44:22 52:3,8 75:1 86:6 95:5 217:14.17 218:12.17 225:14 228:11 insolvency (2) 39:24 40:2 inspect (17) 85:19 88:10 89:2 92:19 93:23 94:1 95:24 99:7,11,12 103:13 124:16 125:18 127:2 131:7 132:13 198:3 inspected (7) 84:13 85:17 99:3 100:5 105:23 120:20 214:25 inspecting (5) 77:15 85:19 119:6 124:12 190:21 inspection (62) 22:7,19 35:7 78:13.15.20 79:2 81:20,24 82:10,19 83:8 84:18 85:1 86:5 93-19 94-3 95-5 96:4,10,14 98:1 99:2 100:14 102:6,9,20 103:6.7.8.18 105:19 107:1,9 108:23 109:5 116:9 119:14.18.20 124:4 125:4.12 127:5.12 128:6.11.17 129:4,11 131:2,15,24 151:22 152:22 153:12 156:8 191:9 193:11 198:22 214:11.20 inspections (30) 23:8 51:5 76:17 77:12 80.21 22 103.15 104:5,11,13,22 106:17,22 107:25 108:13 109:17,17

124:9.25 125:3 126:10,23 127:14 129:18 130:12 157:25 185:19 inspector (2) 169:6,23 install (2) 101:13 142:24 installation (10) 20:12 21:3,21 44:3 108:9 116:10 142:15 222:21 223:5 224:5 installations (1) 72:11 installed (19) 6:25 7:2 20:16 54:3 56:15 69:18 95:18 96:17 98:19 99:25 100:2,3 101:24 115:12.17.21.25 142:23 225:8 installer (4) 121:2,4 125:6.14 installers (6) 43:9 45:19 101:6 112:19,20,23 installing (3) 20:15 47:20 142:17 instantly (1) 123:15 instead (2) 68:19 116:22 instructed (2) 174:19.21 instruction (3) 135:18 213:20.22 instructions (5) 19:20 20:8 21:2,20 214:3 insulating (4) 58:1,15,17,19 insulation (75) 6:14 8:19 21:3 31:9.12 38:14 40:11 44:18,18,25 45:1,3 50:5 55:21 56:3 57:9,24 58:3,6 59:6,7,12 60:16,18 64:9,24 65:25 66:2,9 67:18 68:2 74:8,22 75:16 76:7.12 78:9 84:1 86:20 87:1,4,7,9 93:10 94:25 95:9.15 96:8 98:21 99:7 100:20 101:24 105:3,8 106:23 116:13 117:6.17.18 118:1.25 129:5,15 141:1,5 142:1 143:17,18 144.8 14 21 146.24 147:7 148:4 224:20 integration (1) 15:7 intention (1) 67:6 interacted (1) 228:12 interaction (3) 9:6 27:16 227:25 interactions (1) 19:1 interest (1) 228:8 interested (4) 12:17,17 50:1 228:11 interface (4) 15:8 212:21 213:1,9 internal (2) 142:25 183-25 internals (5) 5:23,23 7:3,5 155:1 international (1) 41:23

116:13 120:7 121:22

interpretation (1) 30:5 into (15) 30:23 73:2 86:9 115:18,18 147:11.14 150:10 175:1 186:10 192:15 200:18 204:3 223:1 225:12 introduced (2) 43:8,9 introduction (9) 37:4 110:9,16,18,22 111-9 11 177-17 199:12 intumesce (1) 114:20 intumescent (7) 114:16 115:15,17,22 137:24 138:1 143:5 investigate (1) 225:11 investigation (1) 147:9 investigations (2) 73:12 210.2 invitation (1) 19:21 involve (3) 7:19 8:16 99:19 involved (15) 6:24 7:10 8.25 32.23 36.20 43:1,5 59:8 68:17 82:10 89:18 165:19 175:17 205:21 214:10 involvement (6) 8:4 134:18,19 174:4 183:20 196:12 involving (1) 5:19 isnt (5) 1:8 27:10 28:13 115:12 219:5 iso (2) 80:9,14 isolated (1) 190:24 issued (7) 30:4 35:3 62:8 108:1 151:24 169:7 170:6 issues (50) 9:19 43:18.22 59:11 66:16 84:23 86:3,4,16 88:1 101:12,15 109:6 117:14 120:2 121:17 127:23 130:7 133:17 134:7 135:14,17,19,22 136:6.7.9.10 137:19 149:13 150:10 151:12,16 152:3,8,21 156:4.17 157:10 163:2 165:20 170:10 189:3 205:2 212:18 215:2 224:10 225:7.11.16 item (8) 10:25 11:1 149:9 151:8 179:20 202.8 19 211.17 items (9) 22:10 73:23 121:20 133:25 134:2.3.20.20 151:21 its (107) 1:20 2:13,21 10:6 13:19 19:7 23:3 25:10 28:23 30:12 32:9 37:21.24 38:2 39:9,13,15 47:4,5,11 48:2 49:4,17 50:20 51:17 52:16 55:6 56:21 60:12.16.25 64:7 66:1,20 68:4 72:22,23,24 74:7 76:6 77:24 78:15 79:7 14 80:3,5,8,25 86:5 87:17 91:9 93:4 100:23

har000100605 (2) 98:9

har00017538 (1) 222:8

99:18

102:12 103:14 107:23

leaky (2) 224:14 225:3

learn (1) 213:17

least (1) 92:14

156:13

leave (3) 154:8,23

leaving (4) 37:11,17

left (10) 24:14 26:9

201:19 202:10

170:24,25

legs (1) 70:10

188:6.18

lefthand (4) 73:3,22

less (3) 53:25 101:9,9

let (6) 2:4 39:8 66:14

lets (7) 57:17 97:13

146:14 190:13 204:7

107:20 111:21 175:9

letter (2) 194:23 195:2

level (2) 94:1 98:22

42:25 90:10 149:2

156:12 196:2 199:3

191:8 193:10

led (1) 54:8

lee (1) 223:12

know (113) 2:4 6:15

10:1 16:20 25:10 26:7

27:9,23,25,25 28:9,12

29:3 33:5 37:16.20

41:8.16 43:7.7 44:25

45:3 51:24 52:9,20

53:14,16 56:11,15

59:16 63:1 64:9,22

74:18.21.24 75:9

76:10,10 80:15,16

92:3 96:20 100:6

123:10.13 129:23

134:2 137:23

85:4,25 89:4 91:1,2,24

101:5.6 106:21 110:22

113:9 114:3 117:9,25

143:10.12 145:18.20

154:5.7 156:20 157:21

167:18 172:9 174:4,19

177:6 180:4,18 182:25

206:5,14 208:5 210:16

185:10 194:9 195:17

201:17,17 203:6,21

204:7.18.25 205:8

211:3 212:8 217:24

219:22,24 220:14,21

3:3 16:6 28:8.21 32:8

62:14.16 63:21 68:3.7

36:25 44:10 56:1

55:14 58:7 62:21

214:5,6

147:7

147:23 148:4 152:6

81:12.22 82:23

65:13,15,18

66:2,14,20

109:19 115:11 117:3 118:2 120:13.20 125:23 126:7 129:20 132:6 133:5 136:6 143:23 145:16 147:9,23 148:5,12 155:19 157:24 167:21 169:2 172:1,6,24 173:3,10 175:11,11 182:7 183:6 185:16 187:5 188:7.19 193:7 194:11 202:23 203:12 209:18.18 210:2 212:5 216:22 217:9,24 220:21 221:2 222:9 223:12.14 itself (8) 79:14,20 100:19 102:10 131:17 191:14 192:19 222:22 ive (23) 10:18 12:10 14:21 25:4 28:23 64:6 65:3.25 96:3 98:12.15 109:19 112:16 117:13 124:14 125:12,12 129-12 174-11 185:7,12 193:3 227:25

joints (9) 141:1 142:1 143:2.2.3.9.19.25 144:2 joking (1) 61:20 jon (27) 58:2 66:8,17 67:7,7,13 83:20 93:20 94:25 112:5 124:7 128:7,7 131:3,3,6,12,22 132:11,13,16 133:12 135:16 137:19 151:11 152:22 156:10 irp (1) 135:8 js (5) 219:4,5,6,22 221:1 jsw (4) 134:3 213:18 219:25 221:16 july (4) 1:1 212:24 213:7 229:12 jumped (1) 217:1 jumping (1) 125:2 june (9) 191:19 208:18 210:4 214:15 215:8 219:14 220:17 221:2,3 justified (1) 153:19

jack (2) 153:5,21 janice (2) 167:21 195:4 january (20) 42:1 57:20 110:3 111:25 128:22 133:12 135:6 138:11 150:7 151:1 160:10.17 162:12 163:10,16,17 168:2,24 182:14 223:10 jason (9) 26:8 153:3,21 154:4,7,9,11,12,23 iasons (1) 155:5 jct (2) 13:24 14:21 job (29) 9:25 10:1.5.7.15 11:20 12:11 16:15,21 17:14 18:9 23:10 25:6 30:21 43.12 48.18 64.12 65:3 90:8 106:11 126:24 133:2 137:13 152:14,19 157:3 194:11,11 203:5 jobs (5) 11:23 12:10 53:21 124:15 174:11 john (48) 83:20 88:10 89:11.14 90:1 91:23 93:19 94:24 95:8.17 109:25,25 110:2,2 111:6.24 116:19 117:1,2,2 124:6 128:6.14 129:11 131:2.7 132:11.20 135:8,25 140:11,12 149:4 158:12 159:3 160:16 161:1,13 162:12,13 163:1,9 kitchen (1) 223:15 164:21 166:4 197:22 kitchens (1) 72:18 198:3.8 201:3 knew (27) 13:2 16:3 johns (1) 132:12 31:19 43:23,24 44:16.17 49:14 52:6 ioin (4) 37:12 87:3 144:10 149:19 58:15,16 59:10 64:24 joined (3) 12:2 149:6 214:16 108:18 113:8 125:8 joins (12) 86:20,25 132:15,25 145:21 154:4,23 174:21 87:1,7,9,13 141:1,5

k15 (30) 6:13 55:14 58:7 59:1,5,17,25 knowledge (16) 2:17 60:18 61:20 62:1.7.21 63:11,15 64:13 65:2.23 66:23 67:6,14,18,22 69:20 70:2 71:4 95:18 known (1) 28:25 147:7.13 148:6.13 kooltherm (5) 6:13 kctmo (6) 35:9 185:18 186:21 189:2 216:18.22 kctmos (3) 185:25

201:15 216:22 keep (9) 2:5 22:6 43:20 labc (1) 66:3 83:14 88:4 206:16 labelled (1) 115:11 211:23 217:15 224:8 lack (3) 37:18 92:5 keeping (1) 107:19 113-15 kelly (1) 222:8 lakanal (1) 41:8 lanes (1) 115:9 kensington (1) 35:8 kept (4) 22:16 23:6,9,11 large (1) 222:11 key (5) 13:1 14:16 48:3 larger (1) 185:6 151:19 155:24 last (21) 36:13 45:13 kind (11) 45:24 55:4 52:21 66:7 96:24 97:1 59:9 74:19 79:7 96:18 123:20 129:10 152:17 150:22 184:9 159:1 161:7 168:21 186:15.18 224:6 187:11 189:12 192:18 kinds (1) 53:4 194:16 201:3 211:13 kingspan (27) 55:14 216:21 220:14 227:5 57:21,23 58:2,6,6,18 late (3) 86:10 90:24 148:14 59:25 60:18 62:19 63:15 64:8.22 later (12) 13:21 20:25 61:5 67:25 135:25 65:4,14,17 66:5,9 68:5 74:8 75:16 76:7,19 165:10 167:19 183:8 77:4 147:7,13 148:6 207:21 208:2 220:4

223:9

42:22

62:2

81:17 82:21 91:18

196:13 213:15

latest (1) 179:22

lawrence (6) 24:13

layering (2) 50:11,12

lead (4) 16:3 56:2 61:16

layers (1) 53:19

leads (1) 61:11

lavout (1) 158:25

26:15 36:10 37:10,16

levels (5) 93:23 94:13 201:10 213:23,24 Ifb (2) 194:22 214:3 liaise (1) 205:18 liaised (2) 173:23 185:17 liaising (1) 80:5 lift (1) 170:12 lifts (2) 170:24,25 light (5) 50:22 154:21 156:7 167:8 217:9 lighting (1) 178:16 like (57) 16:9 37:12 38:2 39:5,14 46:14 49:7 50:13 51:14 53:8 56:22 57:25,25 68:3 69:9 70:16 73:17 74:19 75:2 78:14.25 81:10 83:9 87:18 89:18 92:7 95:22 103:19 104:25 113:8,19 115:20 124:20 125:1 126:22 127:17 137:1 139:23 150:18 157:4 160:1 167:17.17 181:3 188:20 189:21 190:7 192:16 196:25 204:2 209:24 211:4 218:10,14 224:19,25 226:14 likeforlike (2) 58:23 64:1 likely (1) 54:10 limitations (1) 20:1 limited (3) 34:12 65:23 146:25 line (9) 92:12 117:5 138:16 167:23 189:12 205:9 216:23 220:22.23 lines (13) 10:23 36:14 45:6,13 98:17 137:18 151:6 152:9 159:1 161:7 182:15 215:6,19 link (1) 207:21 list (17) 4:3,7 103:17,24 104:20 109:4,8,9 128:8,21 131:4

133:18,21,21 134:22 150:10 214:24 listened (3) 150:4 156:16.18 lists (1) 132:6 literally (2) 37:13 121:2 literature (3) 21:8 64:13 142:8 little (24) 20:24 37:9 51:14,20 54:16,19 55.7 57.15 73.4 10 101:8 110:5 120:23,24 121:8 125:6.15 139:6 149:3 160:9 204:8 213:20,22 218:2 living (1) 223:18 load (1) 190:9 lobbies (3) 201:4,10 215:8 lobby (15) 9:2 69:12,24 136:12 186:17 187:9.13 189:23 190:5,11 200:7 213:2,11,12 217:15 local (1) 212:24 locate (1) 166:19 located (1) 209:11 location (6) 76:18 77:5 108:9 110:10,19 111:9 locations (1) 75:4 logged (1) 221:7 logo (1) 148:9 long (11) 14:16 49:16 52:22 56:8 71:25 89:11 185:1 204:23 221:12 222:13 227:16 longer (1) 77:11 longest (1) 153:4 longevity (3) 50:24 52:19 97:7 look (163) 4:6 8:2 13:21 14:1 16:13 17:1,6,23 19:1 20:13 21:12 25:4,5 26:16 33:21 34:24 36:11.12.13 37:5 38:4 39:3,10 42:19 43:8 44:1 46:3,5,12,18 47:13 50:15 51:16 57:17 60:10 61:8.9.11 64:13 67:25 68:15 69:1,11 70:17 72:20 73:21.22 75:17.18.24 76:1.4 79:18,21,21 81:24 82:7,8 83:9,14 84:1 86.5 23 87.17 88.8 93:2 97:16,25 106:7,8 109:21 115:8,10 116:17 117:10.11 119:8 120:14 121:11.19 122:23 124:3,20 125:23 126:4 128:18 129:4 133:8 138:8,15 141:8,13,22 142:14,20 143:15 146:12,21,22 149:3 151:8 152:22,25 153:2 155:19 158:8 160:9,14 161:11 162:7,11 164-14 166-9 168-21 169:17,22 171:18

172:13 173:13,16

176:4 177:24 178:1,14

179:9 181:3,23 182:12 183:18 185:16 186:4.7 187:15 188:6 190:18.19 195:15 197:16.17 198:19 199:20 200:13 202:8,18 205:1 206:18 207:2,8,13 208:9,16 209:9,15,19 210:4 214:7 216:9 217:23 220.21 22 222.7 223:9,10 looked (28) 9:1 32:11 46:3 62:12 64:19 81:15 82:22 85:3 87:11 93:22 95:19 111:13 141:16,17 142:6.8 144:19 145:25 146:2 161:14 170:25 182:13.16 188:20 202:4 208:14 227:4,6 looking (40) 7:11 9:23 16:18 17:11,13,17 21:15 30:16 32:14 35.21 38.23 47.8 58:14 64:17 66:3 73:7 74:11 81:19 89:9 102:7 104:23 108:16 113:10 120:5 130:19,21,22 146:8,18 152:2 154:25 155:1.4 163:7 172:3 176:21.21 209:25 215:5 218:17 looks (3) 37:12 39:14 211:4 lose (1) 54:19 lot (19) 5:12 38:12,14 43:13 49:4 62:22 63:7 81:10.19 85:3 101:17 154:8 161:20 194:9,10 203:21 204:2.10 224:19 lots (9) 64:6 157:2 174:12 195:19 196:5,7,8,15,16 lowrise (1) 6:11 Itd (1) 75:22 lug (1) 54:15 lunch (1) 139:15 М m (2) 30:13 210:21

maidstone (1) 60:16 main (24) 3:14 4:2.23 9:7 15:9 60:17 72:9 73:4 79:25 97:5.8.16 99:1 111:22 137:7 157:3 171:1 173:3 186:7 189:23 212:16 213:10 215:20 220:22 mainly (7) 117:18 131:9 154:25 171:7,8 185:18 193:19 maintain (3) 22:3,6 85:14 maintained (1) 101:7 maintaining (3) 23:16 78:7 100:25 maintenance (3) 203:19 216:8.24 major (1) 185:4 majority (2) 38:13 210:23

makes (1) 118:10 making (12) 14:18 16:1 28:1 84:5 100:23 109:11 127:15 137:13 143:1 161:20 172:6 204:13 malcolm (3) 133:14,23 135:6 malfunction (1) 219:4 manage (10) 8:8 9:23 23:23 26:12 27:6,14,15,18 154:9 158:4 managed (10) 5:1 6:21 9:2 11:23 26:21 27:1 30:15 49:6 151:20 152:10 management (11) 4:8 11:1.4 17:24 46:11 80:10.14 81:6.9.11 manager (40) 4:21,23,24 6:22 7:25 8:5 10:7,11,13 11.14 21 24 17.12 18:10 24:4,8,13,14,16 26:8.19 27:5 36:16 37:11 42:23 45:21 55:17 71:13 83:5 124:16 153:4,8 155:8.8 158:2 166:18 198:23 199:6 204:15 214:16 managers (13) 11:7,17,21,23 25:9 26:3.20 28:15 35:2 153:3,16,22,23 managing (24) 4:23 7:6,8 8:15 16:25 27:12,14 36:20 78:18.19 79:6.8.11 80:4 83:4,4 91:13,18 134:8 136:23 137:10 156:15,16 172:1 manner (2) 13:8 56:7 manual (15) 203:20 204:20 206:1.2.3 208:2,12,22 209:12,16 210:3,8,12 213:20,22 manufacturers (5) 19:15,19 20:7,11,14 many (4) 5:18 57:6 109:6 153:15 march (9) 47:7 72:21 116:19 117:10 189:10.13.17 190:11 208:15 mark (3) 45:19 48:25 68:19 marked (5) 72:22 73:1 123:12 143:1 202:23 market (1) 53:5 markings (1) 200:9 martin (39) 1:3,10,13,16 24:10 68:12 70:8,16,23,25 71:2 107:15 123:24 139:8,11,14,19,22 140:4,6,8 196:19,23 197:3.9.12 214:15 225:25

144:8.10.15.21

226:3,11,14,22,24

228:15,20,24

229:2,6,9
masonry (5) 5:13 7:15,22 32:24 64:7
mast (35) 43:7,24,25
60:3 83:21
84:4,5,15,20 89:5 94:17 98:20 100:9
101:15 102:25 103:9
106:15 107:4,6 108:25
109:11 111:25 112:3,20,22 118:4
121:4 128:15 130:17
132:15 163:10 193:3 225:15,17 227:8
mastic (3) 120:25 143:5
225:13
material (12) 44:24 52:11 58:1,3,6 65:17
66:9,15 67:21 69:20
114:19 140:16 materials (13)
14:7,18,25 17:14
53:19 54:4 55:18 67:2
69:17 73:13 139:3 146:25 193:22
matt (10) 133:14
173:20,23 178:2,6
184:9,11,16 187:17,18 matter (3) 151:9
220:6,6
matters (3) 22:16
151:14 184:1 max (3) 133:15 135:9
173:20
maybe (2) 37:18 75:8
mean (25) 9:11 10:10 27:12 32:2 34:4,16
35:12 38:11,15
43:22,23 44:19 52:15
74:24 81:7,7 87:16 104:3 112:13 130:9
154:18 163:15 181:3
190:4 201:21 means (3) 79:25 80:2
164:20
meant (4) 31:17 36:17
191:18 200:5 measurements (1)
30:22
mechanical (4) 8:10
173:24 212:25 213:9 mechanically (1) 33:13
meet (7) 47:25 48:6
69:6 178:16 187:19
188:10 198:13 meeting (64) 10:20
112:1 133:10,12,15,24
134:14,14,18
135:3,8,10,13,17 137:8,20 138:8,10
149:6,8,15,16
150:1,6,7 151:1,4 160:12,15,19,22,24
161:12,18,25
163:2,11,16,20,22
165:17,19 167:20,24 168:1,22,22,23,24
169:7,11 170:13
182:12 183:2,10,12
186:7 198:22 199:8 205:21 210:17,25
211:14,15
meetings (1) 205:19

```
melt (1) 54:11
memory (2) 111:8 164:3
mention (8) 112:12
  116:25 161:7 162:6.16
  163:4 164:22 169:16
mentioned (2) 111:20
 145:10
mentions (1) 52:13
mess (1) 201:19
met (3) 160:21 199:2,5
met00065979 (1)
metadata (2) 210:5.8
metal (9) 53:18 55:7
  191:6,12,25 192:14
  224:16.23.23
method (10) 124:8,10
  142:14,16 143:8,10,24
  144:20.24 145:4
metres (5) 6:8 31:6,12
  33:19 147:13
middle (10) 52:9 63:19
  73:2 74:2 76:4 105:16
  116:17 147:24 148:6
  198:20
midnovember (1) 93:3
might (38) 20:10 33:19
  39:4 51:7 52:10 53:15
  54:19 55:8 66:16
  91:21 112:17 116:5
  121:12 123:7.17.21
  128:13 130:7,11 139:8
  154:6 157:11 165:15
  166:25 184:15 193:25
  194:17 199:3,3 203:6
  207:3 215:15
  217:10,21 218:18
  223:7 225:8 226:7
mightnt (1) 139:9
mike (2) 199:21,25
millett (1) 229:4
millimetres (1) 114:10
million (1) 5:11
mind (4) 41:5 70:5
  204:14 224:22
minimum (1) 142:3
minor (5) 84:2 121:2
  122:15,16 127:23
minutes (48) 10:19,20
  133:24 138:8.10.15
  149:5,20 150:1
  151:3.8 160:11.23
  161:6.9.11.12.15.22
  162:2,5,15,23
  163:3,6,21,25
  164.2 8 15 19
  167:8,15,20
  168:1,5,10,11,17,22,23
  169:7,11,18 170:13
  182:13 211:14 218:7
miss (1) 218:18
missed (7) 130:7,11
  164:3 165:17.25
  168:11,12
missing (1) 170:20
mistake (4) 57:12
  161:8,10 170:13
mm (1) 223:20
mmhm (2) 48:15
```

moment (7) 33:6 70:7
98:7 107:15 111:1 196:17 207:2
monday (3) 1:1 8:6 37:8 monitor (1) 80:8
monitoring (2) 79:23
80:4 month (3) 76:11 190:8
214:22 monthly (3) 92:15,24
172:20 months (4) 50:17
152:20 167:19 204:24 moorebick (37)
1:3,10,13,16 68:12
70:8,16,23,25 71:2 107:15 123:24
139:8,11,14,19,22 140:4,6,8 196:19,23
197:3,9,12 225:25 226:3,11,14,22,24
228:15,20,24
229:2,6,9 more (45) 5:6 11:17,19
17:14 20:24 26:4 30:20,21,22,22,23
33:20 39:5 43:6,18
52:8,19 54:18 68:20 71:15 79:1 83:4
100:16 101:9,11,17,17 102:3 107:20 133:5
139:2,6 140:16,18 141:19 149:3 150:13
151:3 158:6 160:9
187:1 221:13 226:12,24 228:10
morning (9) 1:3,19 140:11,25 145:9,24
147:2,20 188:8 most (5) 12:10 98:22
176:1 178:10,23
mostly (1) 88:22 motions (1) 55:5
move (3) 71:5 77:11 218:7
moving (6) 18:12 107:18 110:5 124:3
130:25 199:18
ms (34) 1:8,9,17,19 68:9,13 70:6 71:2,3
107:15,20 124:2 139:4,10,13 140:8,9
181:23 196:17,22 197:13,14 218:20
225:23
226:1,5,10,18,25 228:13,17 229:2,4,8
much (23) 1:13,19,20 12:7 18:9 73:19 85:1
103:8 104:25 105:25 107:22 120:16 130:10
139:22 149:24 154:2
176:20 197:3,5 228:17,23,24 229:2
must (11) 38:22 41:8 145:1 162:24 163:3
164:3 175:12 199:1 201:4 202:13 222:15
myself (3) 85:21 101:25
153:22

name (5) 1:22 10:23

45:10 74:21 188:3

```
names (1) 173:11
nature (5) 22:11 135:21
 150:13 193:21 195:8
nbs (13) 12:9.12 16:11
 32:2.3 48:4.10.11
 56:12,13 57:14
 205:13,14
nearing (1) 83:24
nearly (1) 121:6
neatly (1) 117:23
necessarily (5) 16:19
 100:22 119:17,19,19
necessary (5) 20:13
 78:10 90:21 92:9
 143:20
necessity (1) 170:7
need (35) 2:3 15:2
  16:20 38:1 49:4.15
 59:15 81:14 85:14
  86:22 87:10.24 91:4
  111:5 113:7 114:13
 121:23.25 122:2.16
  131:15 132:3 141:7
  144:9 151:17 153:6
 165:15 179:19 189:25
  190:8 195:10 223:3
 226:1.7 227:18
needed (40) 8:11,20,24
  9:6,15,17 21:7 24:24
  26:4,12 32:17 37:8
  39:23 48:16 49:18
  86:1 87:14,16 89:2,4
 90:11.18 103:24
  119:11.11.12 120:25
 136:24 137:15 141:11
 154:20 169:25 175:3
 187:8
 205:8,10,15,15,24
 221:13
needs (7) 79:12 120:12
 137:9 138:19 179:8
 182:19 189:24
neil (8) 69:2,4,22 135:2
 151:18 160:18 161:13
 207:14
never (37) 6:1 26:6
 28:23 34:5 59:6 60:2
  65:25 67:23,24 86:9
  96:3 105:4 107:24
 108:12.22 109:10
  113:25 132:14 134:16
  142:10 146:19 158:1
 172:4.5 180:19 199:6
  205:3 206:3,5,6,6
 207:11 221:15
 224-13 20 225-1 2
nevertheless (1) 65:22
newbuild (1) 185:12
newer (1) 210:22
next (18) 8:8 37:9 62:18
 97:16 137:4 138:20
 139:7 143:15 152:19
  157:18 164:2.10
 178:17 188:10 198:12
 202:18 215:18 221:1
nhb00001317 (1)
 146:16
nhb0000131724 (1)
 146:21
nhbc (7) 30:20 33:20
  146:1,6,8,14,16
night (1) 210:4
nine (2) 152:20 165:7
```

nobody (7) 16:6 29:25 43:18 179:7 180:25 181:5 225:15 non (3) 191:6,25 200:16 noncombustible (1) 66:1 nonconforming (1) 22:12 none (3) 130:12 216:15 224:10 nonspecific (1) 49:9 nor (1) 108:1 normally (4) 12:10 92:18,23 185:3 north (11) 83:23 93:21 94:13 97:21 98:25 105:17 123:2,6 147:25 154:11.12 nos (1) 120:11 note (11) 48:6 56:21 81:2 113:11 143:13 152:17 163:21 164:5 167:11,13 205:2 notebook (2) 166:17,19 noted (11) 11:5 31:23 95:22 97:10 151:21 161:22 164:8 166:2 169:23 190:24 222:11 notes (14) 73:9,10,15,21 109:2 116:15.18 163:23 165:19 166:17.24 191:4.24 198:20 nothing (7) 34:10 67:12 75:13 87:15 101:1 141:11 211:20 notice (13) 37:13,13,22 62:23 86:19 87:19,20 113:10 115:20 176:13 177:14,18 209:22 noticeable (1) 87:3 noticed (4) 51:10 57:9 noticing (2) 47:19 56:13 noting (2) 74:13 76:14 november (31) 3:20 10:21 11:11 69:3 83:21 84:11 85:2 88:2.11 93:6.20 94:6.10 113:1 118:17 121:13 151:4 173:19 175:10,12,16 177:25 197:22 198:4,8,9,11,21 227:1,10,12 nr (3) 151:17.24 212:2 number (32) 4:3,22 5:24 10:20 11:14 24:25 25:1 40:7 42:23 83:24 92:8 94:19 121:17 135:13.17 136:7 137:19 143:11.16 144:1,2,5,6,6,24 150:16 157:15 163:24 165:10 175:12 196:12 222:11 numbered (2) 142:21 201:1 numbers (2) 173:21 213:23 nursery (4) 6:5,14 7:4

om (13) 203:4.16.19.23 204:20 206:1,12

o (1) 191:17 obligation (2) 13:7 obligations (5) 12:3 23:1 28:10 132:19 206:12 observations (3) 149:13 150:3 151:11 obtain (1) 203:25 obtaining (1) 57:22 obvious (1) 191:11 obviously (18) 36:17,23 43:12 48:13 90:9 153:20 156:15 162:25 163:19 165:17,25 184-25 190-8 205-22 213:16 218:24 221:9 226:1 occasion (4) 84:12 94:24 190:24 216:6 occupied (2) 4:22 5:1 occur (2) 106:22 180:20 occurred (5) 42:2 54:8 60:7 84:21 216:21 oclock (4) 139:19,25 229:7,9 oconnor (2) 24:12 210:20 oconnors (1) 9:4 october (12) 8:7 37:8 39:10 40:8 76:10 89:11 93:5 140:12 147:21 148:19 175:13 197:20 offering (4) 49:18 97:18 124:6 128:4 office (5) 46:8 160:22 182:1 210:14.15 officer (3) 28:18 90:20 91:11 officers (2) 28:13 109:22 officially (1) 140:14 often (4) 100:16 101:3,5,17 oh (1) 113:11 ok (2) 191:5,24 okay (63) 2:8 4:1,16 6:2,17 10:14 12:8 21:9 24:9 32:6 33:6 34:21 37:3 38:2 55:16 58:12 61:25 70:1.15 71:6 72.5 76.21 77.13 81:25 82:5,6 83:16 98:8.12.15 107:21 109:20 111:7 112:11 123:23 139:18.21 141:18 145:8.23 148:17 149:1 154:3 155:6,12,16 156:25 162:1,9 185:15 190:17 195:1 199:13,17 201:12 202:1 218:5 221:18 225:4 226:13 227:14 228:19,23 old (8) 150:1.9 170:15 182:1 187:10,10,11

```
omitted (1) 122:1
once (11) 27:13 99:18
  100:11,12 102:22
  120:12 135:20 150:19
  167:15 189:25 216:19
ones (14) 5:10 6:21,22
  91:12 100:10 111:3
  114:9 122:3 134:17
  145:2 170:12 172:8
  200:25 211:2
ongoing (2) 35:6 151:9
onsite (2) 11:4 122:2
open (9) 186:17 189:22
  190:6 215:22
  216:4,5,15 222:12,13
opened (1) 190:10
opening (2) 186:8 213:2
openings (1) 32:20
operate (1) 81:18
operating (1) 219:19
operation (4) 203:19
 212:25 213:13 214:4
operatives (2) 142:24
  143:18
operator (1) 148:2
opinion (1) 130:4
opportunity (3) 83:25
 129:3 188:12
order (21) 2:23 15:12
  45:15 48:16 49:23
  59:21 60:12 61:2.6
  62:6,7,8,8 63:11,13,21
  75:17.20.21.24 76:1
ordered (2) 59:12 60:1
ordering (1) 56:2
orderly (1) 91:21
orders (1) 60:10
organised (1) 219:9
orientation (1) 115:12
original (5) 170:16
 179:23 183:24 184:2.7
originally (1) 9:22
osborne (5) 48:21,24,25
 72:12 143:24
osbournesic (1) 45:19
osgood (1) 82:22
others (4) 24:7 97:9
  138:14 216:2
otherwise (5) 97:10
  153:7 181:1 184:22
  225:2
ought (1) 143:24
outcome (2) 151:19
  152:10
outer (1) 74:3
outline (5) 29:9.10
  173:18 175:9 179:1
outside (12) 5:22 32:25
  44:22 52:16 86:6
  210:15 217:13,16
  218:11.11 225:18
  228:6
outstanding (20) 89:19
  90:4,9,15 133:17
  134:2.5.6.9.20
  135:11,14,21 136:6,7
  150:10,25 165:16
  216:21 222:25
over (51) 3:16 4:6 6:8
  9.3 11.13 31.12 38.25
  39:6 55:4,7 65:9 69:7
  73:17 82:24 83:13
  85:13 90:14 96:1
```

145.12

mode (1) 219:17

modules (1) 29:17

moffet (1) 60:21

207:8.21 208:2

210:3.12 211:2

53:7

98:9,22 99:1,18 126:19 146:24 147:10,13 152:19 154:7 165:15 166:14 167:19 170:17 178:17,18 183:3 196:16 198:1 202:13,14 203:3 204:5,24 209:19,19 210:1 211:8,9 216:8.20 219:11.12 overarching (2) 16:4 26:1 overcladding (4) 5:19 7:19,21 177:19 overestimation (1) 38:24 overlooked (2) 120:1,2 overly (1) 153:17 overruled (1) 174:16 oversee (1) 24:16 overseeing (2) 24:20 203:18 own (14) 73:9 97:18 98-1 99-11 16 102:12,13 103:14 104:11 118:11 132:1 154:1 157:24 211:22

Р

**p1 (6)** 73:1,3,13,24 74:2 p2 (9) 73:2,4,13,25 74:7 75:15 76:6,18 77:8 package (1) 18:25 pages (2) 61:5 213:4 paint (4) 31:18 137:24 138:2 201:11 painted (1) 200:10 painting (3) 135:19 138:1 201:25 panel (27) 6:15 31:22 44:21 53:7,10,11 54:15 72:14 73:4.4 74.7 75.15 19 76.6 114:10,13 190:25 213:1.9.10.14.23 215:20,25 216:3,5,15 panels (63) 38:12,15,16 40:14,25 42:6 44:16 50:6.24 51:12 53:4.24 54:10 55:11,23 63:7,9 72:4.7.15 73:1.13.16.24.25 74:2,25 75:7 76:3,17 77:8 83:25 84:3 93:13 94:19 95:3 96:17,18,24 97:6,7 98:2.19 100:3.5.11 101:13,16 106:20,22 107:5,7,10 108:24 110:9,11,20 125:8,9 129:4,13 145:1 212:22 paper (1) 75:12 paperwork (1) 12:7 paragraph (60) 3:7,14 4:2.17 8:1 14:2 22:1 24:11 26:17 34:24 36:12.14 37:5 38:3 42:19 45:12 47:15

98:3,6,17 103:12 105:15.16 107:12 108:4 117:4 121:19 122:23 128:1 133:9 143:15.15 146:22 158:8,23 160:12 161:7 163:7 172:12,23 173:15 183:18 185:16 186:3 189:10,20 190:19 192:18 214:7 215.5 paragraphs (4) 83:7 135:24 213:3 223:14 part (66) 10:6,9 15:15,23 17:7,10 18:19.24 19:3 20:6.10 22:15,18 23:3 24:4 25:3 27:6.20 28:19 29:19 30:13 32:4 35:23 47:3,4 52:24 55:17 69:23 71:13 73:11 83:15 90:7 94:18 96:10 97:16 98:16 101:20 105:15 107.2 118.2 122.17 131:14 134:15 143:23 149:15 150:6 156:14 158:4 160:22 165:17 170:20 172:5,14,24 186:17 192:18 194:11 203:24 209:12 210:19 211:9.10.11 218:25 228:5.5 partial (3) 207:16,25 208:8 particular (12) 20:12 31:11 43:15 55:19 79:4 94:22 110:12,16,20 191:1 206:18 228:8 particularly (4) 17:16 50:1 164:22 166:6 particulars (4) 17:7,10,15 21:24 parties (2) 80:25 135:1 partly (2) 9:16 122:20 partners (4) 132:20 135:8,25 149:4 parts (10) 12:14 96:6 124:3 157:3 160:23 171:1 191:16 192:7,22 208:22 party (1) 142:25 pass (2) 46:23 203:13 passed (6) 85:14 191:15 192.6 21 25 203.11 past (2) 37:1,21 pattern (1) 88:19 paul (7) 158:12 160:17 161:1,13 166:4 167:25 168:8 pause (9) 70:18 98:11,14 108:21 139:24 194:17 197:4 226:6,16 pausing (1) 147:2

162:16,22 163:12,19 164:7 167:10 168:18 people (14) 8:20 38:23 49:18 78:2 82:23 127:11 132:3 157:3 163:24 170:17 172:9 190:22 194:10 196:14 per (9) 20:16 50:22 51:4 76:3 133:6 138:19,25 182:19 221:10 percentage (2) 38:20 performance (20) 31:12 50:24 51:17 52:13,14,15,17,18,25 53:2 55:10 59:1.6 64:17 65:1 77:7 97:7 155:20 156:2 194:3 performing (2) 82:24 83.3 perhaps (2) 40:20 116:8 period (5) 78:22,24 175:20 183:20 214:22 periodic (4) 78:13,15,20 79.2 periodically (1) 77:15 permission (9) 59:19 60:9 71:8,10,12,15,20,21,24 person (4) 166:18 173:12 180:18 203:2 personal (1) 8:4 personally (3) 7:8 183:24 225:11 phase (3) 80:5 115:9 172:2 phenolic (1) 64:22 phone (2) 181:15 184:1 phoned (6) 184:10 219:5,8 220:3 221:16 222:23 photo (2) 148:20,21 photograph (2) 115:8 147:20 photos (4) 122:1 148:18 219:12,21 phrase (4) 31:15 34:12 49:22 52:4 physical (1) 166:16 physically (1) 46:7 pick (9) 3:5 11:6 45:14 130:11 147:19 155:4,5 158:6 195:3 picked (1) 154:24 picking (3) 90:9 98:17 149.2 piece (2) 75:12 146:14 pieces (1) 97:1 pipes (2) 136:11 170:15 pipework (1) 136:16 place (8) 10:21 22:25 65:8 79:13 104:24 105:2 127:19 172:10 placed (4) 32:13 75:22 111:16 195:11 places (2) 40:25 222:2 placing (1) 130:10 plan (9) 61:4 154:16 171:17,20 172:9

188:1.18 199:23 202:6

planned (4) 39:13,19

154:23 186:8

planning (1) 80:4

plans (11) 16:16 48:18 99:17 102:14 104:15 106:4 124:22 133:5 152:15 175:24.25 plant (1) 4:9 plasterboard (3) 68:17,20,22 plastic (5) 44:22 51:25 52:3,8 54:19 plate (2) 224:17,23 please (24) 1:11 2:1,4 62:6 70:12,14,19 75:21 76:3 106:7 128:18 129:12 130:16 134:10 139:15,20,25 162:18 167:24 179:22 195:9 196:23 209:11 plymouth (1) 3:21 pm (7) 140:1,3 197:6,8 226:19,21 229:11 pointing (1) 120:24 points (10) 17:21 25:15 123:13 135:11,11 142-22 145-9 181-6 201:1 209:24 policies (3) 81:5.8.15 poly (1) 64:23 polyethylene (2) 51:23 52:9 polystyrene (5) 74:22 75:1,4,8 76:20 poorly (1) 225:7 port (1) 33:23 position (4) 33:13 115:6.21 142:25 possession (1) 207:25 possessionhandover (1) 207:17 possible (4) 110:24 152:8 207:25 219:9 possibly (13) 24:23 38:24 52:20 55:8 96:22 97:2 127:10 157:18 166:16 208:4,5 222:24 224:17 potential (2) 212:4 217:5 potentially (2) 157:7 175:22 practical (8) 30:4,21,21 80:18 136:2 151:23 207:9 208:3 practice (6) 13:9,18 18:21,22 46:12 130:9 pre (1) 187:20 preassessment (1) 186:13 prebooked (1) 227:17 precedence (1) 126:18 precise (1) 191:7 precisely (1) 25:24 precommencement (1) 4:20 prehandover (2) 97:20 123:1 preinspection (1) 129:14 preparation (2) 149:21 206.9 prepare (1) 187:25

preparing (1) 149:19 presence (1) 153:18 present (10) 76:12 121:21 132:1.3 135:9.13 151:6 168:25 211:16 215:21 presented (2) 96:2 206:1 presenting (1) 191:11 presumably (1) 63:6 presume (1) 67:23 pretty (13) 18:9 58:10.23 73:18 103:8 120:11 142:11 164:1 183:2,7,15 205:9 219:11 previous (9) 41:3,5 46:21 84:10 85:1 91:25 92:12 105:15 212.5 previously (13) 6:19 11:24 26:7.11 32:9 53:21 60:1,11 124:14 197:19 216:3,10 220:3 previsit (1) 190:7 principal (3) 80:1 205:6.6 principally (1) 72:6 principle (1) 14:22 printed (1) 19:19 prior (29) 14:14,20 15:2 53:18 63:23 67:3 82:20 84:18.20 85:1 86:17 88:2 97:18 100:3 101:21 103:14 111:15 129:9 131:22 134:18,19 148:14 160:20 174:23 176:16 186:14 187:20 196:12 priority (1) 202:23 proactive (1) 156:3 probably (11) 38:23 78:21 97:10 154:1 157:14 159:17 161:22 195:11 208:15 223:16 227:24 problem (2) 117:21 215:15 problems (2) 62:1 122:10 procedure (1) 14:13 procedures (13) 10:6,9 22:3,25 23:4,4 80:7,19 81:5,8,16 172:11,25 process (36) 22:21.21 38:22 49:3 50:3,3,9,11,12 77:24 81:23 83:11.17 84:4 90:13 91:13,19,19 97:14 98:1 103:3 106:14 122:7 124:4 127:25 131:14.25 134:8,15 136:22 149:16 156:8.15 170:21 205:25 225:5 processes (2) 81:13 85:25 produce (2) 204:19

65:4.23 68:2 72:1 132:10 142:11,12 production (2) 62:1 203:19 products (7) 19:25 44:14 53:8 57:24 64:1,2 125:4 programme (4) 25:5 45:17,18 170:5 programming (1) 49:16 progress (23) 8:18 10:20 39:4.9.14.14 40:6,7 43:6,16 93:2,4,5,9 96:7 149:5.8.20 151:3 168:22,24 205:20 progressed (1) 211:20 progresses (1) 77:19 progressing (2) 39:18.23 project (101) 4:20,24 5:2,7,7,9 6:20,22 7:10 19 24 8:4 9:12 10:17 11:10 12:2,4 13:4 15:19 17:7.10 18:8 20:23,24 21:23 24:12,14,16,21 26:19 29:11 30:15 31:3 32:22 33:16 34:2.14 36:20 37:5.12 41:4.7 42:2.24.25 45:20 53:3.18 54:7 56:18 57:7 65:24 67:22 74:12 76:24 77:1 78:11 80:9,14,14 81:6,9,11 82:2 84:20 86:10 91:20 92:12 110:12,21 114:5 126:12.13 135:21 145:25 146:9.10 147:4 149:5,19 166:13 171:13,15,17,20 172:15,22 173:9,13 174:1,5,7 175:14,17 179:4 188:12.21 197:23 198:22 199:6 221:23 projects (11) 4:22,25 5:15,18 6:18,24 10:4 79:24 92:13 157:25 174:12 promised (1) 176:13 proof (1) 119:6 proofed (3) 171:10 212:13,17 proofing (1) 138:18 proper (5) 13:8 128:6,11 131:2,23 properly (7) 25:2 33:14 77:23 106:3 204:22 220:23 224:17 properties (5) 57:24 58:17,19 64:3 173:4 proposal (1) 170:4 proposals (1) 14:10 proposed (3) 67:11

176:7 177:9

protected (1) 201:4

protocols (1) 179:17

prove (2) 64:15 200:2

protection (1) 211:19

211.24

prepared (3) 42:16

188:2 189:9

produced (1) 108:1

produces (1) 152:23

product (12) 20:12 21:8

50:10,11 61:17

proved (2) 64:10 216:20 provide (12) 18:24 19:7,8,9,10 67:13 103:22 113:2 151:15 203:1 204:19 225:8 provided (24) 12:25 15:16 32:20 33:17 67:21 104:12 107:24 108:12 110:12,20 133:21,24 149:15 151:11 158:7.16 159:16,17 177:15 203:16 206:23 207:21 214:3 222:17 providing (5) 18:14,19 19:4 104:20 109:16 proving (2) 127:20 200:8 psb (1) 213:18 public (1) 173:5 publish (1) 11:4 pull (5) 2:20 4:3 13:23 24:10 173:9 purchase (12) 60:10,12 61:1.6 62:6.8.12 75:17,20,21,24 76:1 purely (1) 156:22 purpose (7) 16:13 133:15 160:19 186:7 188:24 189:6 218:14 purposes (3) 80:1 136:1 171:23 pushed (1) 61:16 putting (7) 7:9 50:4,5 79:6 89:7 166:8 179:17

Q

q (899) 1:24 2:9,17,19 3:2,5,11,19,23 4:1,12,16 5:6,14,18,25 6:2.7.10.15.17.24 7:5,10,14,17,23 8:14.22 9:8.11.14.18.25 10:3,9,14,16,19,23 11:4.10.15.17.19.22 12:1,8,13,19,24 13:6,11,16,20 14:5,24 15:4,10,18,25 16:6.10.18.23 17:3.18 18:7,11,19 19:1.11.18.24 20:5.10.16.19.23 21:9,12,18,23 22:10.15.21.23.25 23:5,11,15,24 24:1,4,6,10,19 25:1.7.14.18.20.24 26:3,12,15,25 27:4,6,9,12,19 28:4,7,17,21,25 29:3,6,11,13,19,22 30:3,7,9,11,14,18,25 31:5,8,11,15,17,21,25 32:2,4,6,11,16,19,22 33:4.6.11.15.24 34:4,6,8,10,12,14,16,18,21 35:11.16.22 36:6.9 37:3.16.23.25 38:3,11,15,18,20 39:2,8,13,17,21 40:2,4,14,17,19,24

48:20 49:21 57:17

82:7 83:19 88:7

66:6 68:14,16 79:22

paying (1) 176:20

penetrated (1) 50:25

penetration (1) 166:1

penetrations (11)

112:2,9 138:4,5

pc (1) 152:19

pe (3) 52:3,4,6

COLD							
As   As   As   As   As   As   As   As	41:2 12 15 17 21 23 25	119-3 7 17 23	208.9 17 21 24	rainscreens (2) 48:3 8	214:20 217:21 219:24	196:25	66:3 10 17 18 19 24
				1 ' '		1	
\$\cup   \$\cu	43:4,14,22	121:5,10,17	210:2,12 211:5,8,12	102:21 109:15 127:13	reasons (3) 66:16 67:10		72:7 74:13 76:14
19-21-11-12-12-13-13-13-13-13-13-13-13-13-13-13-13-13-	44:2,5,9,14,19,23,25	122:10,13,22	212:8,14,19 213:13,25		200:17	regarding (8) 164:20	85:17 93:22 94:16,21
				· ·		1	
0.01.01.02   1991.12.02   1991.12.02   1991.13.02   199						1	
Political Description   Poli							
20.5.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.							
50.4.18.2.1.2.1.2.1.2.1.2.1.2.1.2.1.2.1.2.1.						· .	
59.34, 18.72.24   139.7.21   224.4.1.2.1.4.1.4.1.1.1.1.1.1.1.1.1.1.1.	51:3,9,19,21,25	130:1,5,9,13,18,24	221:1,6,13,18	183:23 223:4	156:25 157:6	regular (6) 26:18 43:25	123:10,20,24 126:13
522,02.22   334,51.22   334,51.25   324,51	52:4,7,9,13,18,24	131:12,17,19,21,23	222:3,7,20 223:4,9		165:1,20,22 192:2	77:21 78:8,14 116:8	141:2 145:13,16 146:1
5.5.1.0.1.1.1.7.2.1.55 1.5.6.1.1.3.51 1.5.6.1.1.3.51 1.5.6.1.1.3.52 1.5.6.1.1.3.52 1.5.6.1.1.3.52 1.5.6.1.1.3.52 1.5.6.1.1.3.52 1.5.6.1.3.5.3.52 1.5.6.1.3.5.3.52 1.5.6.1.3							
5.01.15.18   137.41.12.15.21   confided (1) 11.221   confided (1				1 ' '			
59.14.22.14.16.23			1			1	
599.12.02   1933.11.92.25   control (4) 1911.1914.1   591.35.21   592.24.11.22   595.13.57.12.44.14.13.02   121.17.84.12.91.17   595.13.57.12.44.13.02   1762.13.53.03.21   1762.13.53.03.22   1762.13.53.03.22   1762.13.53.03.22   1762.13.53.03.22   1762.13.53.03.22   1762.13.53.03.22   1762.13.53.03.22   1762.13.53.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.03.23   1762.13.13.13.13.13.13.13.13.13.13.13.13.13.			1 ' ' '	1	` '	1 - ' '	
9.93.5.7.12.14.17.22.25 1.04.24.14.18.20			1 ' ' '				
6.25.12.63.12.63.25   148.15.12.25   145.48.15.18.29   159.21.19.21.25   145.48.15.18.29   159.21.19.21.25   145.48.15.18.29   159.21.19.21.25   159.21.19.21.25   159.21.19.21.25   159.21.19.21.25   159.21.19.21.25   159.21.19.21.25   159.21.19.21.25   159.2	59:1,3,5,7,12,14,17,21,23,	,25 140:24 141:4,18,20		1	1	29:1,8,15,20 30:7	192:4,15 193:15,23,25
1904.151.151.151.151.151.151.151.151.151.15	60:5,10,16,25 61:4,24	142:6,8,13,20	44:3,4 108:9 125:20	rather (2) 51:15 156:3	178:22 195:20 196:6	35:2,6,14 36:1 45:5	194:12 195:24 196:23
64.513.11.31.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2			1		_ , ,		
6.95.11.35.61.92.1				1		1	
6-63-51.13-02.25 146-01.27.13-22 1476-16.18 221.57.45 1901.9 1902.01.71.13.71 1901.01.72 1902.01.71.13.71 1901.01.72 1902.01.71.13.71 1901.01.72 1902.01.71.13.71 1902.01.71.11.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71.71 1902.01.71 190				` '	1 7 1	1	
6.25.69.18.70.13.16.00.12.22.23.23.24.24.27.22.24.27.27.24.17.27.14.72.23.22.23.23.24.24.27.22.24.27.24.27.25.20.24.27.25.20.22.23.24.24.27.22.25.23.24.27.22.25.23.24.24.27.22.25.23.24.27.22.25.23.24.24.27.22.25.23.24.24.27.22.25.23.24.24.27.22.25.23.24.24.27.22.25.23.24.24.27.22.25.23.24.24.27.22.25.23.24.24.27.22.25.23.24.24.27.22.25.23.24.24.27.22.25.23.25.25.23.25.25.23.25.25.25.25.25.25.25.25.25.25.25.25.25.			· ·	` '	i :		
18-11-11-11-11-11-11-11-11-11-11-11-11-1						'	
1972.4.136.139.2.1   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.17.29   1902.8.1.1.30   1902.8.1.17.29   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.1.30   1902.8.1.30   1903.8.1.30   1903.8.1.			1 1	\ /			` '
1937.125.20   1938.121.136   1942.71.218   1851.8   1842.8   1842.8	71:7,11,17,19	150:2,8,12,17,22	quantity (3) 59:7 62:7		167:2,4 185:8 192:10	203:1 206:9 209:4	repair (2) 51:12,16
74.7.1.1.7.2.1.4   154.3.1.1.3.1.5.20   146.3.15.1.0.1.8.2.3   146.3.15.1.2.3   168.3.15.2.2.3   168.1.1.3.1.2.2.4   168.3.1.2.2.2   168.1.1.3.1.2.2.2.4   169.2.2.2.4   169.2.2.2.3   169.2.2.2.2.2.2.2.3   169.3.1.2.1.2.4   169.2.2.2.3   169.3.1.2.1.2.5   168.3.1.2.0.2.2   169.3.1.2.1.2.5   168.3.1.2.0.2.2   169.3.1.2.1.2.5   168.3.1.2.0.2.3   169.3.1.2.1.2.5   168.3.1.2.2.2.3   169.3.1.2.1.2.5   168.3.1.2.2.2.3   169.3.1.2.1.2.5   168.3.1.2.2.2.3   169.3.1.2.1.2.5   168.3.1.2.2.3   179.3.1.3.1.3.1.2.2.3.2.3   179.3.1.3.1.3.1.2.2.3.2.3   179.3.1.3.1.3.1.2.2.3.2.3   179.3.1.3.1.3.2.3.2.3.2.3.2.3.2.3.3   179.3.1.3.1.3.2.3.2.3.2.3.3   179.3.1.3.2.3.2.3.2.3.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.2.3   179.3.1.3.1.2.3   179.3.1.3.3.1.2.2.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.1.3.3.3   179.3.3.3.3   179.3.3.3.3   179.3.3.3.3   179.3.3.3.3   179.3.3.3.3.3   179.3.3.3.3   179.3.3.3.3   179.3.3.3.3   179.3.3.3.3   179.3.3.3   179.3.3.3.3   179.3.3.3   179.3.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179.3.3.3   179	72:2,6,9,14,17,20	151:2 152:2,9,22	65:5	166:15	193:8 194:20 199:1	relate (1) 166:23	repairing (1) 214:23
P3-3,7.14   15-6,10,12,16,24   15-7,28   15-6,28   15-	73:7,12,15,20	153:12,15,18	queries (10) 33:22	rbk000504169 (1)	recommendations (7)	related (5) 70:13 139:5	1 ' ' '
Track_File_10, E2, 24						1	
77.24,710.14.17.21 1583.5,19.23 query (2) 85.23 173.21 query (2) 85.23 173.21 query (2) 85.23 173.21 query (3) 85.23 173.21 query (3) 85.23 173.21 query (3) 85.23 173.21 query (4) 85.23 116.15.91 124.6 161.5.91 124.2 124.6 161.5.91 124.2 124.6 161.5.91 124.2 124.6 161.5.91 124.2 124.6 161.5.91 124.2 124.6 161.5.91 124.2 124.6 161.5.91 124.2 124.6 12				` '			
P84_111_723				1			
19-1,12,18   1615,23   862,1 1078 137-4   11615,19 1246   14015 158,11 159.4   14015 158,11 159.4   14015 158,11 159.4   14015 158,11 159.4   14015 158,11 159.4   159.5   1					1 ' '	1	
18-21,4,10,12   163-7   164-11,13   154-11,14   140-15   158-11,159-4   159-15,151,15   156-15,17   163-22   123-22   157-17   173-19   163-16,16,12,20,24   20-24   211-3,2244   197-20   188-17   20-25   218-12   22-22   157-17   173-19   174-22,23   165-16,10,20   169-5,10,17-21   24-6 44-5,8-11,12   25-15,516,15   26-6 44-5,8-11,12   26-6,2-5,8-11,13,16   171-6,11,17-23   25-15,556,20   28-13,14-8-9   130-22   218-13   21-6   22-6,8-11,13,19-21,2-3, 7-2-3,12-18,22   28-13,14-8-9   130-22   218-13   151-20   152-11   100-23   176-13,17-19-23   173-29   174-18,12-5   159-15   159			1 ' '	` '	` '	` '	1
82.4.6.1.4.7.24   165.1.6.8.12.0.24   ouestions (45) 1.18.24   offs. (1) 185.21   recorded (3) 23.9   relative (1) 451.7   174.22.23 176.2.1.0.1   169.5.10.7.21   246.445.8.11.12   246.445.8.11.12   256.2.5.8.11.3.13.6   175.1.17.21   246.445.8.11.12   256.2.5.8.11.3.19.21.23.5   172.3.12.18.22   83.13.14.84.9.130.19   256.2.5.8.11.3.19.21.23.5   172.3.12.18.22   83.13.14.84.9.130.19   159.6.17.11   read (43) 3.8.10.16.18   200.118   records (10)   relevance (1) 166.18   181.2.118.2.2.12.2   181.20.2.2.185.13   159.6.17.11   read (43) 3.8.10.16.18   200.118   records (10)   relevance (1) 167.18   relevance (1) 16					1		
83.2,6.11.17   166.3,6.167.15.19   question (45) 1.18.24   re (4) 132:10 149:13   recorded (3) 23.9   relative (1) 45.17   174.22.23 176.2,10.14   184.15.17   relevance (1) 168.18   1812.1 183.24   182.2 183.24   1812.1 183.24   182.2 183.24   1812.1 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2 183.24   182.2						relationship (3) 149:3	
84.71.71.25   168.51.6.20   34.2 5.6 13.1 21.6   re (4) 122:10 149:13   140.15 191.5   records (10)   records (11) 18:18   records (10)   rec	82:1,4,6,14,17,24	165:1,6,8,12,20,24	202:4 211:13 224:4	197:20	188:17 202:5	218:21 223:2	157:17 173:19
1843,812 21124   1862,811,13,16   171,61,11,723   172,31,13,12   173,21,13,13   173,13,13   173,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13,13   173,13	83:2,6,11,17	166:3,6 167:7,15,19	questions (45) 1:18,24	rbkcs (1) 198:21	recorded (3) 23:9	relative (1) 45:17	174:22,23 176:2,10,14
86.2.5.8.1.1.3.1.6				1 ' '		\ '	
872,6,8,11,13,19,21,23,25 883-17,15,17,19,23 884-7,15,17,19,23 173-29,174-4,18,25 1816,202,2185.13 1816,19,220 1816,19,221,25 1816,202,2185.13 1816,19,220 1816,19,221,25 1816,202,2185.13 1816,19,221,25 1816,19,220 1816,19,221,25 1816,19,220 1816,19,221,25 1816,19,220 1816,19,221,25 1816,19,220 1816,19,221,25 1816,19,220 1816,19,221,25 1816,19,221,21 1816,19,221,25 1816,19,221,25 1816,19,221,25 1816,19,221,25 1816,19,221,25 1816,19,221,25 1816,19,221,25 1816,19,221,25 1816,19,21,21,21 1816,19,221,					1 1		
884.7,15,17,19,23 898.23,25 975.5,921 1812.0,22 1851.3 1812.0,22 1851.3 1812.0,22 1851.3 1812.0,22 1851.3 1812.0,22 1851.3 1812.0,22 1851.3 1812.0,22 1851.3 1812.0,22 1851.3 1812.0,22 1851.3 1812.1,23 1812.1,24 1812.1,14,17,23 1813.1,14,17,23 1813.1,14,1					1		
898,23,25				` '			. , ,
90.3,12,15,19,24				, ,		1	
924,10,17,21   178:5,14,22,25   199:18 202:2 212:20   37:6 48:16 56:13   122:11 131:13 214:25   relied (1) 158:10   134:17,19 135:7,10   93:2,813,19   179:9,15 180:4,11,20   221:19 225:24   58:12 74:13 98:6,15   134:13 98:6,15   134:17,19 135:7,10   rely (3) 32:16 130:6   138:10 150:9,16   rely (3) 32:16 130:6   rely (4) 22:16   rely (4) 32:18   rely (4) 22:16   rely (4) 32:18   rely (4) 22:16   rely (4) 32:1							
93.2,8,13,19 93.2,8,13,19 94.1,6,8,10,12,15,18,21,24 94.1,6,8,10,12,15,18,21,24 95.3,5,7,13,17,21,24 95.3,5,7,13,17,21,24 95.3,13,16,21 97.3,8,13,25 185.3,13,16,22 98.9,13,16 186.2,13 187.7,14,23 186.5,17,23 100.15,18 101:3,14,19 100.5,18 101:3,14,19 100.15,18 101			196:1,5,8,15,16		rectified (4) 102:23	reliance (1) 130:10	1 ' '
94:1,6,8,10,12,15,18,21,24 95:3,57,13,17,21,24 96:9,13,16,21 184:6,14,20,25 98:9,13,16 186:2,13 187:7,14,23 99:6,14,18,23 188:5,17,23 199:6,14,18,23 188:5,17,23 199:6,14,18,23 199:12 199:9 199:100:15,18 101:3,14,19 188:3,17,17 190:4,14,18 191:23 100:15,18 101:3,14,19 100:15,18 101:3,14,10 100:15,18 101:3,14,19 100:15,18 101:3,14,10 100:15,18 101:3,14,19 100:15,18 101:3,14,10 100:15,18 101:3,14,10 100:15,18 101:3,14,19 100:15,18 101:3,14,10 100:15,18 101:3,14,10 100:15,18 101:3,14,19 100:15,18 101:3,14,10 100:15,18 101:3,14,10 100:15,18 101:3,14,10 100:15,18 101:3,14,10 100:15,18 101:3,14,10 100:15,18 101:3,14,10 110:15,18 101:3,14	92:4,10,17,21	178:5,14,22,25	199:18 202:2 212:20	37:6 48:16 56:13	122:11 131:13 214:25	relied (1) 158:10	134:17,19 135:7,10
95:3,57,13,17,21,24 182:6,11,24 183:4,18 228:14,15,18 230:3 4148:8,10,12,13 red (1) 202:24 red (4) 135:2,5 151:18 representative (1) 215:1 representatives (2) 15:13 representative (3) 25:15:13 representatives (2) 15:13 representatives (2) 15:15:13 repr	93:2,8,13,19	179:9,15 180:4,11,20	221:19 225:24	58:12 74:13 98:6,15	rectify (3) 131:6 132:9	rely (3) 32:16 130:6	138:10 150:9,16
96.9,13,16,21							
97:3,8,13,25   185:3,13,16,22   205:1 219:9   149:20,22,24 150:1   207:14   remains (2) 151:13   representatives (2) 98:9,13,16   186:2,13 187:7,14,23   quickly (4) 25:12 77:18   172:4 173:18 175:10   refer (3) 73:10 160:12   228:20   190:22 191:5   request (10) 22:7 65:16   100:15,18 101:3,14,19   189:3,7,17   quilt (1) 66:2   reading (16) 12:16   reference (6) 111:1   remedial (1) 211:21   request (10) 22:7 65:16   100:15,17   190:4,14,18 191:23   quite (16) 40:20 47:11   16:11,14 21:5 30:12   137:17 164:20 178:19   119:9   105:19 182:8   103:1,5,10,22,24   192:10,18   57:7 83:13 86:10   31:23,25 32:4 33:25   183:4 191:18   reference (2) 17:19   225:13   199:10:15,16   125:14 127:15 134:2   176:11,12,15,19   121:25   remember (140)   181:4 189:13 197:21   106:18,21,25   196:4,9,14 197:25   220:21   89:1 99:3,12 119:13   121:11 138:22 141:8   12:16 17:11   require (1) 89:20   redirect (1) 205:12   113:4,6,10,15,18,20,22   202:1,18,23   rails (9) 50:5 55:7 84:1   99:29 98 100:21   170:11,13 197:9   121:15 137:23   32:4,14 42:10   83:22 88:12 90:5   113:4,17,10,21,23   207:13,25   206:5,8,14,18,22   rainscreen (8) 48:1 54:2   reason (9) 150:6 166:8   79:24 139:17 77:77   59:7,12 62:16,18 63:2   requirements (2) 19:30   12:11 13:13 14:8,9,19   12:11 13:13 14:8,9,19							
98.9,13,16							
99.6,14,18,23							1 ' ' '
100:15,18 101:3,14,19   189:3,7,17   quilt (1) 66:2   quite (16) 40:20 47:11   16:11,14 21:5 30:12   137:17 164:20 178:19   119:9   105:19 182:8     103:1,5,10,22,24   192:10,18   57:7 83:13 86:10   31:23,25 32:4 33:25   183:4 191:18   remedied (2) 102:23   195:19 182:8     104:1,3,8,10,17,19   193:9,16,21,25   195:11 101:5 107:3,18   111:4 123:7 174:22   194:3,6,13,16   125:14 127:15 134:2   176:11,12,15,19   121:25   remember (140)   181:4 189:13 197:21     106:18,21,25   196:4,9,14 197:25   220:21   89:1 99:3,12 119:13   121:11 138:22 141:8   12:16 17:11   remedied (2) 102:23   88:15,20,21,22 99:2,6     105:19 182:8   requested (10) 88:10   119:9   rederences (2) 17:19   225:13   119:5 160:25 162:5     105:6,14,22   196:4,9,14 197:25   220:21   89:1 99:3,12 119:13   121:25   remember (140)   181:4 189:13 197:21     108:4,6,12 109:14,20   198:7,13,15,18   quotation (1) 135:18   quotation (1) 135:18   120:10,13 125:17   182:24 194:1   21:4,5,7,14,20,22   required (18) 9:19     11:1,7,14,20   200:5,13   R   190:11,13 197:9   121:15 137:23   32:4,14 42:10   83:22 88:12 90:5     113:4,6,10,15,18,20,22   203:6,9,14,18   7ails (9) 50:5 55:7 84:1   98:22 99:8 100:21   11:5,8,14,17,20,25   204:9,12,16,18   98:22 99:8 100:21   11:11 175:7 176:20   11:11					1		
103:1,5,10,22,24   192:10,18   57:7 83:13 86:10   31:23,25 32:4 33:25   183:4 191:18   remedy (2) 149:15   requested (10) 88:10   104:1,3,8,10,17,19   193:9,16,21,25   194:3,6,13,16   125:14 127:15 134:2   176:11,12,15,19   121:25   remember (140)   181:4 189:13 197:21   106:18,21,25   195:2,15,24   139:11 175:22 213:18   ready (15) 70:25 78:22   referred (6) 86:23   6:12,21 7:2,3,7 9:21   198:3,16 212:2   107:8,12,22   196:4,9,14 197:25   220:21   89:1 99:3,12 119:13   121:11 138:22 141:8   12:16 17:11   require (1) 89:20   reduired (10) 135:18   120:10,13 125:17   182:24 194:1   21:4,5,7,14,20,22   required (18) 9:19   11:1,7,14,20   200:5,13   R			quilt (1) 66:2			` '	1 ' '
104:1,3,8,10,17,19       193:9,16,21,25       95:11 101:5 107:3,18       111:4 123:7 174:22       references (2) 17:19       225:13       119:5 160:25 162:5         105:6,14,22       194:3,6,13,16       125:14 127:15 134:2       176:11,12,15,19       121:25       remember (140)       181:4 189:13 197:21         106:18,21,25       195:2,15,24       139:11 175:22 213:18       ready (15) 70:25 78:22       referred (6) 86:23       6:12,21 7:2,3,7 9:21       198:3,16 212:2         108:4,6,12 109:14,20       198:7,13,15,18       quotation (1) 135:18       120:10,13 125:17       182:24 194:1       21:4,5,7,14,20,22       required (18) 9:19         111:4,12,14,20       200:5,13       199:7,10,14,17       quote (1) 205:12       128:17 140:6       referring (7) 73:8       23:12 29:16 30:12       23:14 32:19 34:19         112:8,12,24       201:1,8,12,16,22,24       202:1,18,23       201:1,13:197:9       121:15 137:23       32:4,14 42:10       83:22 88:12 90:5         114:3,8,16,19,22,25       203:6,9,14,18       rails (9) 50:5 55:7 84:1       98:22 99:8 100:21       17:11 175:7 176:20       reflected (1) 81:6       47:10,19,21       170:21120       206:21 211:21         116:4,8,12,22,25       205:7,17,25       101:23 103:19 142:24       171:11,18 227:25       4:22 5:2,8,11 8:6       53:6,21 56:9,13 57:3,8       requirement (1) 29:22	102:5,9,12,15,17	190:4,14,18 191:23	quite (16) 40:20 47:11	16:11,14 21:5 30:12	137:17 164:20 178:19	119:9	105:19 182:8
196:6,14,22	103:1,5,10,22,24	192:10,18	57:7 83:13 86:10	31:23,25 32:4 33:25	183:4 191:18	remedy (2) 149:15	requested (10) 88:10
106:18,21,25         195:2,15,24         139:11 175:22 213:18         ready (15) 70:25 78:22         referred (6) 86:23         6:12,21 7:2,3,7 9:21         198:3,16 212:2           107:8,12,22         196:4,9,14 197:25         220:21         89:1 99:3,12 119:13         121:11 138:22 141:8         12:16 17:11         require (1) 89:20           108:4,6,12 109:14,20         198:7,13,15,18         quotation (1) 135:18         120:10,13 125:17         182:24 194:1         21:4,5,7,14,20,22         required (18) 9:19           111:1,7,14,20         200:5,13         R         23:12 29:16 30:12         23:14 32:19 34:19           112:8,12,24         201:1,8,12,16,22,24         R         190:11,13 197:9         121:15 137:23         32:4,14 42:10         83:22 88:12 90:5           114:3,8,16,19,22,25         202:1,18,23         rail (1) 55:4         realised (1) 215:13         200:19         447:12,14,20 45:7         156:1 158:21 160:20           115:5,8,14,17,20,25         204:9,12,16,18         98:22 99:8 100:21         171:11 175:7 176:20         reflected (1) 81:6         47:10,19,21         170:1 202:12,20           116:4,8,12,22,25         205:7,17,25         101:23 103:19 142:24         217:11,18 227:25         422 5:2,8,11 8:6         53:6,21 56:9,13 57:3,8         requirement (1) 29:22           117:3,9,21,25         206:5,8,14,18,22         rainscreen (8) 48	104:1,3,8,10,17,19	193:9,16,21,25	95:11 101:5 107:3,18	111:4 123:7 174:22	references (2) 17:19	225:13	119:5 160:25 162:5
107:8,12,22         196:4,9,14 197:25         220:21         89:1 99:3,12 119:13         121:11 138:22 141:8         12:16 17:11         require (1) 89:20           108:4,6,12 109:14,20         198:7,13,15,18         quotation (1) 135:18         120:10,13 125:17         182:24 194:1         21:4,5,7,14,20,22         required (18) 9:19           110:5,15         199:7,10,14,17         quote (1) 205:12         128:17 140:6         referring (7) 73:8         23:12 29:16 30:12         23:14 32:19 34:19           111:1,7,14,20         200:5,13         R         190:11,13 197:9         121:15 137:23         32:4,14 42:10         83:22 88:12 90:5           112:8,12,24         201:1,8,12,16,22,24         rail (1) 55:4         realised (1) 215:13         200:19         44:7,12,14,20 45:7         156:1 158:21 160:20           114:3,8,16,19,22,25         203:6,9,14,18         98:22 99:8 100:21         171:11 175:7 176:20         reflected (1) 81:6         47:10,19,21         170:1 202:12,20           116:4,8,12,22,25         205:7,17,25         101:23 103:19 142:24         217:11,18 227:25         4:22 5:2,8,11 8:6         53:6,21 56:9,13 57:3,8         requirement (1) 29:22           117:3,9,21,25         206:5,8,14,18,22         rainscreen (8) 48:1 54:2         reason (9) 150:6 166:8         79:24 139:17 177:17         59:7,12 62:16,18 63:2         requirements (21) 4:13							
108:4,6,12 109:14,20         198;7,13,15,18         quotation (1) 135:18         120:10,13 125:17         182:24 194:1         21:4,5,7,14,20,22         required (18) 9:19           110:5,15         199;7,10,14,17         quote (1) 205:12         128:17 140:6         referring (7) 73:8         23:12 29:16 30:12         23:14 32:19 34:19           111:1,7,14,20         200:5,13         R         190:11,13 197:9         121:15 137:23         32:4,14 42:10         83:22 88:12 90:5           112:8,12,24         201:1,8,12,16,22,24         rail (1) 55:4         realised (1) 215:13         200:19         44:7,12,14,20 45:7         156:1 158:21 160:20           114:3,8,16,19,22,25         203:6,9,14,18         98:22 99:8 100:21         171:11 175:7 176:20         reflected (1) 81:6         47:10,19,21         170:1 202:12,20           116:4,8,12,22,25         205:7,17,25         101:23 103:19 142:24         217:11,18 227:25         4:22 5:2,8,11 8:6         53:6,21 56:9,13 57:3,8         requirement (1) 29:22           117:3,9,21,25         206:5,8,14,18,22         rainscreen (8) 48:1 54:2         reason (9) 150:6 166:8         79:24 139:17 177:17         59:7,12 62:16,18 63:2         requirements (21) 4:13           18:7,10,21,23         207:13,25         55:22 56:23 63:15         186:15 208:4 211:3         184:23 185:4,23,25         64:14 65:19         12:11 13:13 14:8,9,19 </td <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td>					1		
110:5,15       199:7,10,14,17       quote (1) 205:12       128:17 140:6       referring (7) 73:8       23:12 29:16 30:12       23:14 32:19 34:19         111:1,7,14,20       200:5,13       R       190:11,13 197:9       121:15 137:23       32:4,14 42:10       83:22 88:12 90:5         112:8,12,24       201:1,8,12,16,22,24       rail (1) 55:4       realised (1) 215:13       200:19       44:7,12,14,20 45:7       156:1 158:21 160:20         114:3,8,16,19,22,25       203:6,9,14,18       98:22 99:8 100:21       171:11 175:7 176:20       reflected (1) 81:6       47:10,19,21       170:1 202:12,20         116:4,8,12,22,25       205:7,17,25       101:23 103:19 142:24       217:11,18 227:25       4:22 5:2,8,11 8:6       53:6,21 56:9,13 57:3,8       requirement (1) 29:22         117:3,9,21,25       206:5,8,14,18,22       rainscreen (8) 48:1 54:2       reason (9) 150:6 166:8       79:24 139:17 177:17       59:7,12 62:16,18 63:2       requirements (21) 4:13         118:7,10,21,23       207:13,25       55:22 56:23 63:15       186:15 208:4 211:3       184:23 185:4,23,25       64:14 65:19       12:11 13:13 14:8,9,19						1	
111:1,7,14,20         200:5,13         R         190:11,13 197:9         121:15 137:23         32:4,14 42:10         83:22 88:12 90:5           112:8,12,24         201:1,8,12,16,22,24         rail (1) 55:4         realised (1) 215:13         200:19         44:7,12,14,20 45:7         156:1 158:21 160:20           114:3,8,16,19,22,25         203:6,9,14,18         rails (9) 50:5 55:7 84:1         really (8) 5:20 56:8         reflected (1) 81:6         47:10,19,21         170:1 202:12,20           115:5,8,14,17,20,25         204:9,12,16,18         98:22 99:8 100:21         171:11 175:7 176:20         refurbishment (14) 1:7         48:9,9,10,11 52:10         206:21 211:21           116:4,8,12,22,25         205:7,17,25         101:23 103:19 142:24         217:11,18 227:25         4:22 5:2,8,11 8:6         53:6,21 56:9,13 57:3,8         requirement (1) 29:22           117:3,9,21,25         206:5,8,14,18,22         rainscreen (8) 48:1 54:2         reason (9) 150:6 166:8         79:24 139:17 177:17         59:7,12 62:16,18 63:2         requirements (21) 4:13           118:7,10,21,23         207:13,25         55:22 56:23 63:15         186:15 208:4 211:3         184:23 185:4,23,25         64:14 65:19         12:11 13:13 14:8,9,19			1 1				1 ' '
112:8,12,24         201:1,8,12,16,22,24         R         226:22         170:9,11 191:23         43:11,15,19         102:16 137:2 146:25           113:4,6,10,15,18,20,22         202:1,18,23         rail (1) 55:4         realised (1) 215:13         200:19         44:7,12,14,20 45:7         156:1 158:21 160:20           114:3,8,16,19,22,25         203:6,9,14,18         rails (9) 50:5 55:7 84:1         really (8) 5:20 56:8         reflected (1) 81:6         47:10,19,21         170:1 202:12,20           115:5,8,14,17,20,25         204:9,12,16,18         98:22 99:8 100:21         171:11 175:7 176:20         refurbishment (14) 1:7         48:9,9,10,11 52:10         206:21 211:21           116:4,8,12,22,25         205:7,17,25         101:23 103:19 142:24         217:11,18 227:25         4:22 5:2,8,11 8:6         53:6,21 56:9,13 57:3,8         requirement (1) 29:22           117:3,9,21,25         206:5,8,14,18,22         rainscreen (8) 48:1 54:2         reason (9) 150:6 166:8         79:24 139:17 177:17         59:7,12 62:16,18 63:2         requirements (21) 4:13           118:7,10,21,23         207:13,25         55:22 56:23 63:15         186:15 208:4 211:3         184:23 185:4,23,25         64:14 65:19         12:11 13:13 14:8,9,19						1	
113:4,6,10,15,18,20,22         202:1,18,23         rail (1) 55:4         realised (1) 215:13         200:19         44:7,12,14,20 45:7         156:1 158:21 160:20           114:3,8,16,19,22,25         203:6,9,14,18         98:22 99:8 100:21         171:11 175:7 176:20         reflected (1) 81:6         47:10,19,21         170:1 202:12,20           116:4,8,12,22,25         205:7,17,25         101:23 103:19 142:24         217:11,18 227:25         4:22 5:2,8,11 8:6         53:6,21 56:9,13 57:3,8         requirement (1) 29:22           178:7,10,21,23         207:13,25         55:22 56:23 63:15         186:15 208:4 211:3         184:23 185:4,23,25         64:14 65:19         12:11 13:13 14:8,919			R				
115:5,8,14,17,20,25       204:9,12,16,18       98:22 99:8 100:21       171:11 175:7 176:20       refurbishment (14) 1:7       48:9,9,10,11 52:10       206:21 211:21         116:4,8,12,22,25       205:7,17,25       101:23 103:19 142:24       217:11,18 227:25       4:22 5:2,8,11 8:6       53:6,21 56:9,13 57:3,8       requirement (1) 29:22         117:3,9,21,25       206:5,8,14,18,22       rainscreen (8) 48:1 54:2       reason (9) 150:6 166:8       79:24 139:17 177:17       59:7,12 62:16,18 63:2       requirements (21) 4:13         118:7,10,21,23       207:13,25       55:22 56:23 63:15       186:15 208:4 211:3       184:23 185:4,23,25       64:14 65:19       12:11 13:13 14:8,9,19			rail (1) 55:4				
116:4,8,12,22,25 205:7,17,25 206:5,8,14,18,22 217:11,18 227:25 4:22 5:2,8,11 8:6 53:6,21 56:9,13 57:3,8 requirement (1) 29:22 17:3,9,21,25 206:5,8,14,18,22 207:13,25 55:22 56:23 63:15 186:15 208:4 211:3 184:23 185:4,23,25 64:14 65:19 12:11 13:13 14:8,9,19	114:3,8,16,19,22,25	203:6,9,14,18	1	really (8) 5:20 56:8	reflected (1) 81:6	47:10,19,21	170:1 202:12,20
117:3,9,21,25 206:5,8,14,18,22 rainscreen (8) 48:1 54:2 reason (9) 150:6 166:8 79:24 139:17 177:17 59:7,12 62:16,18 63:2 requirements (21) 4:13 18:7,10,21,23 207:13,25 55:22 56:23 63:15 186:15 208:4 211:3 184:23 185:4,23,25 64:14 65:19 12:11 13:13 14:8,9,19	115:5,8,14,17,20,25				refurbishment (14) 1:7	48:9,9,10,11 52:10	206:21 211:21
118:7,10,21,23 207:13,25 55:22 56:23 63:15 186:15 208:4 211:3 184:23 185:4,23,25 64:14 65:19 12:11 13:13 14:8,9,19							1
				1 ' '			1 ' '
1 1 1	118:7,10,21,23	207:13,25		180:15 208:4 211:3	184:23 185:4,23,25	04:14 05:19	12:11 13:13 14:8,9,19
					· 	·	·

15:15 17:6 20:1 22:5
23:18 28:25 29:4,7
47:25 48:7 191:17 192:22 195:19 202:25
206:8
requires (1) 214:23 requisite (1) 186:18
resembled (1) 196:5
residential (2) 41:3 173:4
residents (8) 27:17
186:9,22 187:4 189:23
190:13 201:20 228:12 residual (1) 212:4
resist (1) 29:23
resistance (2) 31:20,24
resistant (1) 68:20 resolve (1) 134:23
resolved (7) 134:21
149:14 150:18 151:23 152:18,21 189:4
resolving (2) 134:6
150:10
resources (2) 152:24 153:1
respect (12) 7:13 37:20
50:4 52:12 71:23 79:3 80:3 82:3 109:1
111:19 176:21 188:13
respects (1) 20:9
respond (3) 151:16 152:3,6
responding (4) 149:12
151:10 180:14 181:6 response (14) 61:19
151:14 161:1 162:7
164:16 166:15 168:8 178:14,15 181:23
195:15 219:7 221:10
222:14 responses (2) 149:14
151:19
responsibilities (5) 23:20 25:9 46:24
101:10 137:6
responsibility (26) 13:3
18:2,8 23:19 24:2 27:12 56:6 99:15
102:13 108:17,17
126:17 127:18 130:2 135:12,15,20 136:22
137:5 172:15
203:9,10,13 204:12
215:2 216:22 responsible (16) 15:6
16:1,2,25 18:14 82:18
134:6,8 135:1 137:9,13 173:12
203:2,18 204:10,13
responsive (1) 156:3
rest (2) 36:19 169:18 restarted (1) 227:5
restricted (1) 60:22
resume (2) 139:19 197:1
retardant (1) 53:25
returned (1) 14:11
review (6) 73:15 135:7 138:10 170:7 172:19
182:12
reviewed (5) 45:17 91:2 135:10 151:22 164:19
reviewing (1) 172:15

```
revised (2) 11:4 14:11
                          ryd000440953 (1)
                            142:20
                          ryd00055130 (1) 147:22
                          ryd00056059 (1) 89:10
                          rvd00056956 (1) 39:8
                          ryd0005762311 (1) 40:6
                          ryd0005762314 (1) 40:9
                          ryd00057876 (1) 93:3
                          ryd000578765 (1) 93:8
                          ryd00059235 (1) 118:14
                          ryd000592354 (1)
                          ryd00060234 (1) 10:19
                          ryd000602343 (1) 10:24
  200:2,6,22,24 212:12
                          ryd00060605 (1) 50:16
                          rvd00063728 (1) 152:23
                          ryd000637282 (1)
                            155:17
                          ryd00063791 (1) 162:10
  191:20 196:7 202:4.9
                          ryd00065985 (1) 188:7
                          ryd00066527 (1) 187:16
                          ryd00070161 (1) 189:18
                          ryd00072239 (1) 117:11
                          ryd00075983 (1) 181:24
rms (5) 81:10,16,18,18
                          ryd00077583 (1) 173:10
                          ryd000775832 (1)
                            173:12
  7:24,25 9:4 11:5,12,14
                          ryd00078593 (1) 199:19
                          ryd000785932 (1)
                            199:21
                          ryd000863632 (1)
                            223:11
                          ryd00086541 (1) 220:18
                          ryd00094213 (1) 2:12
  28:12 33:21 35:23,24
                          ryd000942131 (2) 3:15
                            4:18
                          ryd0009421310 (2)
  83:2 85:8 86:14 91:9
                            57:18 66:7
                          ryd0009421311 (1)
                          rvd0009421312 (3)
  158:2,4 160:4 171:24
                            158:24 197:17 198:7
                          ryd0009421313 (3)
                            88:8 160:13 198:1
                          ryd0009421314 (4) 3:6
                            111:22 117:4 163:8
                          rvd0009421316 (2)
                            173:16 183:19
  139:17 158:25 181:10
                          ryd0009421317 (1)
                            158:9
                          ryd0009421319 (1) 82:8
                          ryd000942132 (1) 4:6
                          ryd0009421320 (3)
                            97:15 122:24 128:1
                          ryd0009421321 (1)
  117-22 170-21 186-5
                            213.4
  199:12 214:14 218:16
                          ryd0009421322 (2)
                            133:10 213:5
                          ryd0009421323 (2)
route (4) 186:9 187:3,4
                            186:3 189:11
                          rvd0009421324 (1)
                            172:13
                          ryd0009421326 (1)
                            214:8
                          ryd0009421327 (2)
                            2:13 215:6
                          ryd000942135 (3) 8:2
                            34:25 37:6
                          ryd000942136 (2) 38:4
rway (2) 210:22 211:3
                            42.21
ryd00042087 (1) 125:23
                          ryd0009421364 (1)
```

revisions (1) 72:23

revisit (1) 214:21

righthand (5) 60:13

141:22,24 171:8

rightly (1) 217:8

rigid (7) 33:12 74:8

75:16 76:7,11 79:13

rh25 (1) 115:11

182:21

147.7

rise (1) 170:15

riser (8) 161:9

170:11,15

risk (26) 172:1.15.22

186:1 187:1.3

211:25 212:3,4

risks (1) 228:7

rje (1) 184:17

role (61) 4:5 6:23

16:4 18:19 19:4

23.22

25:2.13

20:6,10,20,24 22:15

24:4,7,20,22,25,25

26:1.2.11.18.25 27:6

36:22 49:14 55:17

71:13 79:24 82:25

101:21 124:16,18

127:4 129:17,20

174:2 185:22,24

roles (4) 23:20 24:15

roofs (2) 56:22 65:5

room (6) 70:12 126:5

25:9 28:15

roof (1) 145:11

223:18

rose (1) 171:2

218:1.5.8.19

round (12) 28:18 33:1

81:12 93:16 113:16

rotation (4)

224:12

225:8

rowan (4) 132:20

135:8,25 149:4

rs5000 (4) 56:16,20

run (4) 26:6,7 91:21

ryd000429872 (1) 126:4

ryd00044095 (1) 142:16

219:13

ryd000942162 (1) 24:11

64:23 145:22

royal (1) 35:7

rs (1) 56:23

120:18

rusts (1) 52:21

130:23 133:6 157:15

173:9 185:14,17,19

188:3.14 189:1.2.5

227:20.20.21 228:1

ryd0009422010 (1) 36:12 ryd000942208 (1) 26:16 ryd0009423564 (1) 13:24 ryd0009423623 (1) 79:21 ryd000943152 (1) 188:19 ryd000943153 (1) 202:7 ryd00094349 (1) 2:21 rydon (80) 1:6 3:15,19 9:18 10:5 11:1.4.19 13:1,11 15:5,13,18 16:6 17:3,11 22:25 23:19 24:7 28:10 29:13 35:24 36:19 37:11.11 42:23 43:1 67:2 79:18.20 80:7 91:9 92:5 97:19 99:3 100:19 102:18 103:22 105:19 109:15 113:16 125:20 126:21 127:2 129:21 131:17 135:9.16 149:12.15 150:4 151:9,12,15 152:3 157:24 159:16 172:24 174:20 178:11 180:16 185:1,3,9,12 190:22 191:5 199:22 200:1 201:8.22 203:10,18 204:12 206:23.24 207:5 210:3 214:14 222:9 rydons (29) 12:3 13:3,7 15:21 18:8 22:19 26:2,9 49:6 53:13 79:24 80:9,14 93:2,3 99:6 132:4 136:1 137:6 153:6 171:17 195:20 196:6 200:25 201:21 204:5 210:21 211:22 221:9

safe (4) 29:4 186:22 187:5 190:5 safely (5) 26:21 101:13,16 107:5,7 safety (43) 3:24 4:8 6:19 29:17 31:2 41:13 65:1 153:7 155:18.22 157:7.10.22 171:25 172:3 173:18 175:9 179:1 183:5.22.24.25 184:3,8 189:3 202:3 203:2,4,10,24 204:20 206:10.13.22.25 207:4 208:10,11 209:4 210:17,25 212:8 223:6 same (32) 36:20 53:10,11 54:17 58:24 61:20 64:11,11,12,15 66:17 68:21 79:9 100:12,25 102:20 103:8 106:16 108:25 109:3,6 117:9 120:16 142:25 150:15 155:7 192:5.16 200:21 215:25 219:8 224:4 sandwich (1) 44:21 sat (2) 114:9 224:24

19:1,14,16,22,24

20:3,10 21:25 22:8,12

satisfaction (2) 8:20 137:3 satisfactorily (2) 134:21 151:15 satisfactory (2) 126:1 151:18 satisfy (8) 89:20 101:25 189:3,22 190:4,5 205:23.25 satisfying (1) 101:22 68:8,23,25 saved (2) 46:9 211:8 69:11.14.16 saw (28) 9:5 24:4,20 72:22,23,24 36:17,22 48:20 51:20 60:2 75:15 83:4 103:11,17 105:4,14 76:4,5,6,7 77:2 127:6.9 130:4 144:12,16,19 162:4 184:16 205:3 206:3.5 86:24.24 87:15 212:17 221:15 224:21 88:12.13 89:23 saying (25) 38:1 40:14 51:16 59:18 66:19 96:5,6,7 97:23 71:25 99:6 103:20 106:2 120:10,19 125:12 137:6,8 143:23 145:13 166:6 168:16 111.5 112.6 169:13 193:7,8 198:24 199:5 217:2 219:15 117:7.19 sb (6) 11:2,5 151:11,17 169:23 170:4 123:4 125:9,25 scan (2) 23:13 61:2 schedule (6) 14:13 29:1 39:15.20 76:3.5 scheme (2) 4:8,9 scope (3) 12:20,22 136:3 137:21 170:4 score (2) 155:18 156:19 scratch (3) 50:25 51:14 52:16 scratches (9) 50:20,23 51:10,20 84:3 97:6 152:9 153:10 125:8.10 131:9 screeds (1) 65:6 screen (1) 2:11 scuffs (1) 84:3 **sdp (1)** 68:19 sea00013533 (1) 69:1 sea000135332 (1) 69:7 sealed (4) 143:4 223:22 224:18 225:21 sealing (5) 135:14 136:8,10 138:4 224:23 seals (2) 200:18 201:12 188:8.15 second (14) 2:20,22 14:1 92:1 94:7 117:5 191:21 194:19 121:19 128:14,15 129-11 146-22 187-9 198-5 13 200-3 202:24 208:3 secondtolast (1) 99:23 section (15) 4:23 32:5 46:4 48:4,4 72:17 73:3 208:4,18,21,24 118:24 153:1 176:5 205:12 206:24,25 209:12.17 sections (3) 36:7,8 205:14 securely (1) 105:2 see (293) 1:10 2:14,21 4:10,18 5:4 8:12,21 10:23,25 11:8,22 12:24 14:3 17:24 18:5,12,17

24:17 25:5 26:23 27:19 28:4 38:9 39:4,11,15,21,25 40:9.10.12.15.17 43:2 44:17 45:22 47:23 49:18 51:1 58:20 60:13,14,17,20,23,25 61:14,18,22 62:3,6,10 63:13,15 66:23 67:9 73:3.5.23.24.25 74:3,4,7,9,12 75:21 78:6.7.8 80:11 81:1 82:12 83:22 84:8 93:4,6,11,14,17 94:25 99:4.20.21.24 100:2 101:1,20 105:19 108:2,10 110:3,13,24 115:5,10,14 116:20 118:15,17,18,21,24 119:23 120:22 122:5 126:2.7.20 128:9 129:4,7,9,13,16,19,24 131:10.23 133:19 138:9,11,13 139:4 141:10 142:4.10.16.18 143:6,21 144:7 145:23 146:4,15 148:4,6,7,10 149:8,17 151:5,25 155:18.22.24 156:5 157:12 158:3 159:6 161:3 162:1,19 164:24 166:6,14,25 167:19,24 168:3,16,20,24 169:8 171:9,17 172:16,25 173:7.13 175:11.21 176:6 178:3,12,20 179:13,20 180:9 181:3 182:4.22 183:4 184:4 185:20 186:11 187:21 189:8.11.15.17 190:2 195:4,13,15,22 197:25 201:6,22 202:9,16,23 204:16 205:7,17 206:18 207:19 23 209:13.17 210:8.9 211:15,18 212:6 213:25 214:17.22 215:3,11,23 216:6,10 219:13,15,20,20 220:24,24 221:3 222:18 223:12.14 225:19 226:2,11 seeing (12) 7:7 48:9 62:16.18 65:19 76:14 78:9 95:20 185:9 188:20 208:13 224:18 seek (1) 69:16

seem (5) 37:23 180:14 217:5 228:8.10 seems (2) 40:14 152:10 seen (16) 61:6 82:17 88:4 95:8 96:3.13.17 97:5 105:12 109:23 115:25 118:9 129:12 146:19 157:11 191:3 selection (1) 141:24 selfadhesive (1) 142:2 semantics (1) 129:23 send (4) 89:10 187:2 199:21 219:11 sending (2) 168:19 senior (4) 11:19 12:20 24:13 160:16 sense (3) 118:10 200:16 223:24 sensible (1) 104:12 sensor (1) 218:11 sent (24) 9:22 91:10,14,15,23 97:19 121:11,13,20 153:14 159.2 173.19 20 175:12,15 178:6,18 183:3 194:23 204:5 205:11 219:12,12,14 sentence (8) 36:13 38:5 66:8 82:9 99:23 122:25 173:2 201:1 separate (4) 156:25 198:8 203:6 207:11 september (8) 2:14,22 40:8 63:13 75:19,25 149:6.9 series (1) 142:21 serious (2) 7:12 157:19 service (1) 221:1 servicing (1) 216:24 set (14) 4:10 14:10.13 22:16 43:20 100:25 168:9 179:9 194:16 205:10,11 206:15,16 216:10 setting (1) 122:20 several (1) 98:4 shall (2) 14:6 47:25 shape (1) 51:18 shared (2) 158:14 167:20 sheet (15) 23:13 81:20.20.24 103:18 108:23 118:13,15 119:12 120:9,19 125-12 126-18 131-15 142:11 sheets (12) 52:1 60:19 97:20 106:2 119:4,4,7 120:13 125:4 127:17.20 204:3 shepherds (1) 194:25 ship (1) 61:3 shocked (2) 216:16 217:3 short (8) 2:22 37:13 70:9,21 140:2 196:20 197:7 226:20 shortfall (1) 212:4 shorthand (1) 107:18 should (29) 3:8 27:23,24 29:23 30:1

32:12,18 35:5 47:16

23:4.10 78:21

120:1,4 121:2

131:6,8,12

snagsheets (4)

solely (1) 130:6

66:2 114:19

220:4,6

222:8

90:6.25 91:14

85:21 157:17

38:2 39:5

183:9 204:7

74:19 78:6 79:8

224:11

sought (1) 6:19

107:3,9 120:4

space (1) 25:25

spaces (1) 173:5

speak (2) 107:20,21

62:7 91:10
99:10,10,11 108:18
110:11,20 114:12 124:22 142:2 143:4
144:22 145:2 157:19
164:8 206:19 209:5,6
226:10
shouldnt (2) 67:2 209:5 show (13) 28:18,20
32:16 39:8 47:2 95:9
107:13 123:16,16
135:2 146:14 159:9 216:5
showed (6) 14:18 42:25
66:25 159:3 212:25
213:19
showing (4) 114:25 125:5 215:22 216:15
shown (7) 32:10,15
33:2,4 35:5 113:9
216:3 shows (1) 93:9
shutoff (1) 217:12
side (11) 60:14 73:22
170:12,24 171:1,8
182:21 213:20,22
223:17 225:1 siderise (1) 21:19
sides (1) 224:11
sig (3) 60:16,16 61:13
sig00000012 (1) 60:12
sig000000123 (1) 61:1
sig000000131 (1) 61:24 sig000000132 (1) 61:9
sight (1) 166:24
sign (3) 88:12 89:21
134:16
signal (1) 98:9
signal (1) 98:9 signature (2) 2:15,25
signal (1) 98:9
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silocok (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silocok (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8 90:10,10 210:20
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8 90:10,10 210:20 simple (4) 127:21 213:16,18,19 simplistic (1) 50:8
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silocok (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8 90:10,10 210:20 simple (4) 127:21 213:16,18,19 simplistic (1) 50:8 since (3) 84:12 92:2
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silocok (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8 90:10,10 210:20 simple (4) 127:21 213:16,18,19 simplistic (1) 50:8 since (3) 84:12 92:2 204:14
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silocok (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8 90:10,10 210:20 simple (4) 127:21 213:16,18,19 simplistic (1) 50:8 since (3) 84:12 92:2
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significant (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8 90:10,10 210:20 simple (4) 127:21 213:16,18,19 simplistic (1) 50:8 since (3) 84:12 92:2 204:14 single (3) 78:9 193:3 194:12 sir (37) 1:3,10,13,16
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18.18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8 90:10,10 210:20 simple (4) 127:21 213:16,18,19 simplistic (1) 50:8 since (3) 84:12 92:2 204:14 single (3) 78:9 193:3 194:12 sir (37) 1:3,10,13,16 68:12 70:8,16,23,25
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 siver (4) 21:7 87:17,18,18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8 90:10,10 210:20 simple (4) 127:21 213:16,18,19 simplistic (1) 50:8 since (3) 84:12 92:2 204:14 single (3) 78:9 193:3 194:12 sir (37) 1:3,10,13,16 68:12 70:8,16,23,25 71:2 107:15 123:24
signal (1) 98:9 signature (2) 2:15,25 signed (9) 102:24 121:23 126:6 136:1 137:1 191:7,25 193:5 215:1 significance (1) 217:5 significante (8) 54:9 80:2 104:4,10 187:25 188:17 199:23 202:6 silcock (2) 135:8,25 sill (1) 223:15 silver (4) 21:7 87:17,18.18 similar (24) 49:13 57:24,24 58:18,19,25 64:2,10 68:4,7 70:5,5 72:1 78:20 79:8,9,11 85:9 87:17 91:3 101:25 103:3 105:25 212:16 simon (13) 9:4 24:12,13 26:15 36:10 37:10 42:22,25,25 43:8 90:10,10 210:20 simple (4) 127:21 213:16,18,19 simplistic (1) 50:8 since (3) 84:12 92:2 204:14 single (3) 78:9 193:3 194:12 sir (37) 1:3,10,13,16 68:12 70:8,16,23,25

140:4,6,8 196:19,23 197:3.9.12 225:25 226:3,11,14,22,24 228:15.20.24 229:2.6.9 sit (1) 1:13 site (168) 3:16 4:7,21,23 7:25 8:5 10:7,11,13 11:7,14,17,20,21,23,24,25 16:12.25 17:12 18:10 19:2 20:8 22:7 23:7,11 24:4.7.13.16 25:1.4.8 26:3,3,6,7,13,18,19,20,20,21 134:4 152:7 27:5,13,15 28:13,15 32:9 35:2 38:6 39:9.17 42:22 46:8 50:18 55:17,18,22 59:17,23 60:1.22 61:4.7 62:15 63:6 69:5,18 71:13 74:25 75:9,18 76:10.12.13.16 77:12,19 78:24 79:1,13 80:18 82:2,20 84:13 88:4.10.24 89:12,17,18 91:24,25 92:4.6.8.11 97:22 101:22 111:24 114:22 115:1,20 116:6,15,18 117:2 123:3 124:16 138:18 140:11,20,21 148:25 149:7,24 150:1 153:3,4,7,8,13,15,16,17,19,2292318,19 109:19 154:1 155:3.7.8 156:11,14 157:15 158:2.15 159:8.9.22 160:15,21 162:14 163:1,9 166:16,18,23 172:8,11 173:4 182:19 183:11 185:9 189:9.14.21 193:20 196:11,14 197:21 198:3,17 199:4 214:15,15 224:19 sitebased (1) 4:5 sites (1) 46:21 sitting (1) 137:7 six (2) 53:12 73:23 size (1) 4:25 skim (1) 69:13 skin (2) 32:25 74:3 slightly (1) 14:16 slow (1) 218:2 slower (3) 39:18,23 107:21 slowly (1) 107:20 small (3) 6:4 94:25 220:21 smith (8) 133:14 173:20,23 178:2,6 184:9.16 187:17 smoke (13) 181:9 200:18 201:12 212:21 213:1,10,25 214:4 215:9,15 216:9 217:6 218:22 smokeheat (1) 173:22 snag (13) 23:13 81:19 97:18 103:17 119:4,11 120.13 19 121.7 126:18 128:7 131:3

snagging (24) 22:20,21 80:21,22 81:20,23 82:10.18 83:3.8 97:19 118:11.13.15.25 121:17 122:7 126:25 131:25 204:3 221:20 snags (22) 23:9 97:20 102:21 119:8,10 122:14.15 123:1 132:1.5.9.9.13.16 121:20.23.25 122:2 solid (10) 6:15,16 44:18 45:1,3 53:7 64:9,24 somebody (6) 79:10 82:24 155:9 217:1 someone (7) 15:13,18 26:12 75:7.8 112:23 something (40) 7:5.6.7 9:15 17:16 19:9 20:20 28:23 36:17,23 54:11 56:22,22 59:15 64:19 78:22 79:18 87:21 127:6.6 129:25 130:4 133:9 135:2 140:10 142:20 145:16 147:3 150:19 156:12 157:11 164:14 212:15 227:17 sometimes (7) 20:13 28:19 38:1 42:11 49:4 somewhat (1) 128:12 somewhere (3) 10:10 soon (4) 25:11 66:11 sort (62) 6:6 16:4 18:9,24,24 21:7 22:19 25:8 26:6 27:15 29:17 30:22 33:22 37:1 45:9,10 46:11,21 47:11 49:16 51:13,16 52:2.11 60:3 64:6 85:13,22 86:9 87:7 90.7 91.12 103.18 105:11 107:17 122:14 127:9 133:23 134:10 138:1 150:20 174:14 179:5 183:8 186:17 187:4 199:11 200:11 205:20 206:11 208:7 211:1 213:21 217:2.18 222:23,24 223:3 south (14) 99:1 101:18 105:18,22 106:9,18,25 123:8.21 124:2 147:25

speaking (1) 71:17 spec (3) 12:12 56:13 76:6 special (1) 31:6 specialist (3) 15:24 27:24 203:16 specific (21) 9:18 16:23 17:14 21:10 32:11 33:25 44:7 45:7 47:21 49:8 66:25 101:12 104-20 124-19 157:4,22 183:22 192:10 193:13.15.23 specifically (51) 9:21 12:16 21:4,15 27:23 32:5.14 33:10 42:8 43:10 44:12 45:7 49:2 52:10 53:8 58:14 65:3 69:22 75:2 76:14 81:15 83:1 85:22 86:24 107:1 108:16 111:5.18 114:24 115:4 143:11 144:25 145:20 146:10 150:1 154:5 156:10.19.21 160:1 168:13 172:1 185:10 192:4.15 193:2.6 199:15,16 209:6 213:15 specification (43) 12:6,8,9,18,23 13:19 14:19,23,25 15:14,19 16:11.16 31:23.25 32:2 46:19 47:4 48:5,10 56:12,21 67:21 73:9,9,11,11,15,21 75:16 99:17 102:14 103:13 136:19 141:20 152:15 173:24 175:24 205:13.14 206:17.20 219:1 specifications (8) 14:11 48:19 57:15 79:16 104:15 106:4 124:23 specifics (4) 30:2 47:10 66:18 194:12 specified (14) 13:19 14:7.9 15:1 16:23 22:5 23:18 48:1 56:11 65:7 68:6 114:4,6 136:19 spoke (7) 8:6 42:22 45:18 48:21 65:15 190:21,23 spoken (2) 42:3 196:14 spread (6) 29:20,23 176:6,9 184:23 225:8 stage (17) 4:20 18:15,20 19:4 45:25 54:2 83:8.8 92:4 124:15 128:24 159:22 166:13 172:10 176:17 216:19 225:14 stair (1) 201:24 stairs (1) 201:9 **stairway (1)** 201:9 stamped (1) 35:18 standard (27) 16:22,23 17:1 28:2.2 43:20.20 48:2,7,8 78:6,7 81:20

85:9,12,15 99:16

100:25,25 101:2,6,25

102:2,8,16 122:21 126:2 standards (3) 13:17 16:18 156:2 stands (2) 56:22,23 start (21) 3:12 19:7 49:17 78:1,1 83:18 86:14 89:5,7 90:13 106:14 121:22 139:5,7 140:10 174:11,12 178-5 179-11 211-19 started (25) 3:15.19 9:12 10:16 25:12 41:4,7,24 50:17 53:3 63:22 77:1 78:5 85:5 89:12 101:4,8,12,16 145:25 152:6 153:20 158:15 174:1 208:6 starting (2) 84:20 216:23 starts (3) 26:17 36:14 179:15 stated (4) 112:16 124:14 151:18 201:3 statement (84) 2:12.20.22.24 3:6.14 4:2,18 8:1 26:15 34:23,25 36:11 37:6 38:3 40:21 42:20 45-13 49-22 57-18 66:6 68:15 79:19.20 82:7 83:15 88:7 93:21 94:18 97:13.16 98:3 100:8,10 103:12 105:14.24 107:12 109:1 110:24 111:4,21,22 117:3 122:24 123:22 124:8,10 128:2,15 133:8 135:4 142:15.16 143:8.10.24 144:21.24 145:5 151:24 152:17 158:8,23 160:13 161:8 162:4 163:7 166:10 169:19 172:12 173:15.17 181:14 183:18 186:4 189:11 190:18 197:16 212:23 213:4 214:8 215:5 219:2 statements (1) 2:9 states (3) 22:1 103:11 166:22 statutory (1) 13:13 stay (1) 55:2 staying (1) 21:23 steadily (1) 139:12 steel (1) 138:1 steelwork (1) 137:25 step (5) 83:12.12.18 124:4 130:25 stepbystep (1) 127:25 stephen (1) 8:5 steps (5) 96:11 156:7 180:20 204:21 205:25 steve (42) 8:5 9:16,22 11:2 24:14,15 37:21 42:3,11 53:15 58:1 66.8 15 71.19 22 89:18,18 90:6,9 127:6 151:11 153:8 160:15 169:23 180:19,21

187:16 188:7 197:22 198:11.15 199:2.3 200:13,15 204:16 205:4 207:14 208:8 210:15 223:2.2 sticking (1) 116:12 still (10) 52:21 61:21 68:21 96:6 100:11 120:10 134:9,21 155:3 182:1 stock (1) 61:20 stocked (1) 62:2 stokes (20) 185:13,17,22 186:5 187:19,25 188:8,17 189:8 190:15 191:23 192:2 193:14,21 195:4,24 196:5 211:24 212:10 228:2 stood (2) 145:10,18 stop (1) 96:4 stopping (10) 101:15 107:5 112:2 135:14 136:8 162:16 163:12 164:22 165:25 166:22 stored (2) 55:18,22 storey (1) 5:2 storeys (2) 51:13 171:3 strategy (36) 138:19,22,23 173:18 174:8.10.16 175:4,9,16,25 177:1 178:9.18 179:1.6.23 180:6,7,12,22,24,25 181:18 182:2,19,24 183:1.5.7.12.17.24 184:3,8 185:7 strength (1) 54:19 stretch (1) 70:10 strike (6) 89:5 91:5 112:3 113:13.14 130:17 striking (2) 84:4 106:15 strip (5) 114:17 115:14,15,17,22 stripe (1) 223:21 struck (5) 14:2 109:11 118:4 132:14 193:3 structural (7) 47:5 89:19 90:4,16,17,21,25 structure (1) 11:5 struggle (1) 204:6 struts (1) 84:5 studio (8) 16:3 65:9 91-12 18 113-20 160:18 174:22 175:1 stuff (3) 17:16 19:6 182.2 styrofoam (5) 74:4,18 75:4 76:19 77:4 subcontract (3) 15:23 46:18 47:3 subcontractor (4) 7:8 27:24 126:15,17 subcontractors (18) 22:4 23:14,18,20,23 27:7,17 79:15 80:5,8 99:10 109:16 127:16 134-1 9 136-23 137-14 205:18 subcontracts (1) 18:4 subject (3) 35:7

147:8,16 submit (2) 22:7 67:10 submitted (1) 2:23 subs (1) 178:17 subsequently (2) 188:1 substandard (1) 130:4 substitute (1) 67:2 substitution (3) 14:6,18 67:11 suddenness (1) 37:17 sufficiently (1) 219:3 suggested (4) 68:19 151:16 166:9,25 suggesting (1) 33:11 suitability (1) 147:9 suitable (1) 143:4 sums (1) 18:9 supersede (1) 176:18 superseded (5) 174:9 175:23 180:25 182:2,7 supervise (2) 27:15 48:13 supervised (1) 153:21 supervising (8) 77:15 78:19,25 79:5,7,8,10 145:5 supervision (13) 18:1,3 26:4 27:20 77:22 78:7,8,18 79:13 153:6 154:17 156:9.23 supervisionmanaging (1) 81:1 supervisor (1) 43:10 supervisors (1) 153:15 supplied (1) 200:12 supplier (1) 57:22 supply (7) 56:5,5 59:11 66:16 76:3 206:12 support (2) 26:19 224:9 supported (1) 151:24 supporting (1) 209:3 supposed (3) 52:22 126:25 165:16 sure (38) 16:1 20:14,16 26:8 28:1 56:7 58:10 75:6 82:21 85:8 96:10 100:23 102:7.13 109:11 119:21 126:15 127:11,15,18 129:9,15 137:13 142:11 143:1 144:23 150:20 161:20 164:2 165:14 166:24 167:1 172:6 177:6 179-24 204-13 218-15 226:6 surface (1) 50:23 surprise (1) 146:11 surprised (2) 90:19,23 surprising (1) 37:23 surrounding (1) 31:9 surveyor (1) 159:4 surveyors (3) 35:9 158:11 160:16 suspect (1) 219:25 suspicions (1) 225:19 swap (6) 58:1,22 59:8 60:7 65:9 69:20 swapped (1) 51:15 system (75) 21:1,16 31:22 45:16 46:9,11

159:25

snagged (1) 93:14

47:16,19,25 49:24

54:15 56:19 72:15 80:10.14 81:11.18 82:2,5 104:7 108:19 111:17 113:8 140:15.15 158:17.18 170:16,16,17 179:18 191:14,16 192:7,14,17,20,21 198:21 199:14 201:18 204:6 207:12 210.19 21 22 22 211:3,10,10,11 212:21 213:1.10.16.25 214:4 215:10,14,16 216:9,10,14 217:6.7.12.12 218:5,14,21,22 219:17 220:12.23 222:12 systematic (1) 116:9 systematically (2) 100:20 105:7 systemically (1) 94:1 systems (12) 8:10 9:24 42:24 75:19 80:6 81.6 9 146.17 173.25 189:25 206:7 207:7

table (3) 39:11,22 40:9 taff (9) 45:19 48:25 54.13 20 24 85.23 86:21 122:2 141:6 taken (5) 13:16 62:7 100:4 120:25 148:18 takes (1) 227:16 taking (11) 2:7 9:3 21:1 71:23 99:24 101:9 121:8 129:2 130:14 131:22 229:4 talk (15) 5:15 9:11 34:22 65:11,13,13 70:12 105:24 106:16 139:16 157:3 170:12 196:23 213:6 223:19 talked (13) 7:17 35:16 52:5 53:6 71:17 90:3 118:11 163:19 190:6 196:10 203:15 210:20 212:11 talking (24) 44:2,16 58:9 73:1 79:3 85:20 86:25 94:4 106:9,16 109:3 111:15 144:10.13.15 157:6 163:24 184:17 185:10 193:2 194:3 200:21.24 212:11 talks (4) 99:23 100:1

110:16 157:9

tape (7) 21:7 87:17,18

142:3 143:3,20,25

taped (19) 86:20,25

143:2

87:5,10,14,16,16,19

144:2,4,9,12,17,22

taping (4) 141:1

143:9,19,24

taplow (1) 42:2

task (1) 124:13

taught (1) 28:24

222:16

target (3) 221:3,6

105:3 141:6,12 142:2

tb (1) 151:21 team (12) 11:1.16 26:19,20 35:4 36:19 92:5 161:6 168:1 196:11 210:25 219:6 teams (1) 203:13 tech (1) 178:17 technical (1) 47:11 telecom (1) 170:18 telephone (2) 170:18 181.17 telling (6) 44:14 75:11 89:1 127:17 134:9 156:14 temperature (1) 218:11 temporary (1) 4:8 ten (2) 39:15 89:12 tender (14) 19:21 174:8.13.17 175:2,18,19,21 176:17 179:5 180:7,13,24 181:21 terms (46) 5:8 7:15 8:14 11:11,20 12:15 29:10 25 30:1 31:5 18 34:23 35:1 36:22 37:4 41:3 49:3.8.9 50:1.8 52:1,18,19 53:8 58:17 65:25 78:8 79:9,11 80:19 97:7 102:6,9 107:10 108:15 120:9 126:22 127:9.12 158:21 171:13 190:9 193:6 217:6 218:16 terribly (1) 148:5 terry (3) 183:21 184:12,18 test (1) 190:24 text (1) 220:22 thank (42) 1:13,15,19 2:19 3:11 68:12.13 70:3,6,19,24 71:2,3 139:18,21,22,25 140:5,9 149:1 164:13 171:6,11 187:14 196:19 197:2.3.5.12.14 225:23,25 226:13.15.18 228:17.20.23.24.25 229:2,10 thanks (3) 18:11 69:5 89:15 thats (104) 1:8 2:21 3:18 6:9 7:25 8:2 9:13 14.1 2 16 18:10,10,11,25 19:6 23:22 24:22 27:10 28:13 33:20 39:2 40:11 41:17 43:18 48:19,25 50:8 54:25 57:15 60:8 61:6,11 64:15 66:2 68:12 70:7 72:2,13 76:1 79:18 86:22 95:25 99:10

106:15 107:19 109:10

115:17 120:16 124:15

125:4 129:13 130:23

131:14,25 137:23,25

139.2 141.7 143.23

144:12 146:5,12

152:14,16 154:11

155:7 157:2 158:1,3

225:5

160:3,4 162:24 163:5 164:10 168:16 169:2 170:15 171:11 174:14 177:15.16 183:15 184:18 187:14 188:3.4 189:5 192:9,9 194:10 196:17,22 208:5 210:4,23 211:12 213:5 219:4 225:5 227:24 228:14,18 229:3,8 theirs (1) 88:17 themselves (7) 24:2 55:11 65:14 109:3 127:3 144:22 181:4 theres (8) 30:4 91:4 137:17 153:1 210:21 211:4,18 223:19 thermal (2) 117:6,17 thevre (20) 2:10 12:10 28:19 33:2,4 49:3 51:13 77:18 78:7 79:6.6 92:15 122:3 127:16 134:11 137:8 150:18 152:16 172:8 221.9 theyve (2) 78:5 127:17 thick (1) 143:18 thickness (2) 61:21 thing (24) 21:10 26:10 62:22 74:19 78:14 79:10 86:19 89:6 106:16 129:10 137:9 163:4 165:18 166:1 168:12 169:15 187:2 193:15 194:14 200:2 204:24 213:19 217:10 221:11 thinking (2) 4:12 130:14 third (7) 122:25 140:13 173:2 178:25 189:19 202:8,9 thorough (2) 127:15 165:13 thoroughness (2) 120:7 127:13 though (1) 192:10 thought (26) 8:11,24 16:2 37:2 51:25 59:9 60:8 63:24 86:3.4 92:15 119:17 130:22 144:7 145:11 155:14 175:7.18.23 201:20 217:20,22 223:6 224:11 225:5 228:10 thread (2) 194:18.21 three (5) 17:19 147:25 152:9 157:17 182:15 threequarters (1) 39:7 through (46) 4:21 21:16 35:3 50:4.9.25 53:15.16 54:16 81:12 83:12.17 93:3 112:2 133:16 134:1,19,23 136:11,17,22 138:4,5 150:9 161:14 162:16,22 163:12 171:2 179:4 186:16,22 187:6,8,12 190:13 197:18 200:22 205:2 212:12 213:17 218:1 219:5 220:3 221:16

thumb (3) 206:4 207:10.11 thursday (1) 188:10 thus (1) 91:21 tick (1) 125:25 tightly (2) 33:12 143:2 timber (7) 33:1 191:1,5,11,24 192:12,14 time (143) 5:8 7:6 9:5.9.11.12 15:25 17:12 24:12 28:21 29:11 30:17 31:2,4,7,10 33:16 34:14 38:6,22 41:24 43:12 44:6.10 51:8 52:4 53:2,3 54:7 55:19.21 56:1.2 57:7 59:8 60:3.6 61:7.16 62:2 64:13 67:17 68:4 69:23 74:12,15,18 75:5 76:25 78:24 81:19 82:14 83:2,23 84:15 86:9 90:23 91:11.17 95:24 100:13 102:4,6 103:8 105:6.25 108:25 109:3,6,23 110:5,25 112:22,25 118:3,4,14 120:22 121:1,3 125:7.16.20 128:14.16 129:14.16 140:20.22 147:3 151:5 153:16.24 154:25 157:14 158:19 162:25 165:9,14 167:18 174:6.7 175:17 176:11 180:14 183:9 184:20 185:1 191:2 193:2 195:25.25 201:17 202:25 204:16.23 205:2.5 208:7.16 209:22 210:24 217:20,22,23 218:1,4,6,20,23 219:8.24 221:22 222:16 224:1,8 225:6.21 227:5,8,16,18,24 timely (1) 56:7 times (13) 42:4.23 77:25 92:8 101:1 105:4 107:3 145:24 150:16 183:21 196:12 220:2 221:10 title (2) 11:20 18:9 tmo (20) 17:11 25:18 67:5,5,8 132:20,22 167:21 170:2 181:4 182:1 189:3 194:23 195:2 202:14 206:2,24 207:1 213:6 216:7 tmo100131282 (1) 179:10 tmo100131283 (1) 179:21 tmo10013708 (1) 208:10 tmo10041791128 (1) 17:23 tmo10041791135 (1)

tmo10041791141 (1)

21:24

tmo1004179186 (1) 17:9 tmo10044122 (1) 178:1 tmo10045169 (1) 167:21 tmom00000001 (1) 209:15 tmom0000000110 (1) 209:20 tmom000000019 (1) 209:17 today (6) 1:5,20,24 89:15 178:16 207:22 todays (1) 1:4 together (10) 15:15 47:5 52:2.2 128:7 131:3 138:13 143:2 179:17 204:25 told (31) 9:15.22 24:22 26:6 37:7 42:5 44:16 52:10 54:17 56:9.20.20 58:1 66:8,10 67:7 84:19,21 86:18 92:7 119:10,20 128-17 144-12 16 145:18 156:17 174:1 184:13 190:15 216:7 tom (1) 214:14 tomorrow (3) 38:2 229:4,9 tony (4) 133:13 134:3 151:11.21 too (2) 146:5 154:2 took (32) 10:21 11:13 23:9 51:8 56:8 73:17 83:20 84:11 95:25 99:20 100:10,12 109:2 115:3 120:25 123:11 127:21 128:14.16 129:13 133:23 148:20.21 160:23 170:14 172:14 183:6.6 194:14 204:23,24 227:8 tools (2) 121:6 125:6 topic (16) 34:22 57:18 68:10.10 71:5 72:3.20 77:11 110:23 116:12 139:5 140:25 177:24 194:16 211:13 221:19 topics (1) 192:3 total (1) 62:8 touching (1) 23:16 tour (2) 212:23 213:7 tours (2) 213:6 214:1 towards (7) 18:12 101:8,11 118:16 160:1 207:16,19 tower (33) 1:7 5:1,2,7 7:17 8:7 37:9 54:3 56:12 60:25 61:5 63:18 72:9 110:6.7 111:12 118:16 123:25 142:17 147:21 171:18 186:5,10 190:21,25 191:3,9 193:10 199:22 204:21 220:15,20 221:24 towers (4) 49:7 51:6 53:12 108:25

tp10 (6) 74:8 75:16

76:7,11,19 77:4

trading (1) 74:21

train (1) 42:11 trained (1) 112:21 trainee (1) 153:5 training (9) 4:4,8 29:14 41:14 124:18.19 171:23,25 172:6 transcriber (1) 2:6 transcript (2) 2:7 117:4 transferred (1) 210:19 tried (3) 152:7 156:12 163-24 trigger (1) 223:5 triggers (2) 146:15 194:19 trim (1) 120:24 trips (2) 43:25 107:2 trouble (1) 107:19 true (5) 2:17 3:2 6:9 19:6 225:19 trust (2) 78:2 101:6 trusted (1) 101:10 try (9) 2:5 12:6 16:19 19:9 58:16 107:20 149:25 150:20 224:8 trying (14) 16:21 43:13 44:10 96:1,20 106:1.21 123:5 163:23 165:18 190:12 200:11 205:22 217:1 tuesday (3) 89:17 219:18 229:12 turn (14) 10:19 80:9 92:19 105:25 149:3 151:3 162:10 171:4 175:9 188:18 198:11.15.16 220:18 turned (7) 105:1 117:2 198:10,11,12 199:2,3 turning (2) 7:24 72:3 twice (1) 100:8 twopage (1) 125:24 twothirds (5) 38:25 39:6,6 40:23 85:6 twoweekly (1) 78:16 type (2) 95:14 117:25 types (1) 147:10 typically (1) 79:25 typographical (1) 161:8

> uk (2) 41:19 53:5 ultimate (1) 151:22 ultimately (1) 205:22 unamended (1) 168:6 unbranded (4) 62:23,25 63:4 95:11 unclear (1) 128:12 underneath (6) 26:8 60:20 107:10 223:16 224:10.20 underresourced (1) 155:15 understand (33) 10:7 12:2 16:15,16 17:18 41:2 44:19 45:15 49:10,23 52:15 71:13.20 81:7.23 82:4 111:11 129:17 130:3.18.21 144:20 151:2 154:18 184:6 187:24 189:24 194:23 206:8 217:5.8 221:11 227:19

understanding (41) 1:25 18:7 29:5 36:22 39:17 44:2 46:20 54:14 55:3 85:24 91:12 99:9 100:1.4 102:10 160:4 174:6,9,15,25 175:2 179:3,4 180:23,23 183:1,15 184:1 185:22,24 188:24 191.8 192.5 9 17 193:10 195:7 216:18.23 224:15 228:2 understood (3) 15:21 73:7 85:8 undertaking (1) 170:5 undertook (1) 124:12 unexpectedly (1) 37:17 unfinished (1) 100:11 unfortunately (1) 91:8 units (1) 63:14 university (1) 3:21 unless (5) 44:11 65:15 67:7 132:15 134:16 unreasonably (1) 14:14 unsafe (2) 30:1 127:10 until (8) 86:9 112:4 165:10 186:25 187:12 225:16 226:8 229:12 unusual (1) 91:5 update (4) 179:2 181:4 189:22 220:19 updated (16) 175:16 179:8 180:6.8.12.15.17.21 181:1 182:9,19 183:3,8,13,17 212:9 upon (2) 158:10 224:5 upper (1) 215:8

118:1 126:12 148:13 170:15 191:1,13 192:15 useful (1) 179:25 usher (4) 70:17 139:23 197:1 226:14 using (5) 35:20 53:21 68:2 118:13 224:8 usual (1) 88:23 uvalue (5) 58:19.24 64:2,11,15 uvalues (1) 72:1

uptodate (1) 178:23

urgently (1) 221:14

used (16) 42:11 44:15

66:20 76:17 80:7

49:22 53:10,10 56:25

upvc (1) 225:22

valid (1) 20:2 value (1) 58:15 various (6) 22:10 48:3 72:23 81:13 190:22 vehicle (1) 60:21 ventilated (2) 48:3,8 ventilation (3) 114:11.14.15 vents (5) 213:2 215:22 216:4,5,15 verbally (2) 163:1 164:9

version (7) 179:23 206:24 207:1 208:2,3,14 210:3 versions (1) 207:4 vertical (13) 96:13,15 114:5,11,12,14,19,22 115:1,6,12,21 142:24 vertically (1) 104:24 viewed (2) 124:5 128:3 visible (2) 51:13 115:3 visit (44) 84:22 85:2 86:17 88:2,10,15 89:17 91:24.25 92:1,2,20 95:1 102:17 111:20,24 112:25 113:1 116:18.22 117:13 118:1 129:7,8,14 130:21,22 140:12 160:9 162:14 163:9 164:10 166:23 186:13 187:24 189:8.13.25 197:21 198:3,8 220:14 222:1 227:2 visited (2) 19:2 222:5 visiting (2) 69:5 190:25 visits (17) 26:18 45:9 88:20,24 92:11,16 99:2 105:19 110:25 140:11,14,21 159:5,9,22 166:16 visual (2) 98:20 100:24 visually (1) 104:23 voice (1) 2:5 void (1) 117:23 voids (3) 41:11 117:6,17

## w

walk (4) 157:13 165:19 199:12 201:3 walkaround (2) 217:11,19 walked (4) 160:22 186:5 214-14 219-18 walker (1) 61:12 walking (2) 163:22 218:16 walkround (6) 69:9,23 163:22 164:7 165:13 215.7 wall (4) 32:13 33:18 35:17 75:22 walling (1) 34:10 walls (12) 29:23 48:2,7 65:5 68:18 112:3 138:6 143:1 146:25 162:16,22 163:13 warp (1) 55:8 warped (2) 42:13 54:17 warping (1) 54:18 wasnt (52) 6:22 7:6 9:4,8 24:22 26:8 32:21 34:20 42:18 53:1,9 54:1 56:7 64:19 66:21 84:15 87:4 89:6 90:24 92:25 109:6 112:20 113:5,7 116:8 120:10 122:9 123:13 136:18 141:17 147:3.5 152:18 154:5,10 164:9 166:5

222:22 224:17 228:16 watch (2) 77:25,25 water (2) 170:16 224:13 waterproofing (1) 225:2 way (24) 2:2 7:12 25:10 30:7 39:1 40:23 51:18 54:17 55:4 75:7 81:12 91:21 94:11 115:23,25 120:16.18 126:18 134:23 171:3 179:4 200:8 203:25 205:20 weather (1) 223:21 week (15) 25:3,21 42:22 43:1 61:21.25 91:24 148:21 153:9 157:18 163:3.20 164:10 183:8 189:21 weekly (3) 78:13,15 220:19 weeks (10) 25:21 39:15 40:17 105:11 129:9 149:22 153:4 154:7 214.11 216.9 welcome (1) 1:3 wellprogressed (1) 38:7 went (53) 8:17 12:5 16:12 21:16 24:23 43:7 49:13 73:18 79:1 83:22.23 86:9.22 87:4.11 93:21 94:11.16 98:20 100:8.16 101:1.4 102:7 105:4 106:11,16 107:3 108:19.23.24 109:8 112:22 120:2 121:3 124:5 128:19 136:22 141:7 148:25 153:23 154:7 163:23 170:21 172:6 197:18 206:6 215:18 218:1 221:23 225:5,12 227:6 werent (22) 29:19 31:1,8,11 33:7 86:20 87:9,19 105:5 108:15 109:16 113:4.9 117:22 132:24 136:17 141:5 148:13 156:16 169:13 175:21 194:19 west (10) 83:22 93:14,21 94:12 98:25 105:17 118:18 147:23,24 148:1 weve (15) 12:25 17:3 35.11 40.10 61.6 66:25 75:8 82:17 119:3 148:2 160:11 198:20 202:4 216:20,20 whatever (1) 44:20 whats (1) 75:12 whereas (2) 64:22 207:1 whichever (2) 68:5,5 whilst (1) 89:17 white (22) 58:2 66:8 67:13 72:6 83:20 93:20 94:25 112:5 124:7 128:7,7

216:14 217:3

218:3.14.15 220:15

136:23 whole (7) 106:18 153:1 171:4 174:7 176:2 186:25 203:12 width (1) 142:3 williams (16) 25:16,17 167:20 170:6,7 179:12 181:23 205:4 214:12,14 215:21 216:7,13 218:20 220:8.11 window (14) 32:20 54:9 72:4.6.10.14.15 74:25 222:21,22 223:5,15 224:14,24 windows (40) 32:23 33:1 34:19 40:11 42:17 72:9.17 73:19 93:11 96:16,18,19,22,25 98:21 105:7 113:2.12.16.24 165:21 166:13,23 167:1,3,6 221:21,25 222:4,12 223.6 18 224:2,5,17,20 225:1.3.8.9 windy (1) 223:21 withdrew (1) 229:1 withheld (1) 14:14 witness (49) 1:15 2:9,12 4:17 8:1 26:15 36:10 37:6 38:3 40:21 42:19 45:13 49:21 57:17 68:14 70:15,24 71:1 79:19.19 97:13 105:14 107:12 111:21 117:3 128:15 133:8 135:4 139:18,21 140:5,7 158:8 162:4 166:9 172:12 173:15 190:18 197:2,11,16 213:3 214:7 226:13,23 228:19,23,25 229:1 wont (2) 52:14 186:25 work (71) 3:15 5:12 15:12 22:4.12 23:17,25 28:1 35:9 40:11 41:4 46:6 48:14.19 49:5 53:3 77:19 78:11 79:6 80:8 89:12 92:9 93:10 94:2 97:18 99:3.11.16.20 102:12,14,22,24 103:14 105:11 106:2 117-14 118-11 119:6,21,24 122:3,15 126:6,22 127:16,19 132:3.4.7 134:23 135:1 137:10,11 154:24 155:5.5 170:6 172:8 174:1 190:9 201:22 202:11 208:6 214:22 217:14,25 218:3,7,12,25 workbook (2) 146:16,22 worked (32) 4:22,24 5:8,10,10,16,18,23 6:1,19 10:4 12:10 18:7

31.2 32.22 34.2 14

56:18 80:13 81:18

94:11 175:24 185:1

42:6 45:16 49:24 50:2

210:23 213:17 218:5.10 220:1 working (18) 3:19 29:11 54:7 67:7 84:13 147:4 175:25 189:2 207:16 214:1 215:10,15 216:4,14 217:6,23 219:17 220:23 workmanlike (1) 13:8 workmanship (3) 14:7 115:20 155:21 works (116) 4:8,24 8:19 9:2 13:8.11 15:6 16:24 17:4,24 18:3 20:21 22:4 23:17 24:3 26:21 27:1.21 28:6.19 35:5.6 39:13 40:10 43:25 45:18 49:19 51:7 58:2 77:15.15.22.22 78:14,19,19 79:23 83:23 85:11 93:9 100:7.12.16 102:3 103:4,7 104:11 106:6,14 108:1,8,14 109:2.12.18 112:5 119:16 120:17 121:22 122:16 124:7.12.14 125:18 126:1,11,15 127:3,22 128:5 129:21 131:25 132:5,20,25 133:1.2.13.16 135:7.10 136:1.24 137:3 138:10.14 139:6 145:6 149:4 150:3 152:4,13,16,20 154:22 155:13 156:13 157:25 170:1,3,8 173:4 177:19,22 182:12 185:4 186:14 187:13,20 201:8,11 211:19.21.22 214:21 222:6 worksbuilding (1) 109:5 worried (1) 217:9 worry (1) 217:22 worst (1) 89:6 worthing (3) 5:2 7:17 11:24 wouldnt (35) 6:23 7:8 12:16 17:16 30:2.19 34:16 44:11 52:19 56:4 59:15 71:15 85:19 96:11 100:19.22 104:11 109:22 114:20 119:19 120:22 125:9 127.4 145.4 146.5 152:18 153:25 161:22 203:12 204:4 217:14,14,17 218:12 219:25 wray (2) 167:21 195:4 wright (2) 219:22 221:1 wrights (3) 219:4,5,6 write (1) 195:10 writer (1) 107:19 writing (3) 14:15,20 67:12 writings (1) 169:6 written (9) 9:25 10:5,10 22:25 67:3.21 81:5.8

wrong (12) 36:17,23,25

37:2 56:21 81:1

115:22 123:22 127:6 129:19 199:1 209:21 wrote (5) 128:20 yeah (67) 5:17 7:6 9:13.17 10:13 15:17 22:18 25:8,23,25 29:12 30:6.8 32:1

38:19 39:12 42:12 44:4,10,21 49:6 50:19 52:1.8.21 55:3.6 57:15 58:10 60:15 62:23 63:3,5,20 66:14 73:10 74:20 82:13.16 83:10 85:23 86:12 87:12 88:18 89:22 96:11 99:15 102:13 103:3 104:18 106:24 108:5 137:13 179:7 181:16,16 183:8 185:11 190:17 192:12 193:6 205:19 208:20 209:14 211:9 217:8 year (5) 92:2 140:13 216:22 218:25 220:2 years (5) 3:16 52:23 124:19 170:17 178:25 yesterday (1) 167:24 yet (5) 83:25 90:21 94.19 95.3 140.17 youd (2) 178:10 218:13 youll (1) 189:25 youre (23) 3:6 58:9 78:5 82:4 115:16 137:8 138:13 139:17 168:25 169:13 171:20 172:3.8 181:6 185:10 187:17 188:9 198:24 200:19 203:21 207:15 211:16 219:15 yourself (14) 1:14 65:22 73:12 78:24 80:13 84:14 98:6 101:22 111.8 113.11 121.14 177:8 206:1 215:13

zoom (5) 73:2 148:3 149:10 164:17 167:22 zoomed (1) 148:2

0

0 (6) 31:15,21,24 143:3.20.25 040615 (1) 60:21 **071113 (1)** 178:19 080116 (1) 169:7

1 (21) 14:13 29:1 47:7 61:24 62:5 69:2 83:18 115:9 152:24 179:20 187:17 195:3 199:20 200:14.14.18 219:14 220:17 221:2 230:2,3 10 (11) 63:13 66:7 75:25 143:16

162:25 164:1,1 181:19

169:13.20 **1000 (1)** 1:2 100mm (1) 143:18 **102 (2)** 186:3 189:10 106 (1) 172:23 107 (1) 172:12 10mm (1) 223:16 10th (1) 61:16 **11 (12)** 5:2 47:13 75:19 84:11 85:2 88:2 93:20 94:6,10 113:1 198:9 227:10 **110 (1)** 17:25 **1117 (1)** 70:20 112 (1) 135:24 113 (1) 135:24 **1135 (3)** 70:14,19,22 118 (1) 214:7 119 (1) 214:19 11storey (1) 7:17 11th (3) 83:21 88:11 198:4 12 (10) 40:8 110:3 135:6 138:11 158:24 162:12 163:17 182:14 197:16 214:22 120 (1) 190:19 1200x2400x80mm (1) 60:18 120116 (1) 166:21 **121 (1)** 215:5 1220 (1) 195:16 **1243 (1)** 179:12 **128 (1)** 17:23 12th (3) 111:24 133:12 163:10 13 (7) 47:23 88:8 93:6 98:3 103:12 105:15 135 (2) 19:12 34:4 **14 (6)** 40:9 111:22 141:21 163:7 210:4 223:12 14072017 (1) 210:9 **141 (1)** 21:24 **15 (5)** 39:10 92:1 123:12 149:8 218:7 15millimetre (1) 74:3 16 (5) 40:7,8,17 173:16 183:19 1620 (1) 166:22 17 (7) 10:20.21 93:4.5 151:4 158:9 190:11 170a (1) 19:14 **171 (1)** 210:7 18 (6) 6:8 31:6,12 33:19

144:2,5,6 152:25

100 (7) 39:14 40:15

93:16 136:18 140:1

229:7.9.12

**2 (16)** 3:14 61:12,18 126:4 139:19.25 155:17 173:11

147:13 149:9

**195 (1)** 223:13

**1998 (1)** 48:8

19th (1) 8:7

215:8

18m (2) 146:24 147:10

19 (3) 37:8 168:22.24

1st (3) 173:22 214:15

198:8,21 199:21 202:19 209:12.17 227:1.12 20 (9) 3:16 5:11 97:15 122:24 123:13 124:19 128:1 193:4 211:15 **200 (1)** 140:3 2001 (1) 3:20 2009 (1) 4:21 2012 (1) 42:1 **2013 (6)** 47:7 173:19 175:10,12,16,19 2014 (2) 141:21 190:25 **2015 (46)** 8:7 10:21 11:11 40:8,8 50:17 57:20 60:13 61:7.13 63:13 75:19 83:21 84:11.18 85:2 88:2.11 89:11 92:1 93:5.6 113:1 118:17 121:13 140:12 146:17 147:21 148:14.19 149:6.9 151:4 152:23,25 175:13 177:25 197:20 22 198:4,8,9,21 227:1.10.12 2016 (40) 3:8 57:20 110:3 111:25 116:19 117:10 128:22 133:12 135:6 138:11 148:15 160:10.17 162:12 163:10 167:22 168:24 171:18 172:19 173:11 179:10,12 182:14

213:7 2017 (15) 194:21,24 195:16,25,25 210:4 214:11,13,15 215:8 220:17 221:2,3 223:10,10 2018 (2) 2:14 3:8 2019 (1) 2:22 **2020 (2)** 1:1 229:12 21 (2) 34:24 213:4 **2122 (2)** 209:12,18 213 (1) 151:8 22 (3) 8:1 37:5 213:4 220 (1) 211:17 222 (2) 14:1 67:1 23 (4) 189:11 201:10 207:14 211:15

186:6 187:17 188:2.18

189:10,13 190:21

191:19 192:3 196:5

199:23 202:7 207:14

208:18 211:15 212:24

200.22 24 (11) 42:19 51:13 116:19 117:10 121:13 146:21 171:3 172:13 194:21 195:16 219:18 24th (3) 136:14 200:8,23 **25 (4)** 52:23 114:10 118:17 167:22

23rd (4) 112:4 129:1,2

250315 (1) 62:9 25millimetre (3) 74:4,8 76.7 26 (12) 2:14 38:3 45:12

48:20 60:13 61:13 168:24 188:18 202:7

168:10 169:10 176:20

181:18 183:4 201:21

131.3 3 6 12 22

whoever (2) 68:4

132:13,16 133:12

135:16 137:19 152:22

	1	I	1	I	I	I
212:24 213:7 214:8	<b>7 (9)</b> 149:10 155:20,21					
<b>27 (5)</b> 1:1 2:13 141:21	160:10 163:16					
179:12 208:18	175:10,12 189:10,17					
<b>27516 (1)</b> 207:17	<b>70 (4)</b> 39:5 40:15 82:15					
28 (3) 221:7,14 229:12	183:18					
<b>29 (2)</b> 10:25 221:3	<b>71 (1)</b> 185:16					
2nd (3) 197:22	<b>7113 (1)</b> 47:15					
198:16,25	<b>72 (1)</b> 158:8					
	<b>724 (1)</b> 47:23					
3	<b>74 (1)</b> 149:9					
	<b>75 (2)</b> 38:7,21					
<b>3 (12)</b> 10:24 61:1 72:21	<b>75mm (1)</b> 142:3					
116:16 124:4 142:20	7th (4) 160:17 163:20					
151:7 175:12 178:19	173:19 189:13					
183:4 198:11 223:18						
<b>30 (1)</b> 89:11	8					
<b>30th (2)</b> 197:20 214:13						
<b>3101 (1)</b> 169:2	<b>8 (2)</b> 24:11 50:17					
<b>3102 (1)</b> 169:22	<b>80 (2)</b> 38:7,21					
311 (1) 197:6	80mm (1) 62:1					
314 (1) 176:5	<b>85 (1)</b> 93:13					
<b>325 (4)</b> 196:21	<b>852 (1)</b> 115:10					
197:1,5,8	86 (1) 82:7					
<b>33 (1)</b> 33:8	861 (1) 83:19					
<b>34 (2)</b> 11:1 223:20	<b>862 (1)</b> 122:23					
<b>35 (2)</b> 62:2 79:22	863 (1) 128:3					
<b>38 (3)</b> 202:20 203:1,7 <b>3rd (3)</b> 61:15 173:23	<b>864 (3)</b> 128:1 130:25					
198:25	131:23					
190.25	<b>865 (1)</b> 131:5					
4						
	9					
<b>4 (12)</b> 4:17 69:11	. (5) 50 0 1 10 01					
118:23 153:4 155:24	9 (6) 69:3 142:21					
177:14 186:6 190:6	144:1,6 176:4 209:17					
201:10 206:24 207:17	90 (1) 40:11					
211:17	9001 (4) 80:9,14,15					
<b>403 (1)</b> 226:19	81:6					
<b>415 (3)</b> 226:8,17,21	91 (1) 213:6					
<b>419 (1)</b> 229:11	92 (2) 213:3,8					
<b>44 (1)</b> 26:17	93 (1) 213:3					
<b>49 (1)</b> 63:14	934 (1) 195:4 940 (1) 69:3					
4th (6) 112:4 129:1,2						
136:14 200:8,22	96 (1) 60:19 97 (2) 93:11 133:9					
	97 (2) 93:11 133:9 9am (1) 111:25					
5	9am (1) 111.25					
<b>5 (13)</b> 2:22 3:8,8 4:2						
93:8 130:25 138:15						
155:21,24 156:19						
157:23 169:1 182:14						
<b>50 (1)</b> 58:16						
<b>51 (2)</b> 36:12,14						
<b>52 (2)</b> 107:12 108:4						
<b>55 (2)</b> 57:17 66:6						
<b>57 (2)</b> 68:14,16						
<b>584 (1)</b> 158:23 <b>5mm (1)</b> 223:17						
Jiiiii (1) 223.17						
6						
<b>6 (6)</b> 38:4 42:20 76:4						
165:10 194:24 220:22						
<b>60 (3)</b> 39:5,14 82:15						
<b>611 (2)</b> 197:18 198:7						
<b>612 (2)</b> 88:7 198:1						
<b>614 (1)</b> 160:12						
<b>615 (2)</b> 111:20 163:7						
616 (1) 117:4						
<b>617 (1)</b> 3:7						
<b>630 (1)</b> 22:1						
<b>69 (1)</b> 173:15						
7						